The Call of the Wild
Perceptions, history, people and ecology in the emerging paradigms of wilding

This article discusses some key issues of nature conservation and future landscapes in the context of achieving a more wild state of nature. The lessons are drawn from a programme of Sheffield-based research, seminars, conferences and debates extending over 20 years in Britain and linking to events across Europe. In terms of British and European ecology and biodiversity these are some of the most resonant contemporary debates.

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A figure in the landscape

Human relations with nature are long-term and long-lived, extending back through our evolutionary tree.[1] Whilst much of modern humanity's interaction with the natural world has been highly destructive, many 'landscapes' throughout the world have been the result of centuries or millennia of people's cultural utilisation and associated impacts. The consequent ecology is significantly eco-cultural rather than some mystical 'natural' system merely disrupted by humanity with its potential salvation dependent on us 'letting go'. Indeed, the human footprint is indelibly etched on the landscape to such a degree, that it is sometimes unseen. When Europeans arrived around the mouth of the Amazon in the sixteenth century, they found a 'wild' and 'natural' apparently primary forest clothing the region. However, visitors only a century before had described the region as teeming with people, settlements and farming. European diseases wiped out the indigenous people, and those who followed mistook the secondary re-grown forest for primary vegetation. They never saw the figure in the landscape. This is a story repeated around the world from Yellowstone National Park and California, to New Zealand and the Australian Outback. Europeans, as they colonised and subdued, regarded both indigenous peoples and carnivores as unnecessary and damaging to these lands, which they considered 'wild' nature. The resulting cultural severance still causes massive disruption to ecological processes and catastrophic wildfires are rife. Closer to home, the Highland clearances removed the native peoples from the landscape of Scotland as did the potato famine in Ireland. The parliamentary enclosures did a similar job across much of England, though over a longer time-span.

Staying in Britain, we now struggle to manage and conserve a diminishing ecological resource; of this, many of us agree.[2] However, what we should do to support a

more viable, robust, and sustainable nature, is a subject worthy of considerable debate.[3, 4] Human dominance over nature has become so complete that we have altered almost everything, which we inherit today. Should we decide merely to 'let go' and allow nature to take its chance, then the resulting successional changes will be radically different from anything which has gone before. In a radically disturbed and eutrophic world, globalised and increasingly populated by species exotic to a particular locale, we should not expect some utopian and golden age of ecology to ensue. People in control have shifted environmental basic parameters to such a degree that whether we choose to intervene or not, the outcomes are culturally determined. Even to not intervene is a positive intervention; both people and nature trapped within our humanity, and like it or not, that itself is a part of nature. The question therefore is concerned with the type of our human interventions in nature and the responses to the changes that follow. History and science can inform us of the likely trajectories for nature.

Landscape wild and cultural

This article and the research from which it stems were inspired by the writings of three people in particular, and all have contributed to the ongoing discussions and publications. These three are Frans Vera, Oliver Rackham, and George Peterken.[5,6,7,8,9] Many others have been involved with perhaps over a hundred leading scholars and practitioners taking part in the related cross-disciplinary events. The outputs address issues of fundamental importance to visions of our future landscapes and their associated ecologies, and the core issues include the eco-cultural nature of landscapes, the roles of grazing herbivores (both domestic and wild) in driving landscape ecology, and the impacts of 'cultural severance' through abandonment or displacement of traditional and customary land-use practices across Europe. These are discussed in more detail in the publications cited in the literature.[10,11, 12, 13, 14, 15, 16, 17, 18] The main mantra of these debates has been 'the need to consider the past, in order to understand the present, and to thus, better inform our visions of future landscapes and tomorrow's ecologies'. Since much nature conservation is clearly failing, and I would argue that nature conservation as a movement has hit what long-distance runners describe as 'the wall', there a need for a wide church of radical thinking. However, unfashionable though it may be, future visions of long-term landscape management should be informed by sound ecological science, clear understanding of the lessons of history, and a realistic framework of socio-economic drivers.

In the last decade, there has been a renewed interest in addressing ecological issues and conservation problems through radical new approaches. Many of these ideas followed the seminal text by Adams[19] on *Future Nature: a vision for conservation*, and were brought together in volumes such as Peter Taylor's *Beyond Conservation*[20], and in subsequent articles in *ECOS* (e.g. Cairns[21]; Taylor[22]; Wynne-Jones[23]). Topics presented and discussed include ideas of 'wilding', 're-wilding', 'conservation grazing', reintroduction of larger carnivores, and more. Many of the ideas and arguments were addressed in the special issue of *ECOS* in 2006, which brought together the thoughts of key writers such as Mark Fisher[24]; Peter Cairns[25]; Peter Taylor[26]; Andrew May, John Hall & Jules Pretty[27]; Michael Jeeves[3]; Mathew Oates[28]

