



## Do cows belong in nature? The cultural basis of agriculture in Sweden and Australia

Katarina Saltzman<sup>a,\*</sup>, Lesley Head<sup>b</sup>, Marie Stenseke<sup>c</sup>

<sup>a</sup>Department of Cultural Sciences, University of Gothenburg, Box 200, SE-405 30 Göteborg, Sweden

<sup>b</sup>Australian Centre for Cultural Environmental Research (AUSCCER), University of Wollongong, Wollongong 2522, Australia

<sup>c</sup>Department of Human and Economic Geography, University of Gothenburg, P.O. 630, SE-405 30 Göteborg, Sweden

### A B S T R A C T

#### Keywords:

Multifunctionality  
Farming  
Conceptual boundaries  
Environmental values  
Sweden  
Australia  
Climate change

Within the now extensive recent literature on cultures of nature, agriculture has received less attention than might have been expected given its threshold role in transforming human relations with the earth and with plants and animals. The concept and practice of agriculture can be understood as central to the emergence and maintenance of the culture/nature dichotomy within Western thought and practice. In this paper we use the comparative cases of Sweden and Australia to examine the differential and contingent positioning of agriculture with respect to that which is understood as nature. Broadly speaking, some parts of agriculture are understood to belong to nature in Sweden through a long history. This is not the case in Australia, where the short agricultural history is positioned in contrast to nature. This affects the way in which biodiversity and environmental protection takes place – in Sweden as part of farming, – in Australia in spite of it. We argue that these cultural differences have been more important than generally recognised in debates over multifunctional agriculture. We discuss the environmental management implications of the two different models in a context made more dynamic by climate change.

© 2010 Elsevier Ltd. All rights reserved.

### 1. Introduction

Recent decades of scholarship have increasingly shown how the division of reality into nature and culture is in fact all but natural. According to critical perspectives based on anthropological and historical research, the understanding of the world as consisting of two separate spheres, one that is influenced by humans (i.e. 'culture') and another one that is not (i.e. 'nature') is far from universal. Rather, this is a culturally specific world view that is today widespread due to the influences of Western thinking (cf. Latour, 2004). While increasingly problematised within academia, the concept of nature still persists as a basis for human thought and action in the modern world. In daily activities within a wide range of contexts, people continue to interact with, use, perceive and define something they call 'nature' (Castree, 2004, 191). Understanding the continuing power of the discursive practice of nature is important for researchers approaching environmental issues, particularly in an era of climate change. In order to

deal with contemporary environmental challenges we need to elucidate how such practice influences processes of everyday boundary making, how it varies geographically, and how it has outcomes in biophysical landscapes.

Notwithstanding key studies such as Anderson (2003), agriculture has not been prominent in conceptual debates over nature, perhaps because of the practical orientation of much agricultural research. It is also the case that recent debate in agricultural research has been more concerned with the productivist/post-productivist dualism than the nature/culture one (Wilson, 2001, 2008; Holmes, 2006; Bjorkhaug and Richards, 2008). Yet there is hardly a field where human interaction with, and dependence on, the biophysical world is more apparent than farming. Farming is inevitably carried out through networks of human practices, tools and discourses in complex interaction with plants, animals, soil, water, machines and many other actors (Whatmore, 2002). It thus presents a prime example of practices dismantling the nature/culture divide. In this paper we discuss farming as a mode of cultural involvement in nature, and analyze the ways in which nature is delineated in relation to farming. We do this through a comparison of conceptual boundary making relating to farming and nature in Sweden and Australia, illustrating the contingencies of such practices, and their outcomes in the biophysical landscape.

\* Corresponding author. Tel.: +46 31 7864304.

E-mail addresses: [katarina.saltzman@ethnology.gu.se](mailto:katarina.saltzman@ethnology.gu.se) (K. Saltzman), [lhead@uow.edu.au](mailto:lhead@uow.edu.au) (L. Head), [Marie.Stenseke@geography.gu.se](mailto:Marie.Stenseke@geography.gu.se) (M. Stenseke).

