

## Rethinking Rewilding

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### Abstract

The term 'rewilding' sounds as if it should have a straightforward meaning 'to make wild again'. But in truth the term has a complex history and a host of meanings have been ascribed to it. Rewilding as a specific scientific term has its beginnings as a reference to the Wildlands Project, which was founded in 1991 and aimed to create North American core wilderness areas without human activity that would be connected by corridors. Words, however, don't stand still—they change over time and take on new meanings, while sometimes simultaneously retaining the older sense. Employing Foucault's idea of historical genealogy, this article examines how the term rewilding was historically adopted and modified in ecological scientific discourse over the last two decades. This investigation probes *what* and, by extension, *when* and *where*, rewilding refers to as it has moved into various geographies across the globe. It then examines how the term has moved outside of science and been adopted by environmental activists as a plastic word. Taken as a whole, rewilding discourse seeks to erase human history and involvement with the land and flora and fauna. Such an attempted split between nature and culture may prove unproductive and even harmful. A more inclusive rewilding is a preferable strategy.

### Keywords

Environmental discourse; science communication; plastic words; historical genealogy; ecological restoration; wilderness

### 1. Introduction

In the original Latin, the prefix *re-* means 'back'. A host of English words incorporate *re-* as part of the word, but the connotations are wider than just 'back' according to the *Oxford English Dictionary (OED)*: they include a starting point returned to (as in *recede*), an action done again often to return to a prior state (as in *reform*), and a previous action undone (as in *resign*).

Ecological science has an entire subdiscipline built on a *re-* word: *ecological restoration*. Both the practice of ecological restoration and the science of restoration ecology are young endeavors: the leading journal in the field *Restoration Ecology* was only founded in 1993; the companion journal aimed at practitioners, *Ecological Restoration*, is older by 12 years, but only moved to publishing four times a year in 2000 from its earlier twice a year format. What exactly *restoration* means in the context of ecological restoration has been highly contested within scientific circles. Scientists have debated about how much restoration means returning to a previous ecosystem arrangement with historical species configurations (referred to as historical fidelity, e.g. Higgs 2003) versus returning to an ecosystem that functions in particular ways (the idea of novel ecosystems falls into this category, e.g. Hobbs et al., 2004). Most publications, however, defer to the definition written as part of an official statement by the Society for Ecological Restoration which defines ecological

restoration as ‘the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed’ (SER, 2004). Most scientists agree that they are trying to re-instate something—they just do not agree on what that something should be.

Within this unclear framework of what the word restoration really means, another re- term has entered the ecological fray: rewilding. The term sounds as if it should have a straightforward meaning ‘to make wild again’; *OED* (2014) lists the first usage of *rewild* as 1990 and defines it as ‘returning (land) to a wilder and more natural state’. But in truth the term has a complex history and a host of meanings have been ascribed to it. What does it mean to be *wilder*? Wilder than what? What does it mean to be more *natural*? I am interested in *what* and, by extension, *when* and *where* rewilding refers to as it has moved into various geographies across the globe. This article focuses on how the term rewilding was historically adopted and modified in ecological scientific discourse. After examining how the term has been adopted by scientists, I move to a discussion of how the word has been picked up by recent environmental activists.

Critical in this analysis is the idea that words don’t stand still. They change over time and take on new meanings, while sometimes simultaneously retaining the older sense. Words are ascribed meaning by different people and over time, consensus about the definition of a word can be reached, albeit often temporarily. Previous research in ecological discourse has identified a suite of normative umbrella concepts, including biodiversity, ecological services, sustainable development, ecosystem health, ecosystem management, and adaptive management, that often set the agenda for ecological research and practice (Noss, 1995; Callicott et al., 1999). These umbrella concepts fail to question how the meaning of scientific words come into being and the influence of that history on shaping practices of restoration and rewilding. Scientific language is normative, constructed, and historically situated, thereby requiring investigation for a full understanding to avoid ignorant action and intervention.

Foucault (1984) proposes that histories of ideas like rewilding should be *genealogical*. By genealogy, Foucault does not mean a quest for origins—in fact, he explicitly rejects origin-based histories—but rather understanding a given system of thought as a result of historical contingency rather than a teleological outcome (Hook, 2005). Foucault’s history relies on the telling of ‘descent’ which traces ‘the myriad events through which—thanks to which, against which—they were formed’ (Foucault, 1984, p. 81). As Hook (2005, p.7) remarks, genealogy is the ‘cultivation of skepticism towards that which is taken-for-granted, assumed to be “given”, or natural within contemporary social existence’. This belief in the non-predetermined, conflicting, and contingent is critical in analyzing how ideas like rewilding have developed. Likewise Foucault’s focus on emergence, the ways in which knowledge is constructed through power, is useful for tracing how concepts like rewilding have gained such rapid traction in modern environmentalism. This aligns well with Foucault’s insistence on genealogy as a critique of the present as much as an investigation of the past (Foucault, 1984; Crowley, 2009). A genealogical history places knowledges and discourses on plural and contradictory paths with no single source.

## 2. Shifting geographies of rewilding

To see how the term rewilding was adopted and modified in ecological scientific discourse I performed searches in Web of Science, a database of published papers commonly used by ecologists for identifying relevant literature, and Google Scholar for re-wilding and rewilding, as well as the verb form rewild. I used both variants because early on the version with a dash was used and now the version without the dash is the norm. Limiting the search to scholarly literature was intentional in order to investigate the specific uses of the term within academic publications. The search resulted in a list of 49 articles, including research articles, letters, proceedings papers, and reviews, published through 2013. I read the articles to identify how the author is employing the term rewilding and then attempted to categorize the different uses of the word.