and others. The debate has developed across Europe and in North America too (see for example, Hall (ed.) *Greening History: The Presence of the Past in Environmental Restoration*[29]). The latter even included ideas such as the reintroduction to the North American prairie of Africa analogues of the large mammals present before the prehistoric extinction of the New world mega-fauna. Much of this debate is driven by an increased recognition of the dire state of nature and the failure, despite the rhetoric and some headline successes, to change significantly for the better humanity's interaction with ecology. Indeed, with the recent austerity measures the situation has markedly worsened in the last few years (e.g. Townsend[30]; Wain[31]; Somper[2]). It is against this backdrop that a more innovative and experimental conservation has emerged, and this is good. However, nature conservation still suffers, as it often has, from a collective myopia in terms of recognition of or by other interested disciplines. A result is that much of the creative discussion ignores or misunderstands history, archaeology, and even some basic ecological science. The ideas may be challenging, exciting even, but often the science is weak. It is not always clear whether we look back in anger to a golden past or forwards to some unknown 'futurescape'. In this context, I find the arguments of Frans Vera[9] and Oliver Rackham[7] especially useful and informative. Then the challenge is to join the Vera vision of a primeval Europe, modified by considered opinion from others such as Peterken[5, 6] and Rackham[7], to the forward-looking ideas of Taylor[20] and Adams[19] or Hall.[29]

Free and feral?

Many of us desire and advocate a 'wilder' landscape and a freer nature, but it is clear too, that a schism has opened between those who seek to allow a so-called feral nature to run 'free' and those wishing to intervene in various ways including more natural processes such as with large herbivores. Many of the issues were discussed in the 2006 special issue of *ECOS* that was dedicated to this theme, with Oates[28], Taylor[26], and Jeeves[s3] in particular, for example, all raising matters pertinent to this discussion. Jonty Denton[4] wrote an especially significant article in *British Wildlife*, again continuing a long-running debate on the pages of that particular publication, and examining the success or otherwise of a number of heathland conservation grazing projects.

The balance between domesticated and wild or feral herbivores is another issue for fierce discussion, as too is the removal of such animals from the landscape. Releasing ecological successions in already highly modified ecosystems, by the cessation of grazing and the displacement of local farmers seems to find favour in some quarters. However, ecological science and history suggest the consequences of severance of human management may not be quite what the advocates envisage. Abandoned ecologies are often dominated by bracken and species-poor birch, rather than the more interesting and exciting woodlands which are generally described. Additionally, enclosure of domestic cattle, even if rare breeds, on relatively small sites is not freeing up nature and is potentially disastrous; little different from basic, agricultural over-grazing. Perhaps we need to define 'wild' before we can 're-wild'. Mark Fisher[24] provide a useful overview of many issues and approaches in terms of a wilder nature and the Wildland Network, but there is a problem in

regarding woodland as somehow 'natural' and other communities as not. This is particularly so if we see the species-rich elements of heaths, commons, bogs, fens, and unimproved grasslands as cultural landscape elements derived from a genuinely 'more natural' and ancient ecology. Wilding must recognise and conserve these ecological hotspots for biodiverse ecology if it is to deliver genuinely rich and sustainable 'futurescapes'. Moreover, of course, releasing ecological succession is one thing, but planting trees (as done by many projects, and which is not necessarily a bad thing) is certainly intervention and not a wild process.

The roles of people in landscapes are varied and complex; and the removal of these impacts does not produce something necessarily 'more natural'. Ancient landscapes had indigenous peoples who affected vegetation directly and through their domestic animals and their impacts on wild faunas. From North America to Europe, and from Australia to Africa, the landscapes are eco-cultural and the human footprint is deeply ingrained. Simply trying to manage lands in the absence of people, and in some scenarios argued for, without large, grazing herbivores, may produce some ecologically distinctive and interesting sites. Nevertheless, whilst having a degree of 'wildness' these are not 'natural', 'wild', or 'wilderness'; perhaps in George Monbiot's sense, they are 'feral' (see Ayres[32] for an introduction to this).

However, affected by air pollution and eutrophication, and derived from centuries or millennia of human–nature interactions, these are still eco-cultural landscapes. In most cases, lacking keystone species like beaver or large carnivores, successional changes will be dynamic and exciting, but not 'natural' in any historical sense. We begin to see some of the remarkable potentials for a freeing up of nature in projects such as Oostvaardersplassen in the Netherlands and say, Knepp Castle estate in southern England. However, these are not 'natural' systems, but a new form of human, culturally determined landscape, and as such part of a toolkit of possibilities. Just like Ennerdale in Cumbria, these two landmark projects are in fact very carefully designed, implemented, and monitored. It is the potential and possibilities of these futurescapes, which is the real excitement but set in the context of ecological history.