Our point is not to suggest that political and economic factors, such as the centrality of production for export in Australia, or the EU context of Swedish agriculture, are unimportant. But these have been discussed extensively in the literature. Our purpose here is rather to revisit the cultural underpinnings of agriculture itself and of its different geographical expressions. Our argument is that the interaction of these cultural framings with policy decisions has received much less scholarly attention.

Williams (1972) is often quoted for claiming 'nature' to be one of the most complex words in the English language, and the same can indeed be said about the word '*natur*' in Swedish. The dichotomy between nature and culture has its Swedish equivalent in the words *natur* and *kultur*, with the same etymological roots and corresponding connotations as their English counterparts. On the other hand, when it comes to another couple of related words, the English 'landscape' and the Swedish '*landskap*' – both often used in connection to the matters discussed in this paper – there are significant differences between the two languages, as has been demonstrated by Olwig (2002). However, our main undertaking in this paper is not to discuss concepts themselves, but rather to explore and compare the contemporary use and effects of the words nature and agriculture in two geographically separate contexts.

The comparison between Sweden and Australia is not an obvious one, but we have found it very instructive in order to elucidate a number of different variations of human relations to nature (Saltzman, 2008). Even though located far apart, with considerable differences when it comes to physical geography, climate and history, there are in fact a number of relevant similarities between Sweden and Australia. Both countries have advanced economies and are relatively sparsely populated. In Sweden, population is concentrated in the south, and in Australia it is concentrated around the coastal fringe, particularly of the southeast. This leaves in each country significant areas of remote country (arctic and arid/tropical respectively) for more extensive land uses including pastoralism, national parks and indigenous land. In each country farming has an important place in the national biography and in national identity, running in a somewhat parallel narrative to the valuation of 'wild' nature. As in many Western countries there is anxiety about processes of rural decline in marginal areas, with decreasing rural populations and weakening social networks in rural communities (Beesley et al., 2003). In both Sweden and Australia there are narratives about growing (conceptual) distances between city and country. At the same time there is an increasing difference between the peri-urban countryside and more remote areas, in terms of land use interests, with a counter trend of amenity migration to rural areas accessible to large cities (Burnley and Murphy, 2004; Hugo, 2005; Amcoff, 2006).

In terms of numbers, contemporary farming is certainly a much larger business in Australia than Sweden. The total agricultural area in Australia is 445 million ha, or about ten times the entire Swedish territory (FAO, 2005). The proportion of arable land, on the other hand, is nearly the same in the two countries, about 6% of the total area. Most Australian 'agricultural' land is used only for extensive grazing of cattle or sheep. In the Swedish case, agriculture is often combined with forestry, which gives a significant return to the private farm economy. Sixty-six percent of Swedish farms also include forest land (Statistics Sweden, 2007).

A number of recent authors have found Australian/European comparisons with regard to agricultural policy instructive (Bjorkhaug and Richards, 2008; Dibden et al., 2009; Dibden and Cocklin, 2009). A common theme in these papers is the weak development of, or active resistance towards, multifunctional agriculture in the Australian context, in comparison to Norway (Bjorkhaug and Richards, 2008) or other parts of Europe where

there is strong government protection for agricultural landscape values and for biodiversity protection in agricultural contexts. This combination of farming and nature protection is indeed particularly developed in Sweden, as shown by the large share of environmental measures within the national application of the EU's Common Agriculture Policy, compared to the other member states (European Commission, 2005). In Australian agricultural contexts, by contrast, governments have attempted 'to improve environmental management *without subsidising* landholders' (Cocklin and Dibden, 2009: 10, emphasis in original).