Before beginning the analysis of the scientific uses of the word 'rewilding' it is important to acknowledge, as Foucault would argue, that the word does not come out of nothing. 'Wilderness' as a conservation target, particularly in the US, has a long history. The year 2014 marked 50 years since the passage of the US Wilderness Act, which has had a profound influence on defining what counted as nature worth saving (see the roundtable on the Wilderness Act in October 2014 issue of *Environmental History*). Wilderness under the Act passed in 1964 was defined as 'an area where the earth and its community of life are untrammelled by man', yet wilderness was also a 'resource' for human use. Scholars have fiercely debated the merits of 'wilderness' as a concept (e.g. Cronon, 1995 and responses in Callicott and Nelson, 1998 and Nelson and Callicott, 2008). As Nelson and Callicott (2008:41) argue, the concept of wilderness becomes particularly problematic when we try to operationalize it because of inherent conflicts. Rather than trace back all of the precursor ideas about wilderness and the wild—which Foucault would argue is a futile endeavor in any case—the focus of this paper is the amorphous and shifting uses of the term rewilding in practice.

### *2.1 Cores, Corridors, and Carnivores*

'Rewilding' as a specific scientific term has its beginnings as a reference to the Wildlands Project (now called Wildlands Network), which was founded in 1991 and aimed to create North American core wilderness areas without human activity that would be connected by corridors. The earliest use of the word 'rewilding' in print was in 1991 in the magazine *Wild Earth*, which was connected to the project. The project was particularly interested in creating space for large carnivores that have large home territories. These interests have been summarized as the three Cs: Cores, Corridors, and Carnivores (Soulé and Noss, 1998). The Wildlands Project vision statement published as Soulé and Noss (1998) is frequently cited in academic literature as the foundational manifesto for rewilding. Soulé and Noss (1998, p. 5) define rewilding as 'the scientific argument for restoring big wilderness based on the regulatory roles of large predators'.

Under this earliest rewilding concept, the wild is the time when large carnivores were abundant in North America. Rather than define when that was, Soulé and Noss (1998) give two examples of the destruction of the wild: the wolf extirpation from the Yellowstone National Park (the last wolf was killed in 1926) and the construction of Lago Guri in Venezuela (which was begun in 1963). Soulé and Noss (1998) also refer to the longer history of the systematic destruction of

large carnivores in the US, pointing out the continued existence of the Wildlife Services program (formerly Animal Damage Control) of the US Department of Agriculture, which was founded in 1895 to control predator and rodent pest populations. In this earliest definition, the wild is said to have existed prior to the carnivore eradication programs in the US—essentially up to the 19<sup>th</sup> century in the United States.

The original meaning of rewilding in the Wildlands Project is employed in the two earliest results in Web of Science (Foreman, 1999; Noss, 2003). This should come as no surprise since the articles were authored by two of the most involved scientists in the Wildlands Project, Dave Foreman (a deep ecologist, Earth First! Founder, and current President of the Rewilding Institute) and Reed F. Noss, both of whom are still scientific advisors to the Wildlands Network (Wildlands Network, 2009). The three C rewilding does not assume that a time prior to human settlement is the baseline, even though the exclusion of humans from the reconstituted core areas is often presumed. 'Wildness' is based on the presence of large fauna, but often this fauna has been extirpated within the last 200 years.

The meaning of rewilding as the three Cs seems never to have caught on in scientific circles. Only one investigation, which studied the affect of predators on prey evolution (Reznick et al., 2008), directly references attempts at rewilding through carnivores. Carnivores are, however, often included as a type of animal in reintroduction schemes that appear in contemporary definitions of rewilding, as is discussed below.

## *2.2 Pleistocene mega-fauna replacement*

In 2005, Donlan et al. published a controversial commentary piece in the major journal *Nature* advocating 'rewilding' of North America. Instead of the three C meaning, which is based on increasing populations of large fauna that are still extant, rewilding was defined as 'the restoration of large wild vertebrates into North America in preference to the "pests and weeds" (rats and dandelions) that will otherwise come to dominate the landscape' (Donlan et al., 2005, p. 913). The time reference for this rewilding was the end of the Pleistocene, 13,000 BP, when mega-fauna such as horses, camels, giant tortoises, and American cheetahs roamed the Great Plains. Surrogate surviving species, such as the African lion *Panthera leo* and African or Asian elephant (*Elephas maximus*, *Loxodonta Africana*), would replace the extinct Pleistocene species, an idea known as taxon replacement. The authors argued for the use of the end of the Pleistocene era for their reference point rather than the arrival of European colonizers to North America because there were more mega-fauna extinctions with the first human 'invasion' assumed to be across the Bering straight ice bridge than the second, i.e. when North America was rediscovered and colonized by Europeans arriving on boats from the sea. The reference point for 'wild' is thus before humans were even present in North America.

The reaction to the Pleistocene rewilding proposal and the team's extended paper in *The American Naturalist* (Donlan et al., 2006) was swift, as can be seen by the explosion of papers using rewilding to designate Pleistocene mega-fauna replacement in 2005. Most of the articles were direct replies to Donlan et al. Follow up scientific work (e.g. Fuhlendorf et al., 2009, Richmond et al., 2010) has tested specific hypotheses associated with the Pleistocene

rewilding proposal. At least one scientific article using rewilding to mean the return of Pleistocene megafauna to North America has appeared every year since 2005. All of these works use a reference point of the end of the Pleistocene prior to human habitation of North America.