Whether to abandon sites to feral nature or to intervene with planned release of large herbivores or the fencing out of wild (feral) herbivores such as the Highland red deer, to allow trees the freedom to regenerate, are all human determined interventions. Simon Ayres[32a] welcomes the idea that 'When you let go of control of the land and let nature run its course it is unpredictable, often with surprising and positive outcomes.' This is fine in principle, but what happens if you get a bracken stand, which will dominate the landscape for decades if not for centuries? Furthermore, do you intervene to control feral red deer numbers or let nature take its course with animal starvation and impacts on local woods and tree regeneration? How do you respond if the last vestiges of rich biodiversity and conservation priority species are lost? If we decide to intervene, then who does it, why do they do it, what do they do, where do they do it, and when do they do it? In addition, who decides and who pays? Will land managers, conservationists, and even the public, accept exotic plants such as rhododendron, sycamore, larch, spruce,

Japanese knotweed, Himalayan balsam and giant hogweed spreading feral across the landscape. Free feral nature is composed significantly of these species with others such as mink, rabbit, grey squirrel, Canada goose, ruddy duck, ring-necked parakeet, signal crayfish, and various deer making up a heady ecological mix. We are already witnessing a recombinant ecology through ecological fusion processes, but many are reluctant to accept this, even when much of it may be inevitable. Who says that a released, feral ecology will not be dominated by these species along with invasive natives like birch and bracken?

Nature – wild or wilded?

The core of this paper is a response to a recent issue of *ECOS*, in which Mark Fisher[32b] wrote an extended article on 'Wild nature reclaiming man-made landscapes' which was in part a review of my recent edited book, *Trees, Forested Landscapes and Grazing Animals: A European Perspective on Woodlands and Grazed Treescapes*.[16] Mark's passionate insights are a welcome breath of fresh air in long-running scientific debates. However, there are issues in some recent discussions on wilder landscapes and wilding, such as a recent seminar in Sheffield on this theme (How can we manage a site's landscape, ecological and human history and safeguard our archaeological and natural heritage?[33]), when opinion and ideas become mixed and mistaken for fact, history and scientific evidence. There is room for all of these but it is important to recognise where the boundaries lie.

One significant error in Mark's otherwise interesting and challenging review article, is the assertion of an 'absence of robust evidence in the book (and elsewhere)', which cannot 'be replaced by inference alone'. As evidenced by the references at the end of this article, the arguments have been developed with the insight of 20 years or more of fieldwork across Britain and Europe, and multi-disciplinary contributions from leading researchers, academics and practitioners at major conferences over the same period. This is not a matter of inference but interpretation of robust evidence and in some cases, particularly detailed, site-based studies. Furthermore, the emerging arguments and evidence, now influencing policies of the EU Council of Minsters[34] UNESCO and FAO, are to be debated at major international conferences (e.g. 1st European Conference for the Implementation of the UNESCO-SCBD Joint Programme on Biological and Cultural Diversity, Linking Biological and Cultural Diversity in Europe, 8-11 April 2014, Florence, Italy). The Sheffield conference series is part of this on-going dialogue, open to all to attend and take part. A key paradigm is how to fit ideas of wilding into both a sensible science-based view of ecological processes, and into a historically valid time-line. From both perspectives 're-wilding' as a term is problematic as most of these landscapes have not been 'wild' for hundreds, and in many cases, thousands of years. It ignores the roles of, for example, indigenous peoples and of cultural influences.

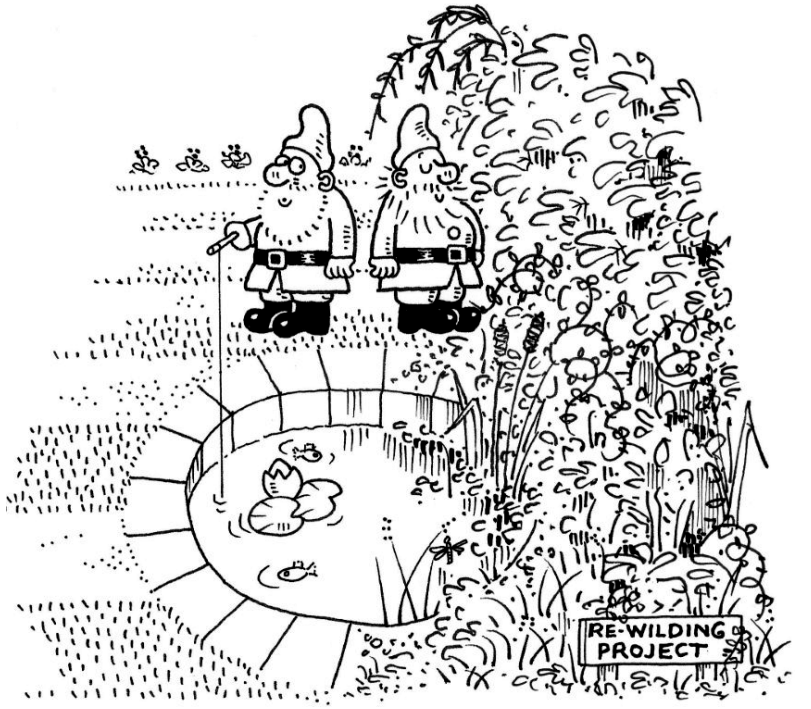
Fisher's article also slightly muddles the concept of 'Shadow Woods' or 'Ghost Woods'[18] when he suggest these are "islands of ancient, worked woodland discovered in the English Midlands". In some cases, the shadows are indeed the lost remnants of enclosed, named, medieval woods, but in many examples across a wide area of Great Britain, these are 'lost' wood pastures, (treed landscapes rather

than 'woods') which were mostly never enclosed under the Act of Commons. They therefore represent tantalizing glimpses, albeit much altered, of the pre-enclosure landscape. Indeed, it is these fragments, which resonate with many moors, heaths, commons, bogs and fens, and share a common origin with ancient woodlands.