In this paper we add to the comparative discussion by elucidating a more deep-seated difference than that of current government policies, i.e. the issue of the relationship between agriculture and what is understood to be 'nature' in different jurisdictions. Dibden and Cocklin (2009: 170) briefly discuss the differences between New World or settler understandings of this relationship, for example in Australia, New Zealand or North America where agriculture was introduced relatively recently, compared with Old World or European understandings based on a much longer agricultural history. In Sweden, but not in Australia, agriculture and animal husbandry are commonly accepted as practices that have long contributed to the making and maintenance of environmental values, such as biodiversity, in the rural landscape. Consequently, it is quite possible to regard farming as a means for nature protection in the contemporary Swedish context. In our view the implications of these profound cultural differences have not been sufficiently discussed and are somewhat taken for granted. They underpin much of the cultural context in which policy decisions are framed and debated.

As an example, we have found the question whether cows<sup>1</sup> belong in 'nature' to be quite an instructive illustration of different approaches to 'nature' in Sweden and Australia. In Sweden a photo of a cow in a pasture is used on the website of the Swedish Environmental Protection Agency in order to illustrate methods for "protection and maintenance of valuable nature". In contrast, cows are definitely understood as something that do not belong in Australian nature, which is usually thought of as the plants and animals that existed there before European colonization in 1788. Farming is generally seen as a practice connected to the colonial transformation of the country, a process that is understood as having damaged nature rather than enhanced it. In Australia cropping and pastoralism has fed the nation, but it has also been responsible for considerable biodiversity loss and land degradation. Hence for the Australian researcher in Sweden, it is very strange to be taken to a UNESCO Biosphere Reserve and see a flat grassy field full of cows. To learn that the natural values of Kristianstads Vattenrike Biosphere Reserve 'are dependent on cultivation such as grazing and haymaking' (Olofsson et al., 2005: 211) is a profound challenge.

In this paper, we introduce the ways agriculture and farming have been placed in the culture/nature debates. Second, we present overviews of agriculture in Sweden and Australia. This is informed by both insider and outsider perspectives, building on our research in each other's countries. Third, we use two lenses of comparison, each of which is about a particular axis of boundary making:

- Origins and belonging – boundary making around species and spaces involving questions of time and identity
- Humans in the landscape – boundaries between humans and the nonhuman world

<sup>1</sup> We use the English vernacular term cow here to refer to cattle generally, rather than females only.

Within each of the above sections we use illustrative examples that show how the spatial practices of boundary making have material effects on the rural landscape. We are not primarily concerned here with farmer views of themselves and their stewardship, although we note important empirical literature on this (e.g. Gill et al., 2010). Swedish farmers regard themselves as contributing to the environment, and aiming at long-term sustainability (Stenseke, 2004). In both countries farmers believe that city dwellers (and not least the green movement) have limited and partly false understandings of what a farm, and a farmer, is (Saltzman, 2000a). Finally, we consider the broad differences between Sweden and Australia in terms of their considerable implications for environmental management and biodiversity protection in rural landscapes. Our paper is timely because questions of what belongs in nature, and where nature belongs, are likely to become much more dynamic in the next few decades as climate change is added to the drivers of rural change. The influence of climate change, while regionally variable, is predicted to lead to net losses for Australian agriculture through more frequent and intense droughts (CSIRO, 2007). In Sweden, conditions for agricultural production are predicted to improve with increasing temperatures (Swedish Commission on Climate and Vulnerability, 2007). In both cases existing networks of biodiversity protection areas, as well as food production, will be under pressure as conditions change.

## 2. Nature and agri-culture

Agriculture has an important place in scholarly debates over nature/culture relations because it is widely understood as a threshold process within human history, in both social and ecological terms. It facilitated the establishment of sedentary and later urban societies, and led to widespread transformation of the face of the earth through the processes of land clearing. More recently, it is understood as having transformed the carbon budgets of human ecologies. For example Ruddiman (2003) has argued that early agriculture marked the beginnings of human influence on the atmosphere through methane release from rice irrigation.