### *2.3 Taxon replacement on islands*

Burney and Burney (2007) argued that Pleistocene rewilding, as ecological restoration based on paleoecological insights, might also be applied to island settings. A bridge between rewilding as taxon replacement anchored in the Pleistocene and rewilding as replacement of species extirpated by early modern exploration was created the next year with a paper on the seed dispersal potential of surrogate species on oceanic islands. In this article, Hansen et al. (2008) set up a distinction between rewilding and their idea of faunal replacement: 'Furthermore, in contrast to recent controversy about the use of non-indigenous extant megafauna for re-wilding projects in North America and elsewhere, we argue that Mauritius and other oceanic islands are ideal study systems in which to empirically explore the use of ecological analogue species in restoration ecology'. This article did not say that island taxon replacement should be labeled as rewilding, but scientists studying giant tortoise taxon replacements soon began directly calling it rewilding, with Hansen as an author on all the 2010 and 2011 articles identified in this category (see Fig. 1).

Under this version of rewilding, the reference time period is before human contact and settlement of the islands, which began with Portuguese sailors in the 16<sup>th</sup> century. Some species' history push the time frame forward significantly, such as the *Cylindraspis* tortoises which were still alive on several Mauritian islands until the mid-19<sup>th</sup> century (Griffiths et al., 2011). Rewilding defined as taxon replacement on islands has been extended beyond tortoises to birds in two cases, most recently to identifying potential species to serve functions of the moa on New Zealand (Wood et al., 2013). Although the period is much closer to modern times than the Pleistocene baseline, rewilding as island taxon replacement is still predicated on the lack of humans in the environment as the desired reference restoration point.

### *2.4 Landscape restoration through species reintroduction*

Taxon replacement and reintroduction to restore landscapes in a holistic fashion has also been conceptualized as rewilding in Europe and the Middle East. Stanley Price (2011) and Brown et al. (2011) wrote review papers about instituting large-scale landscape restoration through reintroducing fauna, one in the Arabian Peninsula and the other in Scotland. In this case, the faunal reintroductions are much broader than the earlier emphasis on carnivores. The two articles have radically different viewpoints about time frames in rewilding, but both are grounded in the presence of large fauna. Stanley Price (2011) believes that species that have been absent for more than one human generation will not have the public support necessary to bring them back, so for him, the wild existed in the 20<sup>th</sup> century when there were more striped hyena, Arabian oryx, and the like. In the Scottish case, *when* the wild existed is when faunal extinctions of various species happened: the most ancient of these is the elk at <4000 BP and the most recent are the sea eagle and osprey which became extinct in the 20<sup>th</sup> century in Scotland. Brown et al. (2011) lump all of the

Holocene faunal extinctions attributable to humans together and propose reintroductions and core area conservation for a number of keystone species including elk, beaver, lynx, wild boar and polecat even though these died out at different times. Most of the articles published in 2013 about rewilding use it in the sense of holistic landscape restoration based on animal reintroduction.

Unlike the Pleistocene rewilding concept, rewilding in these articles has a much less defined reference point in time. They are, however, all using rewilding to mean bringing back keystone species that have become extinct because of human pressures. These species are often herbivores, including Heck cattle and wild boar. These articles do not necessarily pick reference points before humans were in the region, but they do postulate reference points before the species under consideration were extirpated by humans.

### *2.5 Productive land abandonment*

In all of the previously discussed definitions, rewilding is in some way dealing with the reintroduction or replacement of extinct animal species. But an alternate definition of rewilding as the abandonment of agricultural land or production forest that then reverts to a non-cultivated state was in use concurrently with rewilding as a term referring to taxon replacement. Rewilding in this case is defined as 'a process in which a formerly cultivated landscape develops without human control' (Hochtl et al., 2005, p. 86) and 'passive management of ecological succession with the goal of restoring natural ecosystem processes and reducing human control of landscapes' (Navarro and Pereira, 2012, p. 904). All of the articles in this category deal with European landscapes. These articles recognize that there has been extensive environmental modification from agricultural practices and forest clearance since the Neolithic in Europe. Rewilding is thus seen as a return of land to a pre-clearance state, which could be several thousand years ago in some areas. Humans are present at the reference state, but not capable of large-scale agricultural clearance. Rather than focusing on animals, those who write about agricultural land abandonment as rewilding focus on the plant communities that will be re-created with declining agricultural production.

### *2.6 Releasing captive bred animals to the wild*

A minor use of the term rewilding to signify the return of captive-born animals into free-range settings was identified in three articles (Jamieson 2008; Ji et al., 2013; Zheng et al., 2013). In this case, the rewilding is applied to the individual animal rather than to the ecosystem as a whole. Both 2013 articles were related to animals released in Asia as part of conservation efforts. The reference point is the time at which the captive populations were created.