One of my grumbles with some re-wilding arguments is the flights of fancy and romanticised ideas of 'free nature' in the absence of basic understanding of ecological successional processes and landscape changes in highly modified eutrophic environments of the twenty-first century. The work of Philip Grime and colleagues[35] tells us clearly how these ecologies will change. This does not mean they are somehow bad, but we need to view them with open eyes. What we get in terms of landscape and ecological outputs is determined by nature and human interactions; even the decision not to manage a site is a positive management decision. Long-lived dense stands of bracken and heathlands blanketed by species-poor birch growth are options and may be acceptable. However, the implications for biodiversity and the risks of wildfires are predictable and involve loss of many species valued highly by conservationists. Freeing up nature is also problematic when it involves most highly successful, invasive, exotic species, and often it seems that we only want 'free' nature if it is 'good' nature. (See for example Rotherham & Lambert[36]). Areas in England such as the Peak District and the Lake District certainly have a feeling of the 'wild' about them, but they are certainly not 'wilderness' and furthermore, they have not been so for thousands of years.

Setting the scene for catastrophe

Across the globe and particularly in countries like Great Britain, the last 50 years or so have seen long-term, irretrievable and often catastrophic losses in species richness, generally now described and packaged as 'biodiversity'. Well-documented causes of these changes clearly relate to industrialisation, urbanisation, globalisation and a headlong rush into an 'Anthropocene' era. The underlying drivers of these trends are socio-economic and political. Human-enhanced climate change is also viewed as a key factor in the widespread ecological deterioration, whatever proportion it accounts for standing alongside other climate fluctuations. In addressing the minutia of ecological change, it is easy to lose sight of the bigger pictures of human history and human ecologies. Indeed, it is often as if people and nature are somehow separate and independent, and if only we can remove people from the landscape, ecology will undoubtedly thrive. Yet, this is a mistaken belief. From the Amazonian rainforests, to the Australian outback, people have depended upon and have influenced nature over countless millennia. Across Europe and North America for example, our landscapes and their ecologies are not 'natural' but are 'eco-cultural' and the distinct habitats and wildlife, which we value today, have emerged from long-established interactions between people, nature and the environment. Abandonment of these ecosystems now will lead to inevitable and predictable, successional changes determined by macro-disturbances, massive eutrophication, and an absence of traditional, locally based utilisation. The results will be simplification, catastrophic species losses, the generation of different landscape quality and the loss of traditionally recognised aesthetics, damaged local and regional economies, and impoverished ecosystem services. Above all,



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abandonment will not lead to some sort of reversion to a mythical, former, pristine condition of pure 'nature', but to a plethora of degraded, species-poor, secondary successional endpoints.

Nature and the eco-cultural landscape

In Europe, we are now able to construct a convincing time-line to show how the most diverse, species-rich, and in conservation terms, valuable, sites and habitats have descended from the ancient ecologies of a primeval landscape. Now highly changed but retaining species and ecological diversity of interactions and functions, grasslands, heaths, bogs, fens, woods and forests, were adopted, utilised, and modified by early peoples. In an age before petro-chemically subsidised agri-industry and forestry, landscapes and ecologies were altered but biomass and nutrient cycles were mostly kept in balance. Once industrialisation took hold with the rise of capitalism, and especially with the importation of energy and chemical nutrients into ecosystems, the pace of change and the irreversible dysfunction of 'cultural severance' kicked in. However, it should not be thought this suggests early human cultures and subsistence economies were environmentally benign or inherently good for people, they were not. Indeed, the reason for technological advancements being welcomed was that they potentially removed ever-present threats of famine, and freed people from endless physical labour. Yet there are ecological consequences of these slowly evolved relationships, which we do well to consider; and there are important lessons to heed. [1, 15]

Cultural severance: the ending of traditional & customary practice

This 'cultural severance' [12, 13], is best considered as the end of traditional, local, and often subsistence management and the results are predictable, long-term ecological successions with associated increases in available nutrients and biomass, and rapid declines in biodiversity. The details of the processes are discussed elsewhere (see the literature in the references). However, there are some broad 'truths' about the current trends in landscape ecology. The species we are gaining are largely catholic, competitive, ubiquitous ones, which are rapidly acquiring global distributions. Those, which we are losing, are stress tolerators and stress tolerant ruderals. We are also seeing simplification of ecosystems and the loss too of species and forms of species associated with long-term utilisation by people.

