The implications of cultural severance in managing vegetation for conservation

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Summary

Human resource use is a fundamental driver in landscapes. It interacts with ecology and other environmental factors through complex social, legal, economic, and political mechanisms, facilitating and constraining usage. Almost all landscapes across Europe and many other parts of the world are ‘Cultural’ or perhaps ‘Eco-Cultural’, often managed in traditional ways for millennia. In this context, observations are made on such traditional uses and their effects, the research documenting in detail, the impacts of people over time for selected environments such as woods and forests; marsh, meadow and fen; heath, bog and common; and cultivated landscapes such as field systems.

Key words: Upland landscape history, peat cutting impacts, conservation

Introduction

Ancient landscapes of utility & subsistence

The human-environment relationship is fundamental to the scale and impacts of changes in biodiversity and nature now seen around the planet. However, many of the factors at the core of such interactions are overlooked or misunderstood. Critical changes in the relationships have occurred with increasing intensity over recent centuries and especially during the late 20th century. Importantly, past landscapes were of utility and subsistence, with direct local connection to resources, and dependence on them. Furthermore, there was direct local resource ‘ownership’ and control (Rotherham, 2008a, 2010a). In contrast, most contemporary landscapes are of leisure and tourism, heritage, conservation, and recreation. If resources are to be safeguarded effectively, this raises issues of management, and perception, politics and economics in contested spaces. A major consequence with significant ramifications is ‘cultural severance’, i.e. the end of traditional management and customary practice in landscapes. It is the break between humanity and nature at the local level, with loss of local controls and social tensions over contested spaces. Total transformation of nature or the abandonment of traditionally managed landscapes are common results (Rotherham, 2008b, 2010a).

Often, when conservationists and ecologists discuss landscapes and nature, they overlook this most basic and deeply embedded aspect of the ‘natural’ environment: that it is not ‘natural’ but ‘semi-natural’, an ‘eco-cultural’ resource. Importantly, natural and most human traditional processes, centre on micro-disturbance rather than macro-disturbance, the effective recycling of nutrients within ecosystems, and the extraction from systems of biomass. The ecological habitats produced tend to be predictable, have a strong degree of continuity through time, and are mesotrophic or oligotrophic rather than eutrophic. Human cultural utilisation has often relied on careful management of recycled nutrients sustainably within the system. When this failed,
as it sometimes did, the results were catastrophic. Overall, human usage reduced biomass, and macronutrients, especially nitrogen, were at a premium. Severance quickly reverses these trends to generate macro-disturbance, major disruption and unpredictability, lack of continuity, and massive eutrophication especially by nitrogen. This favours competitive species and cosmopolitan ones including some ruderals, over stress tolerators and ruderals associated with traditional regular management.

A further and final impact of cultural severance on these traditionally managed or utilised landscapes is that they lose economic and hence local utilitarian value. They are then destroyed by conversion to other uses. These are often disputed territories with competing social and political actors. The ecological consequences of severance, and the ending of social and economic utility, is often the complete collapse of the system and/or its transformation to other, often agri-industrial or urban-industrial uses. Oliver Rackham (1986) made the point very strongly when he argued that ancient woods generally survived in England as long they had economic value. The same applies not merely to the physical woodland, but also to its traditional management. Lose either or both, and the site will be lost and its land-use converted to some other function. This same logic is pertinent to other traditionally managed landscapes and the argument includes economic, social and cultural values too. So a woodland or heath may survive today and be valued highly and so protected, but for its leisure and amenity or nature conservation functions. Whilst this modern cultural attachment to a site and its functions may protect it from destruction and even provide a modicum of management, it is still separated from its traditional origins and vulnerable to a slow decline through ecological succession.

Methodology

The paper is based on long-term site- and landscape-scale field surveys to construct timelines of environmental change and to attempt to ‘reconstruct’ past ecologies and to identify critical drivers and impacts of transformation.