### *2.7 Summary of uses*

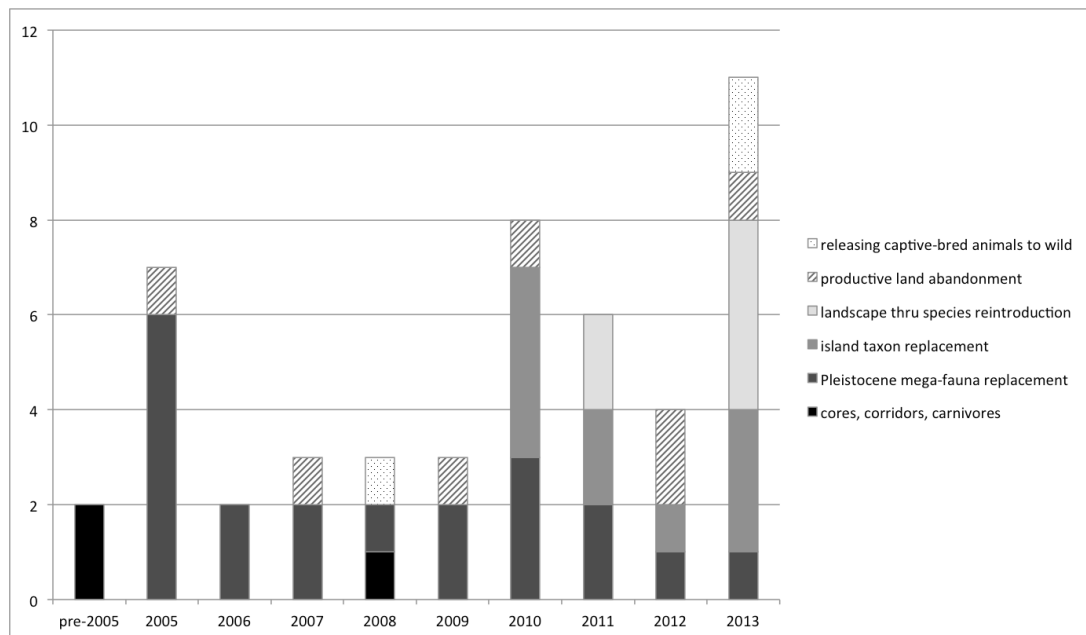
In total, I discovered that there were six uses of the concept 'rewilding': (1) cores, corridors, carnivores; (2) Pleistocene mega-fauna replacement; (3) island taxon replacement; (4) landscape through species reintroduction; (5) productive land abandonment; and (6) releasing captive-bred animals into the wild. Each of these definitions has time reference points and geographical applicability in the scientific literature (Table 1). In general, the scientific literature has confined

each definition to a set geography, whether that is North America, the Pacific islands, or Europe.

**Table 1. Summary of reference points in rewilding definitions**

| <b>Rewilding definition</b>              | <b>Reference time</b>                             | <b>Geography</b> |
|--|---|------------------|
| Cores, corridors, carnivores             | up to 4000 BP, but most are within last 200 years | North America    |
| Pleistocene mega-fauna replacement       | 13000 BP  | North America    |
| Island taxon replacement                 | 16th - 19th century, depending on specific island | Islands          |
| Landscape through species reintroduction | before species extirpation                        | Europe           |
| Productive land abandonment              | up to Neolithic (c.6000 BP)                       | Europe           |
| Releasing captive-bred animals to wild   | when captive population created                   | Any              |

These definitions have not been equally popular over time (Fig. 1). The original specific meaning of rewilding as ‘cores, corridors, and carnivores’ has been replaced with a focus on species reintroduction or taxon replacement, often of herbivores. Slightly modified definitions have come into the scientific literature as the term is deployed in a new way, such as the spate of articles referencing Pleistocene mega-fauna replacement as rewilding after the publication Donlan et al. (2005). In the genealogical sense, these shifts were in no way pre-determined or necessary outgrowths from the previous definitions; they were based on contingent events that led to an ever-increasingly complicated word.



**Figure 1. Meaning of *rewilding* in scientific journal articles, 1999-2013.**

Six different uses of the term 'rewilding' occur in scientific literature within a span of 8 years. Scientists have operationalized the concept of rewilding to meet the narrow parameters of given article's subject matter. This leads to rewilding being used in very different contexts, from translocating surrogates for extinct tortoise species to reintroducing wolves to letting hedgerows grow unmanaged. The project described by Donlan et al. (2005) is Pleistocene mega-fauna replacement, whereas that Navarro et al. (2013) are speaking of land abandonment for regrowing forest. The genealogy of rewilding shows that within academic scientific circles, the word is applied in very different geographical contexts, to different types of species, and with dissimilar reference points. To apply a single word to such a broad range of activities makes the word nearly meaningless.

### **3. Rewilding in activist discourse**

Some environmental activists have enthusiastically adopted this term which originated in the environmentalist framework of the Wildlands Project in the 1990s and, in the process, shaped rewilding into something different from the scientists' visions discussed in the previous section. The German linguist Poerksen (1995) developed the idea of 'plastic words', words developed in scientific language for discrete ideas that then move into daily use and take on different meanings according to the context. The problem Poerksen (1995: p. xviii) identifies with this move into vernacular is that 'science is totally altered in a vernacular content. It becomes contradictory, doctrinaire, and imperialistic.' When many diffuse ideas are 'squeezed into one concept and fastened onto one name', an institutionalized word impoverishes both language and our conceptual framework by replacing precise words (Poerksen, 1995, p. 6). Rewilding can be added to Poerksen's list of plastic words, which includes communication, consumption, development, modernization, progress, and sexuality, among others.