Therefore, in Europe for instance, we have lost most of our coppice woods and associated with that, the demise of associated ground flora, of birds like nightingales, and of woodland butterflies. Ancient wood pastures are abandoned so we lose 1,000-year-old oaks with their unique saproxylic insects, lichens, fungi and more. Heathlands and grasslands such as meadows and pastures, are essentially eco-cultural, and severed from people and tradition, become rank, eutrophic communities of little ecological interest aside from catholic, competitive, opportunists. All these ideas are widely known, and predicted in the work of Philip Grime[35] looking at plant strategies, and by specialists like Nigel Webb[37, 38] considering European heathlands. As these areas are abandoned, the landscapes become contested spaces and local, traditional peoples are squeezed out by capital-intensive land-uses, by absentee landowners, and by leisure or recreation. Whilst some traditional management has transformed ecologies, local economic dependence fosters sustainable uses. This is unless other factors tip the balance, in which case ecosystem degradation and frequently human catastrophe often follow. Incomers may bring fresh ideas and fresh funds for environmental management and innovation, but across Europe, traditional landscapes often morph into either abandonment or into leisurely landscapes detached from most ecosystem functions. With a few exceptions such as the work of the National Trust in Britain, little of the leisure and tourism economic activity feeds back into land management or conservation. Following abandonment, with biomass increase and eutrophication, and especially with intensive recreational use or urbanisation, many areas become vulnerable to rampant wildfires. From California, to Australia, from Greece, Spain, and Italy to France, and from the Dorset heaths to the Peak District moors, such fires are a direct result of cultural severance and abandonment, and are entirely predictable. Traditional peoples often used regular fires to manage their landscapes, to re-cycle and release precious nutrients, and to provide essential grazing at the right time of year. When European imperialists populated the planet, they generally viewed native, indigenous peoples as ignorant, primitive, and a 'bad thing'. In particular, from South African Fynbos to New Zealand, North America, and Australia, they suppressed the local fire management of the landscape.[36] Today's catastrophic wildfires are direct consequences and descendants of past cultural severance.

Turning my environmental historian's gaze to Britain, we have the case of the English Lake district, which the journalist George Monbiot[39] recently described as an ecological desert (caused by over-grazing by herbivores particularly sheep). George Monbiot (pers. comm.[33]), even suggested that the parts of the Peak District, which I walk every

week, are virtually devoid of wildlife and he would see more bird species in his back garden. This is a strange view of the world, which does not accord with the reality of place unless his garden hosts skylarks, meadow pipits, stonechats, wheatears, red grouse, curlews, lapwing, snipe, short-eared owls, kestrels, peregrine, merlins, ravens, snow buntings, cuckoos, whinchats and more; one hell of a garden. I find this view of the world troubling since the southern Lakes are beautiful and ecologically rich almost beyond description. The ancient coppice woods, the meres and mosses, the limestone pavements of Gaitbarrows, the evocative limestone country of Whitbarrow Scar, down to Arnside Knott, Leighton Moss and Silverdale, are certainly not an ecological desert. We all know and accept the damage done by intensive over-grazing by sheep, and growing up in the 1970s Peak District I was involved in conservation battles to remediate this. Therefore, we take as read, these impacts, and the dreadful state of many hilltops in mid-Wales for example, but this does not mean all farming and grazing are bad, and there are many other drivers of these changes.

History as a great informer

There are other very basic environmental and historical factors at play and it is important to understand these before making statements, which might be fundamentally flawed. The northern, high ground of the English Lakes is bleak, climatically extreme and highly leached, and is composed of low nutrient, acidic bedrocks. Furthermore, areas such as the Skiddaw massif were intensively exploited for peat turf fuel in the 1500s to the 1800s. This usage, especially for the massive regional mineral extractive industries and in relation to local communities of that time, and the transformation that resulted is well documented. Peat turf and peat charcoal were stripped from the hillsides and mountains to fuel the smelting of metals such as copper and iron. Given these hugely significant factors that have formed the landscapes we see today, simply abandoning them cannot be expected to cause much 'improvement', even if the idea of improvement is valid. In areas, which are over-grazed, reduced herbivore pressure may allow some species to recover but only within the confines of the broader environmental stresses.

History also provides real-time, salutary, examples of landscape abandonment and its potential impacts. Take the 1950s to 1970s human-induced epidemic of myxomatosis that wiped out millions of exotic rabbits from the British countryside. For ancient pastures, meadows, commons and sheep-walks this released a rapid ecological succession to dense herb and then scrub. The catastrophic loss of many wildflowers, butterflies and other insects, fungi, birds, reptiles and more, is well known to older ecologists who recall the speedy declines and extinctions. These ecosystems had been maintained by rabbit grazing after the ending of traditional management and hence cultural severance during the early to mid-1900s. Removal of the rabbits unleashed a dramatic decline in biodiversity across much of the countryside, and then twentieth-century farming improvement did for much of the rest. This is a well-documented cautionary tale.