Results

Human utilisation and the cultural landscape

Traditional cultural utilisation, whilst not always sustainable, generated and drove many landscapes we now value so highly. Furthermore, and presently neglected in many debates on conservation and the environment, a massive proportion of our most highly valued ecology and biodiversity depends for its existence on traditional use. The reasons and mechanisms are too complex to examine here in detail, but range from direct environmental impacts (like lowering of nutrient levels and micro-disturbance), to indirect effects through social and economic impacts (allowing people to remain and live on the land or in a region). A consequence of these long-term intimate relationships between people and nature has been the creation of complex landscapes and often rich and distinctive ecologies. Many have evolved through generally stable and predictable patterns of human utilisation of the natural world, and biodiversity consequently adapting and evolving. A direct result is the heritage of biodiversity and landscapes that we inherit today. This includes locally- and regionally-distinctive landscapes and ecological character most highly valued for nature conservation and for tourism and leisure.

Cutting the umbilical cord

There are key lessons of history and challenges that arise in severing nature’s umbilical cord linking humanity to planet Earth. In recent decades, not only has the physical cord been severed, but the emotional and psychological one too. In western countries like Great Britain, a new
generation is growing up that cannot recognise and identify even commonplace animals and plants. The umbilical cord of nature, joining communities to their local environment, is cut with major implications of separation of people and nature. This process has grown in intensity for centuries but in the late 20th century, this was unprecedented. The consequences for ecology, biodiversity, and perhaps for people, are on a scale approaching that of human-induced climate change. Today’s landscapes and associated biodiversity are changing on scales almost beyond human comprehension (Rotherham, 2010b). Yet surprisingly both popular and scientific media overlook this, and attribute environmental impacts and risk to climate change alone. There is no disputing the intensity and scale of likely climate-change impacts. However, this is not the whole story in terms of environmental change and associated risks. It is certainly not the only or even major threat to biodiversity and extensive landscapes around the world that are not natural, but semi-natural and cultural in their origins. Here the dramatic scale of abandonment of traditional and sustainable utilisation is the major threat with abandonment of ‘cultural severance’ being the widespread ending of traditional or customary land management. This is at various levels and includes the physical ending of usage, and psychological distancing of individuals and communities from their environments (Rotherham, 2008b, 2010a).

With cultural severance, traditionally managed or utilised landscapes lose economic and local utilitarian value and are converted to other uses. These are often disputed territories with competing social and political actors (Hayman, 2003). The ecological consequences of severance and ending social and economic utility is often the complete collapse of the system and/or its transformation to other, often agri-industrial or urban-industrial uses. Rackham (1986) made the point when he argued that ancient woods generally survived in England if they had economic value. This applies to both the physicality of the woodland, and its traditional management. Lose either or both and the site will be lost and converted to other functions (Perlin, 1989). This same logic applies to other traditionally managed landscapes too, and includes economic, social and cultural values. Therefore, wood or heath may survive today, be valued highly and so protected, but for leisure and amenity, or nature conservation. This modern cultural attachment to sites and functions may protect them from destruction and provide limited management but separated from traditional origins they suffer slow ecological decline (Rotherham & Jones, 2000; Rotherham, 2007a).

What is ‘cultural severance’?

‘Cultural severance’ is the breakdown of fundamental relations between human communities and their local environment as manifested in the landscape and its ecology as an eco-cultural resource. This may be a social and community phenomenon as well as operating at the stratum of individuals and their perceptions. It has elements that are inherently practical in nature but it is also strongly psychological at every level. This separation of people and nature has occurred and evolved at various times, in different places and at rates that vary from dramatically quick and sudden, to relatively slow and drawn out. A key process is the break in local community ‘ownership’ and use of the natural resource and the imposition of essentially individual capital-based value and exploitation. The separation may be inherently a locally based social one, or can involve ownership and exploitation removed to a remote stakeholder without subsistence ties to the particular locale. Whilst reality may be far more complex, this is the essential process. In recent times, a major transformation has been from an essentially working countryside, to one that is largely a leisure or tourism resource. Contemporary commuter residents or recreational and tourism visitors are actors in the landscape, but their relationships with nature are entirely different from their subsistence forebears. Their ecological impacts are similarly contrasting.