Early popular science books mirrored the scientific discourse of rewilding, primarily because many of the same authors were involved in both science and activism. Dave Foreman's *Rewilding North America* (2004) was squarely founded on the Soulé and Noss (1998) version of rewilding in which large carnivores need to be reintroduced to core and connected areas, which makes sense considering Foreman's role as one of the founders of the Wildlands Project with Soulé and his deep ecology philosophy and radical Earth First! group involvement. *Twilight of the Mammoths* (Martin 2005), which was published a year after the Wildlands Project manifesto, took the step of extending rewilding to include top predators and the extinct megaherbivores of North America. This was concurrent with Donlan et al.'s Pleistocene rewilding proposal for precisely the same thing, and Martin was one of the co-authors of that proposal (Donlan et al., 2005, 2006).

At the same time, Peter Taylor's *Beyond Conservation: A Wildland Strategy* (2005), written for a British audience, took a more habitat-centered approach to conservation, giving nature free rein rather than predetermining the desirable ecological state. He employs 'wilding' much more often in his book than 'rewilding', as he advocates habitat creation based on future-thinking rather than past state targets. In addition to deploying the ideas of cores, corridors and carnivores seen in the North American rewilding literature, Taylor finds



opportunities for ‘wilder’ land in productive land abandonment, a distinctly European rewilding approach in the scientific literature.

As the rewilding notion has moved into popular environmentalism, it has tended to conflate several of the discrete scientific uses of *rewilding* into one environmentalist program as seen in Taylor’s book. One example is the non-profit organization Rewilding Europe, which was launched in November 2010 as a renamed incarnation of the existent group Wild Europe Field Programme.<sup>1</sup> The group’s vision was defined at that time as ‘bringing back the variety of life to Europe’s abandoned lands’. The life they intended to bring back focused on large mammals and birds, including European bison, wolf, bear, lynx, ibexes, vultures, and eagles. The lands they wanted to rehabilitate were primarily former agricultural land that had since been afforested. They based their ecological vision on the work of Franz Vera, who has claimed that Europe’s ecology prior to human habitation was open woodlands rather than closed canopy because of the number of large grazing herbivores in the area (Vera 2000).<sup>2</sup> Rewilding Europe thus combines two definitions of rewilding: productive land abandonment with species reintroduction.

The association has broad appeal. In October 2013, the organization launched the European Rewilding Network to create a database and support network for ‘many rewilding initiatives supporting rewilding in Europe as a conservation tool and as something to learn from and get inspired by’ (Rewilding Europe 2013). As of January 2014, 25 projects self-identified themselves in the database as ‘rewilding’ efforts.

In their online material, Rewilding Europe makes a distinction between restoration and rewilding: ‘Rewilding is really not about going back in time. It is instead about giving more room to wild, spontaneous nature to develop, in a modern society. Going back (to when?) is not a real alternative, it is just nostalgia. Rewilding is about moving forward, but letting nature itself decide much more and man decide much less’ (Rewilding Europe 2011). Despite the claim that the organization is not operating with a baseline reference point in mind, it advocates the reintroduction of animals which have been extirpated by humans and the return of open landscape in Europe, meaning that it has an implicit baseline before human habitation.

In the spirit of moving forward to move back, some rewilding proponents want to reintroduce ‘wild’ animals created by back-breeding or genetic manipulation. The rewilding initiative for a polder north of Amsterdam called Oostvaardersplassen, which was started by Franz Vera, relies heavily on Heck cattle, which are a human creation. The breed was back-bred by Lutz and Heinz Heck in the 1920s to ‘be’ aurochs, an ancient Eurasian bovine species that became extinct in 1627. Heck cattle who ‘unsettle the modern division between the wild and domestic’ (Lorimer & Driessen, 2013) have become one of the key

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<sup>1</sup> While this early foundation and vision is not recounted in the current material available from Rewilding Europe, the organization’s earliest website from November 2010 can be viewed in part through the Internet Archive:

<https://web.archive.org/web/20101113232128/http://rewildingeurope.com/>

<sup>2</sup> Although Vera is often cited as inspiration by rewilding activists, he does not appear to have used the word ‘rewilding’ in his own writing to describe what he is advocating.

large grazers at Oostvaardersplassen where the claim is that ‘nature has gained more room’ (Staatsbosbeheer, ND). Rewilding projects may also soon include the woolly mammoth, which has been extinct for about 4,000 years and is prominent on the list of candidates for de-extinction being discussed in scientific circles (Jones, 2014; Seddon et al., 2014). Pleistocene Park is a large-scale initiative ‘to restore the mammoth steppe ecosystem’ in Arctic Russia that has already reintroduced available large undulates including European bison, musk oxen, and wapiti (Pleistocene Park, ND). With genetic manipulation underway to recreate mammoths based on DNA recovered from thawing Arctic specimens and then injected into modern elephant surrogate eggs (Nicholls, 2008), mammoths may one day roam the park. The animals chosen for rewilding initiatives reveal the permeability of the nature-culture divide even if activists do not recognize it.