Wilder and wilding

There are major difficulties and issues with approaches to conservation or to landscape management, which advocate either or both 're-wilding' or 'abandonment'. The

first concern is that they may compound the already desperate decline in biodiversity of the last held-century. Re-wilding itself is a misnomer since it implies a reversion to a former 'natural' state, which in reality is a myth. Regenerating the Great Forest of Caledon for example is a great idea, and one, which catches the emotional senses; if only it had existed, then the whole idea would be even better. Archaeology and history tell us that most of the landscapes, which lack trees in northern Scotland, have done so for 5,000 years or more. These were settled, populated landscapes and not 'wild', 'natural' areas. Separating people from nature and taking people out of the landscape is wrong on many levels of social, ethical, economic and political processes. It is damaging to ecology and biodiversity too. It is not necessarily a problem to create patches of Caledonian Pine Forest habitats now and in the future, but to claim this is somehow re-creating a past historic landscape is misleading and misinformed. Furthermore, if the consequences of abandonment to a feral nature are Sitka spruce or even bracken, does that matter either? The point is that we decide and the result is eco-cultural not natural.

To address the massive and often irreversible declines in species and in ecosystem resilience and function requires drastic and bold actions, but abandonment is not one. We first have to recognise that much of the problem today is unrelated to anthropogenic climate change, although that certainly compounds the issues to a greater or lesser extent. The truth, which politicians and economic planners cannot face up to, is that over-exploiting, destroying and fragmenting the global ecosystems the way we have done, is not sustainable. The scale of damage and destruction or abandonment I have described elsewhere, makes the search for alternative explanations redundant. We must face up to this and to the scale of re-construction and remediation that will be necessary to halt and reverse the declines. Building from the remaining sites where functioning ecologies and their biodiversity now cling to a precarious existence, we need to re-build connectivity and to re-establish functionality. This has to be from a local to a landscape level and it will not be easy. Furthermore, the essential controls and cycling of energy and nutrients that control the dynamics of competitors, ruderals, and stress tolerators, have to be re-established if the inevitable successional changes and biodiversity declines are to be avoided. These processes were a part of the primeval landscape of Europe and were maintained or even enhanced through long-established traditional practices over several thousand years.

We also need to break free from the misguided ideas that trees are somehow inherently good for the environment and everything else is either less good or even bad (see for example Rotherham & Bradley[40]). Planted trees are just that, and early phase ecological succession colonisers can bring some associated landscape and conservation benefits, but are often of limited biodiversity and environmental value. Ancient woods, wood pastures, heaths, commons, dunes, meadows, fens, bogs, mires and unimproved pastures provide the complex tapestry of a rich and culturally relevant ecology. Our research suggests the evolution aof these landscape components modified by human activities over millennia from a dynamic European ecology described in part by writers such as Rackham[7,8], Vera[9] and Peterken.[5, 6] A particular example, which demonstrates the scale of loss and the importance of the

human imprint over millennia, is that of the *'Lost Fens'* of Eastern England.[41] In this book, I quote from James Wentworth-Day amongst others about the consequences for fenland ecology and conservation of taking the fenman out to the fen, an understanding of the implications of cultural severance, light-years ahead of its time. The challenge now is surely how we integrate the richness we desire, into a sustainable framework of functioning landscapes into the future. This requires 'design' and implementation not abandonment.

Table 1: **Messages from the 2013 Sheffield Workshop**

Some key points emerged from the 2013 Sheffield Workshop (*How can we manage a site's landscape, ecological and human history and safeguard our archaeological and natural heritage?*[18]) and from observation of other debates on wilding issues. These are pertinent to many discussions on wilding and re-wilding issues.

Opinion and fact: The event was a huge success in terms of raising ideas, stimulating thinking, and challenging convention. There was confusion however between opinion and fact.

Real versus assumed site history: Some of the science was thin and some site histories for the case studies presented were muddled. In the Peak District cases, the environmental and social histories of these sites are well known and most are documented, but some of the presentations in the debate did not accurately reflect the real histories. Understanding site histories and ecological science underpinning these debates is important to have meaningful and realistic discussions. With the draconian cuts to local government including National Park services, much of the long-term knowledge of how sites management historically and how they have developed is in imminent danger of being lost. In addition, we are losing many of the basic site management skills.

Succession and desired outcomes: Succession change and progression, diversity and attractiveness on moors and heaths, of cultural and heritage issues, and especially of fire risk, were not really covered in the presentations. There is a world of difference between a species-poor late stage birch wood and an ancient woodland and we need to be clear about what can be expected and how long it may take to achieve the desired outcomes. Bracken too, was discussed as a temporary or successional stage, but realistically, some bracken stands are 1,000 years old; essentially that is what you get permanently. This is not necessarily a problem, as long as you like bracken. The main reason for its spread has been cultural severance through the abandonment of common usage, cattle grazing, and bracken harvesting.

Our response to deer – practical and emotional: Grazing of upland landscapes was touched on in the workshop but balance of domesticated stock and feral red deer, which he has been monitored in the Peak since the 1980s, was not really addressed. The numbers of red deer quoted seemed to be far smaller than my own published figures[24] and the populations are still going up. Excitingly, they are now heading down the valleys into urban Sheffield to provide a further challenge of real, urban wilding! Most people love them, but not all. However, they are now a very important ecological driver in these upland landscapes.