Over long periods, human cultural interactions with landscapes evolve and change with various phases displaced as communities develop and nature itself alters. In recent history (i.e. the past 300 years), there have been a number of key tipping points in this process relating to four major trends, themselves closely interrelated. These are: 1) Agricultural improvement; 2) Industrialisation; 3) Urbanisation, and 4) Globalisation. Each represents complex human interactions with natural
resources, economic and cultural evolution, and social change with competition to control space and other resources. The net result is a loss of traditional management, of established patterns of ownership, and dramatic declines in locally- or regionally-distinct landscapes. Associated with these is a loss or transference of economic process, and catastrophic reduction in nature conservation value. Distinctive wildlife and plant species of particular niches maintained in these landscapes are quickly lost. Invasive, often aggressive species, sometimes including exotics, may displace native or long-established ecology. The critical points 1–4 above represent step-changes in a continuum.

The mechanism of impacts

A consequence of severance is changed land management. This might be woodland or heath with abandoned social and economic functions, converted to farmland, the original habitat destroyed and all associated species lost (Rotherham, 2007b,c). Alternatively, traditional management ends or changes, but the site is physically intact. For example, mediaeval coppice wood may be replanted as working plantation with native or exotic hardwoods, or cleared and replanted with exotic conifers. A heath once central to the local economy, was grubbed up ‘improved’ and destroyed if its function and value to local people were lost. Sometimes it might remain, but abandoned to successional change to birch wood and gradual loss of open heath species. Or else it was planted with exotic conifers. Alternatively, heath or similar commonland may be maintained as open grazing but it loses other socio-economic functions (such as harvesting gorse, bracken, ling and small wood for fuel, cutting wood for construction, bracken for bedding, or turf for fuel or roofing, holly, bramble, and gorse as fodder, and grass meadows cut for hay) (Rotherham, 1999). The ecology is changed and a major successional shift occurs. The site becomes nutrient enriched with low open vegetation replaced by tall aggressive species. The rich mosaic of ecological habitats is transformed to leave a few distinct areas of limited diversity. Stress tolerant species decline.

In both examples, the ecological consequences vary from total loss and replacement by a very limited ecology of intensive agriculture or agri-forestry, to a deflection at varying speeds, into a new ecological successional process. This reflects natural drivers of ecological systems released by ending traditional management, and fuelled by eutrophication (nutrient enrichment). The ecological changes are modified if new or different management is overlaid to displace that traditionally applied. Then there is an interaction between the drivers caused by abandonment and those of newly imposed systems. The new approaches are usually ‘owned’ and managed at a distance from the resource, and they replace with technologically applied management, the labour-intensive systems sustained by local communities. Often a small number of people, sometimes living locally, deliver this and over time, work is undertaken by small numbers of specialist contractors with no long-term relationship to the resource.

Landscape resources utilised in many varied ways by a host of specialist locally based craftsmen, are reduced in complexity to much simplified systems. The inherent complexity of subsistence ecology, linked through traditional management to a locally functional subsistence economy, is broken (Rotherham & Jones, 2000). At key points in history for each landscape, economic and social functions operate at political levels. These contested spaces have actors who are polarised socially, politically, and economically. Throughout history over long periods, critical tensions between competing interests may balance to produce stability and continuity for this shared resource. However, when for varying reasons the social, economic, political or ecological sustainability breaks down, then periods of dramatic, sometimes catastrophic, change ensue. Throughout history, this has led to moves towards less communal ownership, reliance, utilisation and determination of functions, to ones more individual and centralised. Technology and chemistry are applied to the landscape in place of skill and physical labour. Furthermore, the need for local sustainability is replaced by requirements for individual profit and financial return for a few resource owners. Control of these resources is a political and economic act, manifested in enhanced political power and influence, and material wealth.
Some ecological consequences

At every level from local to international, the overall ecological trend from these changes is catastrophic decline in diversity and local distinction. Stress-tolerant communities are replaced by homogenous simplified landscapes and ecological competitors. With globalisation, this ultimately generates ‘Disneyfication’ of ecology and landscape. This general and widespread trend is obvious and undeniable, but specific impacts vary and some short-term effects changes can benefit certain species. When habitats like bog, woodland, fen and heath, are converted to other uses, then wholesale extinction of associated species results. Loss can be calculated as the plants and animals of a particular landscape and its habitats, factored against areas of land converted (for examples see Rotherham, 2008b, 2010b).