The most outspoken contemporary proponent of ‘rewilding’ is George Monbiot, a journalist and activist writer who published *Feral: Searching for Enchantment on the Frontiers of Rewilding* in 2013. The reach of Monbiot’s views should not be underestimated: as of January 2014 he had over 84,000 followers on twitter (@GeorgeMonbiot), his TED talk on the subject of rewilding<sup>3</sup> has had over 369,000 views, and he has publicized *Feral* widely through a full schedule of appearances and talks. For Monbiot, rewilding is ‘resisting the urge to control nature and allowing it to find its own way’ (2013:9) but the path to this uncontrollable nature is to re-involve humans and control nature. He advocates the reintroduction of absent plants and animals and culling of invasive exotic ones in order to ‘restore to the greatest extent possible ecology’s dynamic interactions’ (2013:83). In particular, he wants to reintroduce the missing megafauna of Europe, including taxon replacements for extinct Pleistocene fauna such as modern elephants for extinct mammoths. While Monbiot writes that he does not see rewilding as ‘an attempt to restore them [natural ecosystems] to any prior state’ (2013:8), he advocates reintroducing those species that were killed off by humans rather than those that died out because of climatic shifts, indicating that he has a prior state before human habitation in mind for the wild. This rewilding with reintroduced species would take place on abandoned productive land in Monbiot’s vision.

Comparing Monbiot’s rewilding to the scientific uses shows that he has combined ideas which have been previously applied in separate geographies: land abandonment (Europe), Pleistocene mega-fauna replacement (North America), the 3 Cs (North America), and landscape management through species reintroduction (Europe). Out of these pieces, rewilding is re-tooled as a holistic vision of previously native (or surrogate) large carnivores and herbivores inhabiting formerly agrarian landscapes of Europe, specifically Great Britain where Monbiot lives.

As a plastic word, rewilding has been able to capture the public imagination. From a position of credibility and authority, rewilding may become the go-to blanket solution to environmental problems. The asocial and ahistorical plastic nature of rewilding as a concept makes it sound imperative

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<sup>3</sup> The talk can be viewed online at [http://www.ted.com/talks/george\\_monbiot\\_for\\_more\\_wonder\\_rewild\\_the\\_world.html](http://www.ted.com/talks/george_monbiot_for_more_wonder_rewild_the_world.html), accessed 10 April 2014.

and futuristic, yet it lacks specific content. Ecological conservation and restoration actions which were previously labeled with more discrete terms such as animal reintroduction, reforestation, or habitat restoration, are being subsumed under rewilding. Like Shakespeare's Macbeth laments about life, rewilding becomes a word 'full of sound and fury, signifying nothing'—or perhaps, signifying everything.

#### **4. Return of the wild**

Reading the word 'rewilding' in a genealogical way teaches us three things about the power of what appears to be a simple word. First, it provides us with an example of how a scientific term can very rapidly enter into scientific and activist discourse, transforming and altering previous ideas, seemingly giving them new power, and becoming the focal point of large and complex debates, some of which were not connected before. Within 10 years, a term which was extremely rare has become an environmentalist mantra leading environmentalists to think large in temporal and spatial scale. Second, it shows us the ability of particular words to capture the public imagination, as indicated by a large number of popular articles and presentations, including visceral public responses to the Pleistocene rewilding proposal (Donlan and Greene, 2010) and Monbiot's TED talk. Rewilding has popular appeal because it aims to have a tangible positive effect on a future world, the environment in which people live or work or recreate. Third, it shows that despite of—or perhaps because of—its impreciseness, a word like rewilding can also cross the scientific discursive boundary into the political. Similar to other plastic words like 'sustainable development', its very vagueness and fuzziness lets people appropriate it and use it to discuss across boundaries, yet the breadth of a plastic word like rewilding causes it to lose 'any potential for precision, concreteness, or exactitude' (Poerksen, 1995, p.8). Rewilding has shades of meaning that change the type of intervention, from simply abandoning agricultural fields to releasing surrogate lions in North America to take the place of extinct ones.

What do all of these different definitions of rewilding tell us about ideas of the 'wild' and what it means to bring it back? In the scientific literature, there is a wide span of points in time that are considered the reference condition for rewilding (Table 1). Depending on the goal of the restoration activity, the time of reference varies, though they all look back to a time before something specific was 'lost'. Most of the definitions are focused on the return of extinct or near-extinct species—only the productive land abandonment definition is not species-centric. While ecosystem restoration as a whole may be an aim, the means to the end is through restoration of particular large species. Because humans were the agents of the loss of these species, the species should be returned to the place and often at the same time, humans should be excluded or minimize their presence. Rewilding as a concept in many contexts not only makes a case for restoring to a prior state before human habitation, but directly places responsibility for extinction and also for reintroduction on people, as exemplified in Monbiot's distinction between those animals killed by humans and those that died out from climatic shifts. However, if we are to take the argument of the Anthropocene as a geologic period of time in which humans affect all aspects of life on earth seriously, this might be a distinction that is difficult to make.

Rewilding definitions indicate that the 'wild' exists for advocates at a time when there are more animals and less people (or at least, much less intrusive people). Such a definition of wild has been seriously criticized by environmental historians like William Cronon (1995) who argued that making wilderness out to be equivalent to a nature profoundly apart from humans is fundamentally flawed. Cronon does not argue that setting aside nature reserves is inappropriate, but he points out that if 'wilderness leaves no place for human beings...it can offer no solution to the environmental and other problems which confront us'. This is because we should never imagine 'that we can flee into a mythical wilderness to escape history and the obligation to take responsibility for our own actions that history inescapably entails' (Cronon, 1995, p. 90). The idea of the wild without people leads us to undervalue the wild where people in fact are—the sparrow in the urban garden or the butterfly in the agricultural field. These too have the potential to be 'wild', both out of direct human control and ecologically productive as eloquently expressed by Marris (2011). Although this criticism of the 'wild' as a place without people was made before rewilding was coined as a term and there was an explosion of literature debating the definition of 'wilderness' in humanities circles after Cronon's piece (e.g. Callicott and Nelson, 1998; Nelson and Callicott, 2008), rewilders apparently have failed to take notice. They still want to re-create a wild without people and are oblivious to the problematic nature of the wilderness construct. Rewilding as activist practice attempts to erase human history and involvement with the land and flora and fauna, yet nature and culture cannot be easily separated into distinct units. Rewilding as currently practiced disavows human history and finds value only in historical ecologies prior to human habitation. The rewilding concept has been deployed in a myriad of ways to exclude humans in time and space from nature.