Over-grazing trends and issues: The Peak District moors were horribly over-grazed in the 1960s-1970s and 1980s, and there is no doubt that a huge amount of damage was done. Indeed some ecological impacts may not be recoverable. Some of us campaigned very hard in the 1980s and 1990s to remediate this. Additionally, and equally important as a compounding factor, both sheep grazing and grouse management tend to involve drainage of water and many areas remain desiccated. However, despite this troubled ecological history, walking the Peaks most weekends, I can confirm that many of the sites are splendid for wildlife and fantastic for heritage, and very popular with people.

Management, visions and policy – who has influence? There is an issue about those stakeholders who turn up to debate landscape wilding and management, and interestingly, of those who do not. Many of the nature conservation, natural history, bird watching, archaeology, heritage and access organisations, and importantly, local authority ranger services, were absent. This is influences the flavour of discussions. Such broad stakeholder absence raises the issue of how to engage and involve these people and their organisations more effectively. There is a danger with many of the 're-wilding' discussions, that local people are ignored or overlooked by ideas and proposals or visions looking into a landscape from the outside.

Scrub, heather and fire dynamics: For the Peak District context, there were surprising elements missing from the debate, like the original reasons for the scrub clearance and contemporary heather management on moors like Blackamoor. This management intervention was for reasons of control of wildfire and arson related problems. This followed numerous fires at Houndkirk, Surprise Gap, Hallam Moors, Ramsley Moor *etc*, throughout the 1950s, 1960s, 1970s, and 1980s. Similar issues occur nationally and particularly around urban areas. For one of the core case study sites, Blackamoor, addressed by the workshop, scrub control and attempts to reintroduce grazing have always been controversial and had mixed success. However, again no mention was made of the disastrous enclosure and grazing of the moor by Sheffield City Council in the 1980s and an important precursor to the present situation.

Conservation own-goals: Bad management can be damaging and the damage irreparable. Nationally now, we are seeing many SSSIs having their ecological interest destroyed by grant-aided but misguided grazing management; especially light grazing all year round. In my view, this is just as bad as the farming-led overgrazing of the 1970s and 1980s, but ethically it is worse since it is done under a guise of conservation and once again is with our money!

Grazing – intended and unintended consequences

The above points from previous workshop discussions are pertinent to many of the on-going debates on wilding issues but the situation is complicated by the loss in recent years, of many academics and practitioners who have led nature conservation over the previous three to four decades. Much good science, practical knowledge and skill, and insight into land-use history has been lost and cannot easily be re-captured. A result is that site management, even of SSSIs and nature reserves, is often disastrous, and here I agree with Mark Fisher[32], in that misapplication of livestock grazing is often to blame. However, I do not agree that 'abandonment' to nature

is the answer and I worry that politicians will welcome such a hands-off approach with open arms! In this scenario, we no longer pay for nature conservation because nature can care for itself; a dangerous road down which to travel with George Osbourne at the financial helm.

The environmental conditions, which we inherit today, are not 'natural'. For example, soil and water have been altered by eutrophication. Dynamic landscapes with fluid ecologies have been replaced by fixed locations; their habitat areas carved up, fragmented and isolated. Furthermore, regular micro-disturbance effects, vital for many species, have been replaced by unpredictable macro-disturbances. Grazing by domestic herbivores or by wild or wilded stock may be beneficial or calamitous for conservation target species, depending on what, how and when. Introducing large herbivores into small, isolated sites cannot be expected to reap ecological benefits. These areas lack the dynamics of larger-scale ecosystems and animal behaviour is not 'natural' without large carnivores to influence and direct herbivore feeding patterns and movement. Abandoning areas to 're-wilding' in the absence of either or both large herbivores or carnivores is not 'natural' because what remains is an attenuated ecosystem. Devoid of keystone fauna, and potentially lacking any traditional management from local people, ecological successions kick in with predictable results. Nevertheless, this is no more 'natural' than the other options I describe. To intervene or not is a management decision for an already highly modified landscape.

Wilding the urban

Jeeves[3] aside, something lost from the recent discussions on re-wilding is the urban context of much of Britain and Europe, and the increasingly urban status of people and of Nature. This, together with issues of globalisation and sanitised, tame nature consumed by leisure and tourism, and in a context of over half the global community being urban or suburban, presents major challenges. Some of the issues, which surround non-native species, have been widely debated (see Rotherham & Lambert[36] for example). This is a huge topic but here I simply highlight how in the 1980s and 1990s, there was a growing movement to allow a freer urban nature and urban greening in Britain. Today this has been seamlessly replaced by a new urban horticulture with nature once more manicured and kept in place. The re-colonisation of the city by feral nature is a direct challenge to this corporate control of tidy urban 'green'. What, I wonder, became of Oliver Gilbert's exciting and locally distinctive 'urban commons'? Where now the urban wild?