The consequences of severance

This transformation of landscape might be considered merely an interesting diversion for an ethnologist or social historian, of little interest to wider audiences. However, this is a serious threat to environmental sustainability and nature conservation. With abandonment of traditional uses and practices, many sites are lost or fragmented. Those that remain have little or no management, and more-or-less quickly pass through successional change. Not ‘natural’ but ‘cultural’ landscapes, these ecologies evolved over centuries of locally distinct and generally predictable exploitation driven by economic need. Attempts to conserve and manage remaining fragments are too little too late and generally omit key traditional processes (Kirby & Woodell, 1998). They have no long-term economic viability connected to land management processes and this has major implications for large-scale landscape restoration projects.

Economy and landscape once joined by tradition and subsistence are now separate, the biodiverse landscapes they produced, now neglected, have a ‘sticking plaster’ approach of grant aided nature conservation. From an environmentalist perspective, these attempts are laudable and in the short-term essential if key sites, species, and management traditions are not to be totally lost. However, this is not a long-term solution to the decline of distinctive landscapes, cultures, and ecologies. The misconception that abandoned land is a good thing for nature, particularly in upland areas such as the moorlands of England and Wales, is problematic (Rotherham, 2008c,d). There is a widespread myth that release from farming leads to ‘re-wilding’ or ‘re-naturing’, and is inherently good for wildlife. Some species benefit, but they ebb and flow with successional change. However, abandonment of cultural or working landscapes is mostly just dereliction. In England, when abandoned and released from traditional uses, large areas of lower-lying moor, heath and grassland move swiftly through predictable ecological successions to dense birch woodland. Distinctive biodiversity declines. In lowland heaths where climatic constraints are less severe and pollution by atmospheric nitrogen fallout causes eutrophication, successional changes occur more quickly and devastatingly. Similarly, culturally created and managed grasslands decline increasingly rapidly from uplands to lowlands.

This same phenomenon occurs in the Mediterranean, as rural areas are de-populated and social and environmental problems result. Favourably located landscapes acquire veneers of tourism affluence or commuter-belt sophistication, but most go into steep decline. With derelict landscapes and no working rural population, degraded ecology and abandoned cultural heritage, most regions hold little appeal for tourist or leisure visitor. Wildfires and deliberate fires occur as biomass increases year on year.

Loss of heritage and the challenge for conservation

There is a serious risk of losing unique cultural heritage that created landscapes and ecology, and are vital for future tourism. A fundamental problem is that gross changes are driven by economic ‘progress’ but responses are not; most conservation initiatives being cosmetic not economic. There are many conservation and environmental initiatives across Britain and Europe, to be celebrated
and encouraged with the work of bodies like the National Trust in Cumbria for example, closing the gap between nature and local economy. However, this is against a backdrop of cultural landscape abandonment probably unprecedented in human history. Even local cultural knowledge is lost, so we no longer know how these areas were managed even 50 years ago (Rotherham, 2007a). This is happening across Europe, especially around the Mediterranean, and in the former Eastern Bloc. It is happening in Britain too.

A short-term priority is to record local cultural knowledge and insight, re-build and celebrate local connectivity with nature, value local traditions and uses, and apply the knowledge in meaningful ways. It is neither possible nor desirable (socially and economically) to stop the clock, but we need to find long-term economically sustainable solutions to the problems. Approaches must be more ambitious and radical than anything conservation has achieved so far. Webb (1986, 1998) considered the issues and conservation management options for European heaths and his prognosis was pessimistic. Of all the regions of Europe, Britain demonstrates cultural depth in its landscapes, and strong regional flavour of character and associated ecology. The homogenisation described already, proceeding with increasing intensity throughout the 19th and 20th centuries, led to critically impoverished fauna and flora. Separation of people from nature and natural resources is manifested at every level from psychological to practical, from the individual to the community. In most urban areas, people have little direct connection with local or regional landscape beyond visual interaction, leisure or recreation. Direct economic and resource-based links are severed, and even in rural areas, most people have nothing to do with land or resource management. Research shows that even the memory of such direct attachments may be lost in between 50 to 100 years (Rotherham, 2007a).