While the impulse to swing radically toward an exclusionary approach to nature might seem justified in an age where humans affect all things, a more concrete, specific and future-embracing rewilding would be to look for places and spaces in which humans and nonhumans can co-exist. Fundamentally, the term rewilding implies that things are not wild now but they were at some point in the past, which obscures the reality that wild comes in all shapes and forms around us at this moment. The temporary exhibition 'Rewilding Vancouver. Remember. Reconnect. Rewild' at the Museum of Vancouver in 2014 might provide a template for modified thinking (<http://www.museumofvancouver.ca/exhibitions/exhibit/rewilding-vancouver>). In this exhibit's latest genealogical development of rewilding, taxidermy specimens, models, and audio and videoscapes come together in a display that asks visitors to re-envision the urban space as a melting pot of life. The exhibit's motto echoes J.B. MacKinnon's call that we should restore based on the potential of the future rather than a replica of the past, 'We need only to remember, reconnect, and rewild: to remember what nature can be; reconnect to it as something meaningful in our lives; and start to remake a wilder world' (2013: 146). Rewilding in 'Rewilding Vancouver' is about inclusion rather than exclusion—both humans and nonhumans co-exist and co-inhabit the same space. This development might signal just another discourse that the vague word 'rewilding' has invaded, only adding one more complication to the genealogical picture. More positively, perhaps an inclusive rewilding could become the

foundation of a truly rewilded world.

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### **References**

- Brown, C., McMorran, R., Price, M.F., 2011. Rewilding - A New Paradigm for Nature Conservation in Scotland? *Scottish Geographical Journal* 127, 288-314.
- Burney, D.A., Burney, L.P., 2007. Paleoecology and "inter-situ" restoration on Kaua'i, Hawai'i. *Front. Ecol. Environ.* 5, 483-490.
- Callicott, J.B., Crowder, L.B., Mumford, K. 1999. Current normative concepts in conservation. *Conservation Biology* 13 (1), 22-35.
- Callicott, J.B., Nelson M.P. (eds.), 1998. *The Great New Wilderness Debate*. University of Georgia Press, Athens, Georgia.
- Cronon, W. 1995. The Trouble with Wilderness; or, Getting Back to the Wrong Nature. In William Cronon, ed., *Uncommon Ground: Rethinking the Human Place in Nature*, New York: W. W. Norton, 69-90.
- Crowley, U.Ú., 2009. Genealogy method. In Kitchin, R., Thrift, N. (Eds.), *International Encyclopedia of Human Geography*. Elsevier, Oxford, pp. 341-344.
- Donlan, C.J., Green, H.W., 2010. NLIMBY: no lions in my backyard. In Hall, M. (Ed.) *Restoration and History: The Search for a Usable Environmental Past*. Routledge, New York, pp. 293-305.
- Donlan, J., Greene, H.W., Berger, J., Bock, C.E., Bock, J.H., Burney, D.A., Estes J.A., Foreman, D., Martin, P.S., Roemer, G.W., Smith, F.A., Soulé, M.E., 2005. Rewilding North America. *Nature* 436, 913-914.
- Donlan, C.J., Berger, J., Bock, C.E., Bock, J.H., Burney, D.A., Estes J.A., Foreman, D., Martin, P.S., Roemer, G.W., Smith, F.A., Soulé, M.E., Greene, H.W. 2006. Pleistocene Rewilding: An Optimistic Agenda for Twenty-first Century Conservation. *The American Naturalist* 168 (5), 660-681
- Foreman, D., 1999. The wildlands project and the rewilding of North America . *Denver University Law Review* 76, 535-553.
- Foreman, D., 2004. *Rewilding North America: A Vision for Conservation in the 21<sup>st</sup> Century*. Island Press, Washington D.C.
- Foucault, M. 1984 [1971]. Nietzsche, genealogy, history. In Rabinow, P. (Ed) *The Foucault Reader*. Penguin, London.
- Fuhlendorf, S. D., Engle, D. M., Kerby, J. And Hamilton, R., 2009. Pyric Herbivory: Rewilding Landscapes through the Recoupling of Fire and Grazing. *Conservation Biology* 23, 588-598.
- Griffiths C.J., Hansen D.M., Jones C.G., Zuel N., Harris S., 2011. Resurrecting Extinct Interactions with Extant Substitutes. *Current Biology* 21, 762-765.
- Hansen D.M., Kaiser C.N., Muller C.B., 2008. Seed Dispersal and Establishment of Endangered Plants on Oceanic Islands: The JanzenConnell Model, and the Use of Ecological Analogues. *PLoS ONE* 3 (5), e2111.