Wilder by design

The human soul wants and indeed needs 'wilder' landscapes, but simple re-wilding and abandonment will consign many species to oblivion, and will do so quickly. The test will be to recognise why these ecosystems have changed, and to apply long-term solutions to re-constructing a functioning 'nature' that includes people. Given basic sets of ecological parameters, we can easily predict the outcomes and consequences of successional changes with or in the absence of intervention. The successful vision will also require long-term, socio-economic function and socio-political currency; or else it will simply fail. It was said at a meeting to discuss the future of the uplands

that farmers can be done away with. 'Ecotourism' for example, would power the Pennine economy.[42, 43] A national newspaper even ran an article, which suggested that herds of reindeer and perhaps Heck cattle might roam the moors and bogs between Sheffield and Manchester and become an ecotourism spectacle.[44] Such statements show zero knowledge of landscape history, ecological carrying capacity, or animal welfare, or of tourism and economics. Whilst we do not need to, and indeed cannot possibly, follow history in all cases, our approaches should reflect knowledge and understanding of sites, ecologies, communities and landscapes. Yet many ecologists at this particular meeting seemed convinced that a 're-wilded' Pennines, complete with reindeer, might be a great idea. There seemed little thought about local communities or even about the motivations and reasons for tourism visits, or the need for 'opportunities to spend' if economic benefits are to flow. Most of this rural tourism is based on people visiting traditional landscapes and the monetary flows are through resident, local communities. Furthermore, many modern areas of countryside, which are not intensive agri-industry, are leisurely landscapes, dominated by recreational activities. How 'wild' can these really be? Again though, the tourism, leisure and sports, sometimes wildlife related such as bird-watching might be seen as contributing to a new economic framework which sits alongside traditional farming to deliver a more sustainable future.

Tourists and visitors mostly come to experience local communities in their landscapes, and to partake of locally distinctive hospitality, cuisine and drinks, not of de-populated, abandoned dereliction. Furthermore, what may be a bleak, forbidding, upland landscape, which is profoundly depressing to one person, may be ecstatically close to heaven for another; our opinions and emotional responses are subjective. Perhaps if you don't like somewhere such as the English Lake District, then don't go there…

Nature without humanity

To take people totally out of nature is not natural. However, the skill in nature conservation should perhaps be to embed humanity in the natural world in ways that are less damaging and more positive. Essentially, we have a toolkit of options, which we can apply through land management of various types or through deliberate conservation interventions. These approaches may involve grazing by wild, feral or domesticated stock of differing types, applied at varying densities and seasons. How and what is used will influence the ecological outcomes, and in some cases the decision, for conservation or for other reasons may be non-intervention. Each intervention or non-intervention leads to ecological successional changes and, based on knowledge of site environmental conditions these are predictable. This is not new and for many diverse reasons people have always intervened in nature. In times past, such as with the great English landscape designers of the 1700s and the wild gardeners of the 1800s, people have also sought to create wilderness through removal of people and the application of various grazing regimes and mostly 'wild' exotic species. This was a manufactured, romantic wilderness but not natural; wild landscape viewed from the outside rather than lived in. Are some present initiatives so dissimilar except that the baseline conditions have deteriorated immensely?

Wilder landscapes are to be welcomed but alongside other traditional and radical conservation approaches. With changing climate and other environmental parameters, these may even include the new recombinants of eco-fusion. In the rapidly changing world in which we live, such changes need to be planned and designed with the appliance of science and the insights of history. Failure to do this effectively will risk continuation of the current downwards spiral of environmental quality and the haemorrhaging of species diversity. Furthermore, these changes will dovetail with rural depopulation and deterioration in rural economies of both farming and tourism. Whether we like it or not, through massive human impacts over countless centuries, we are custodians of the countryside and the responsibility for its future is ours. The decisions we make and the way those decisions are reached may be debated, but simply abandoning landscapes, (and even de-populating them), are not viable options. However, 'wilder by design' and large-scale, imaginative, wilding projects in appropriate locations, offer great possibilities. Nevertheless, these are not wilderness but wilder eco-cultural landscapes. Furthermore, when nature does break free, as in the case of the Peak District feral red deer (Rotherham & Derbyshire[45]), then the result is immediate call for culls and controls. Not everyone will support the feral outcomes.

Finally, the idea of abandonment to allow nature to follow its own course will appeal to the current crop of politicians who see conservation as needless red tape, and environmentalists, (according to George Osborne) apparently as 'a sort of Taliban'. In a Brave New World with a Big Society, we will no longer need nature reserves, wildlife trusts or conservation officers, and we will not need grants or other monies to pay for all of these. I know plenty of politicians who would love to hear this.

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Wilder By Design, a major international conference in two parts, addressing issues raised in this article, is in Sheffield 15-16 May 2014 and 9-11 September 2015. It is supported by BANC, BES, IUFRO, ATF, NE and others and promises to be informative, cutting-edge, and controversial. We are now inviting contributions for the 2015 conference.