Much of this massive transformation of landscape, ecology and economy occurred in the period from 1700 onwards and continued with social, political, technological and economic changes through until the present day. Over this period of three centuries, there was a rapid deterioration in ecological resources, a blurring of regional character, and sometimes a temporary replacement with a modified semi-natural system such as with enclosed hay-meadows in the 1800 and early 1900s. Ultimately, however, there has been a separation of landscape, local community, and economy. Finally, with the ending of traditional management, there has been the ultimate separation between ecology and economy. In some cases, such as downland and limestone grasslands, the ecological character was maintained by for example grazing by alien rabbits. Now the ecology of these ecosystems, once embedded in traditionally managed landscapes is in terminal decline (Rotherham, 2007b; Rotherham et al., 2004).

Inevitable change

Modern economic progress generally causes socio-economic development with rural depopulation and urban growth, technological provision of needs, and separation of people from nature. This process is ongoing human cultural evolution with major environmental consequences. In terms of the severance of people and landscape there has been a rapid de-coupling of communities from their local environment. There are consequences of the cessation of traditional land uses. For individual sites, these can be especially problematic:

1. Eutrophication due to non-removal of biomass (for fuel, animal bedding, fodder).
2. Lack of micro-disturbance from grazing or other working animals, and from subsistence activities (including transhumance use, etc).
3. Lack of propagule dispersal (particularly seeds) by grazing stock moving from site to site.
4. Successional change due to abandonment (the rate varying with landscape and location; UK upland zones for example more resilient than lowland ones).
5. Decreased value for local communities and abandonment or replacement by other uses (building development, etc).
6. Fragmentation and isolation.
7. Displacement of native species by exotics.
The impacts of severance on eco-cultural landscapes now largely severed from their subsistence past

1. Fens: spread mostly over the period from 1600 until the mid 1900s with almost total loss of both function and ultimately of around 99% of the resource. Examples include the Yorkshire or Northern Fens with 3–4000 km² lost between 1650 and 1900, and the East Anglian or Southern Fens with > 4000 km² lost between 1650 and 1950.

2. Bogs: gradually abandoned, drained, or worked-out as fuel turbaries over several centuries followed by rapid drainage and removal in both upland and lowland environments from 1800 through to the late 1900s. Almost all lowland raised mires destroyed and those that remain hugely modified.

3. Coppice woods: from enclosed mediaeval woods, to wooded commons and early industrial coppice woods, these were a resource of huge important to communities across the country. Many were converted to high forest in the 1800s as wood charcoal for industry became less important; almost all others abandoned, converted, or grubbed out for agriculture from 1850 to 1950. From 1950 to 1990, many more lost and often converted to conifer plantations. Traditional skills of woodmanship almost entirely lost.

4. Ancient forest, parks and chases: these complex economically functional landscapes give insights into how large areas of primeval Europe and its associated ecologies may have looked. The landscapes of these areas were essentially multifunctional to provide many resources, alongside hunting and meat. A few locations remain largely intact, though most were lost from 1600 onwards, and converted to farmland or to ornamental landscaped parks. Sites that remain physically intact have lost much of their complexity and are separated from their social and economic functions.

5. Moors, heaths & commons: until around 1700, through until the late 1800s, these were the distinctive open landscapes of England. Many sites probably included extensive wooded commons and were managed as such. At the end of the Parliamentary enclosures they were reduced in area dramatically with a few lowland groupings of intractable heathland such as the Lizard in Cornwall or the New Forest and Dorset heaths, and extensive upland moors but now separated spatially and economically from the landscapes down in the valleys and lowlands. Even where sites remain, their traditional functions are abandoned or changed to specific economic uses especially sheep grazing and intensive grouse farming.

6. Ancient meadows & grazing lands such as sheep-walk downland: like moors, heaths and other commons, until around 1700 through until the late 1800s, these were the distinctive open landscapes of all parts of the country. Through the impact of Parliamentary enclosures, they were drastically reduced in area. Twentieth century wartime improvements took most sheep-walk areas, and with declines in mixed farming, local subsistence, and the use of marginal lands, most were destroyed or abandoned.