- Higgs, E., 2003. Nature by design: People, natural processes, and ecological restoration. MIT Press, Cambridge, Mass.
- Hobbs, R.J., Davis, M.A., Slobodkin, L.B., Lackey, R.T., Halvorson, W. and Throop, W., 2004. Restoration ecology: the challenge of social values and expectations. *Frontiers in Ecology and the Environment* 1, 43–48.
- Hochtl, F., Lehringer, S., Konold, W., 2005. "Wilderness": what it means when it becomes a reality - a case study from the southwestern Alps. *Landscape and Urban Planning* 70, 85-95.
- Hook, D., 2005. Genealogy, discourse, 'effective history': Foucault and the work of critique. *Qualitative Research in Psychology* 2(1), 3-31
- Jamieson, D., 2008. The rights of animals and the demands of nature. *Environmental Values* 17, 181-199.
- Ji, S. N., Yang, L.L., Ge X.F., Wang B.J. Cao, J., Hu, D.F. 2013. Behavioural and physiological stress responses to transportation in a group of Przewalski's horses (*Equus ferus przewalskii*). *Journal of Animal and Plant Sciences* 23, 1077–1084.
- Jones, K.E. 2014. From dinosaurs to dodos: who could and should we de-extinct. *Frontiers of Biogeography* 6, 20-24.
- Lorimer, J., Driessen, C., 2013. Bovine biopolitics and the promise of monsters in the rewilding of Heck cattle. *Geoforum* 48, 249-259.
- MacKinnon, J. B. 2013. *The Once and Future World: Nature As It Was, As It Is, As It Could Be*. Houghton Mifflin Harcourt, Boston.
- Marris, E. 2011. *Rambunctious Garden: Saving Nature in a Post-Wild World*. Bloomsbury, New York.
- Martin, P. 2005. *Twilight of the Mammoths: Ice Age Extinction and the Rewilding of America*. University of California Press, Berkeley.
- Navarro, L.M., Pereira, H.M., 2012. Rewilding Abandoned Landscapes in Europe. *Ecosystems* 15, 900-912.
- Nelson, M.P., Callicott J.B. (Eds.), 2008. *The Wilderness Debate Rages On*. University of Georgia Press, Athens.
- Nicolls, H. 2008. Let's make a mammoth. *Nature* 456, 310-314.
- Noss, R.F., 1995. Ecological integrity and sustainability: buzzwords in conflict? In: Westra, L., Lemons, J. (Eds.) *Perspectives on Ecological Integrity*. Kluwer Academic, Dordrecht, pp. 60-76.
- Noss, R.F., 2003. A Checklist for Wildlands Network Designs. *Conservation Biology* 17, 1270-1275.
- Pleistocene Park, ND. Pleistocene Park and the North-East Scientific Station. <http://www.pleistocenepark.ru/en/>, accessed 11 April 2014.
- Poerksen, U. 1995. *Plastic Words: The Tyranny of a Modular Language*. Trans. J. Mason and D. Cayley. Pennsylvania State University Press, University Park.
- Rewilding Europe, 2011. Frequently asked questions. <http://www.rewildingeurope.com/faq/>, accessed 10 April 2014.
- Rewilding Europe, 2013. European Rewilding Network launched at WILD10. <http://www.rewildingeurope.com/news/articles/european-rewilding-network-launched-at-wild10/>, accessed 10 April 2014.
- Reznick, D.N., Ghalambor, C.K., Crooks, K., 2008. Experimental studies of evolution in guppies: a model for understanding the evolutionary

- consequences of predator removal in natural communities. *Molecular Ecology* 17, 97-107.
- Richmond, O.M.W., McEntee, J.P., Hijman, R.J., Brashares, J.S., 2010. Is the Climate Right for Pleistocene Rewilding? Using Species Distribution Models to Extrapolate Climatic Suitability for Mammals across Continents. *PLoS ONE* 5(9), e12899.
- Seddon, P.J., Moehrensclager, A., Ewen, J., 2014. Reintroducing resurrected species: selecting DeExtinction candidates. *Trends in Ecology & Evolution* 29, 140-147.
- SER [Society for Ecological Restoration] International Science & Policy Working Group, 2004. *The SER International Primer on Ecological Restoration*. Society for Ecological Restoration International, Tucson.
- Soulé M and Noss R. 1998. Rewilding and biodiversity: complementary goals for continental conservation. *Wild Earth* (Fall): 1-11.
- Staatsbosbeheer, ND. Oostvaardersplassen.  
<https://www.staatsbosbeheer.nl/English/Oostvaardersplassen.aspx>,  
 accessed 11 April 2014.
- Stanley Price, M.R., 2011. Reintroductions in today's Arabian Peninsula: The first steps for a grander vision? *Zoology in the Middle East* (Supplement 3), 159-167.
- Taylor, P. 2005. *Beyond Conservation: A Wildland Strategy*. Earthscan, London.
- Vera, F., 2000. *Grazing Ecology and Forest History*. CABI, Wallingford.
- Wildlands Network, 2009. Scientific Advisors. <http://www.twp.org/about-us/scientific-advisors>, accessed 10 April 2014.
- Wood, J.R., Wilmshurst, J.M., Richardson, S.J., Rawlence, N.J., Wagstaff, S.J., Worthy, T.H., Cooper, A., 2013. Resolving lost herbivore community structure using coprolites of four sympatric moa species (Aves: Dinornithiformes). *PNAS* 110, 16910–16915.
- Zheng, W., Beauchamp, G., Jiang, X., Li, Z., Yang, Q. 2013. Determinants of vigilance in a reintroduced population of Père David's deer. *Current Zoology* 59, 265–270.