7. Ancient sand dune systems: although severely damaged by coastal urban development and recreational or tourism uses, remaining locations are of major conservation value. Many dune systems were ‘stabilised’ by planting exotic conifers during the 1800s and 1900s. However, in the pre-improvement landscapes these ecosystems were exploited as a part of the complex of heaths, grasslands and other commons.

8. Ancient arable lands: with post-medieval improvements in farming and through Parliamentary enclosures, almost all open field arable land was lost. With modern herbicides and cultivation systems, the distinctive ecology was destroyed. Mechanisation and improvement transformed economic and social functions with communities squeezed off the land and into emerging cities. Open field landscapes were far more complex, diverse and ecologically rich than previously recognised.

The impacts are so severe that the vast majority of those species which we treasure today for conservation have been adversely affected. Furthermore, I suggest that the losses and declines in
habitat are so drastic that many species have been lost altogether and we do not even know the true scale of this destruction. My research on wetlands for example has demonstrated that in medieval times and earlier, extensive wetlands existed in areas where today they are almost inconceivable.

Discussion

Re-connecting with nature

Cultural severance manifested by the end of traditional or customary management and its consequences, causes massive changes in landscape and ecology. Some have already happened and are largely irretrievable. Whilst some aspects of damaged ecosystems can be restored they will not be the same as the old. However, the worry now is the accelerating pace of landscape transformation and the degree of ecosystem redundancy. Combined with other factors like eutrophication and climate change, we are on the cusp of unprecedented loss of distinctive landscape-types and huge resulting extinction of species. Remarkably, the scientific and practitioner literatures are quiet in these subjects almost to the point of absolute silence. This in itself is academically interesting but from a viewpoint of future sustainability most perplexing and worrying. The implications of omitting this core understanding of the root causes of environmental change, now rife across Europe and globally are huge (Agnoletti, 2006, 2007).

The gross transformation of landscapes reflects the ‘futility of utility’ as working environments become leisurely landscapes, and globalisation generates ‘Disney-fied’ ecology.

Landscapes are transformed from 1) subsistence to leisure; 2) subsistence to agri-industry; 3) subsistence to agri-forestry, and 4) subsistence to urban; and the process is unremitting.

Conclusions

Human resource exploitation has affected most landscapes through direct impact of extraction and processing, harvesting and processing, and use (Rotherham & Ardron, 2006). In countries like England, these should be considered eco-cultural. Processes may have indirect impacts through landscape change, pollution, and disposal of associated wastes. Local use also influenced the social need to protect or sometimes to establish resources such as coppice wood, peat bog, fen, or common heath. At other times, these might be removed from the landscape. Literature and records give insight into resource uses and availability, providing data for detailed interrogation on comparative values, costs, and trends. These aid interpretation of impacts, the nature, and intensity of landscape exploitation.

Both crisis and continuum have played a part in these transformations, and change from traditional subsistence to petrochemically driven industrial exploitation had defined many environments (Rotherham, 2005). Environmental conditions and resources, economic, political or social forces, and relationships or competition between these, have determined impacts on land-use and landscape. In many ways, the landscape provides a continuum punctuated by crises for the community and the environment. The interaction of community, resource utilisation, and environment has driven the evolution of these eco-cultural landscapes. However, the fundamental nature, sophistication, and totality of this relationship are seldom appreciated in how subsistence and other traditional communities interacted with their environment. The English medieval landscape was rather like the traditional family pig, with everything used except the squeak. It is perhaps this totality of use that most eludes us today and is a particular problem for landscape restoration projects.

Driven by long-term trends in human politics, economics and social evolution some losses can neither be repaired nor halted. However, it is necessary to find solutions and positive responses to these challenges where possible. There are examples of possible ways forward. There are effective models such as the use of community fuel lots in both Europe and North America. In England,
these could be a way to conserve lowland heaths and commons and rejoin their connections to economies and local people. However, to be effective this would need to be sustainable and non-damaging community-based utilisation not industrial exploitation. Clearly, even the most bold and imaginative initiatives cannot replace the human-nature interactions of subsistence communities, predictable over long periods and acting at local landscape levels. The best we can hope for is long-term sustainable ecosystems, which whilst differing from the original, retain significant proportions of regionally distinctive fauna and flora.

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