For this discussion it is most relevant to emphasise the ways agriculture has been historically understood as taking humans out of nature and into culture (Knobloch, 1996; Anderson, 1997, 2003), as expressed by Ratzel:

It is due to no accident that the word “culture” also denotes the tillage of the ground. Here is its etymological root; here, too, the root of all that we understand by it in its widest sense. The storage by means of labour of a sum of force in a clod of earth is the best and most promising beginning of that non-dependence upon Nature which finds its mark in the domination of her by the intellect (Ratzel, 1896: 27).

The concept and practice of agriculture can be understood as central to the emergence and maintenance of the culture/nature dichotomy within Western thought and practice. Knobloch (1996: 74–75) traces the etymology, arguing that “‘Culture’ appeared during the great reclamation of the sixteenth century and meant ‘agriculture’, although in a few years ‘agriculture’ was a word of its own”. Both Knobloch and Anderson (1997) point to the ways these were also raced and gendered ideas from the beginning. Thus, the insistence that ‘improvement’ of the land was related to the transforming hand of civilised man in the form of land clearing, followed by the plough, the herd and the fence. In this view it is necessary to unlock the productivity of the land in order to feed its people, and land without evidence of human-induced ‘improvement’ or ‘development’ is considered to be wasted land. Examples of the connection to Lockean views of property are common in New World contexts such as New England and Australia (Bolton, 1981;

Cronon, 1983). Until recent decades many Australian farmers were required to thus improve their properties as part of the conditions of purchase, leading to widespread clearance of native vegetation (Tonts, 2005: 197).

Agriculture has consistently been understood as a threshold process in human history notwithstanding the huge amount of geographic and temporal variability in its practice. The significant differences even between contemporary Sweden and Australia that we will illustrate, let alone their different historical trajectories, give us pause to consider what ‘agriculture’ as a concept has in common (Thomas, 1991). As a somewhat ironic reflection on Ratzel, a legacy of soil erosion and degradation through the history of tillage has led to a situation where today’s marker of good agricultural stewardship in Australia is to use ‘non-tillage agriculture’, a technique that is increasingly applied also in Sweden. For example, wheat is now sown by ‘drilling’ holes for seeds, rather than ploughing a long continuous furrow, in order to minimize wind erosion and maintain the water content of the soil. Without attempting to account for the many different manifestations of agriculture, both past and present, we simply emphasise that it is unlikely to have hung together as a concept without the central notion of separating humans/culture/civilisation out from nature.

An important part of this discussion is also the emphasising of difference between peoples who had agriculture and those who did not. In Australia, the agricultural metaphor was central to the British colonising culture’s vision of itself and its civilising presence. The apparent absence among the Aboriginal people of ‘tillage’ and hence ‘culture’ served to legitimate both conceptual and physical dispossession (Head, 2000). This emphasis on difference, and evolutionary distance, required people to ignore the diversity of hunter-gatherer practices, including in the Australian context a number of practices that would clearly lie along an agricultural continuum (Head, 2000). This blindspot towards Aboriginal soil and plant cultivation practices was relatively easy to maintain, since most of the practitioners seem to have been women. A parallel could be drawn to the Saami cultures in Sweden (Adams, 2005). Despite the fact that reindeer husbandry, and indeed Saami policy in general, are administered by the Swedish Ministry of Agriculture, reindeer herding is commonly not interpreted as a kind of agriculture. As this nomadic culture leaves rather few physical traces on the ground, the cultural landscape of the Saami and their reindeer is often perceived by outsiders as “untouched” by humans (Nilsson Dahlström, 2003: 174). Notwithstanding the fact that reindeer husbandry has been modernised and rationalised and is today carried out with the help of vehicles such as snowmobiles and helicopters, the landscape shaped by this land use is generally understood as nature. It is also still today easy to find evidence of a tendency to describe Saami people as being closer to nature, for example in the Swedish interpretations of Convention on Biological Diversity and its writings about traditional cultures, and indigenous and local people and local knowledge (Ministry for Sustainable Development, 2005).

## 3. Farmers and ‘nature’ in Sweden

Farming has been an active force in the Scandinavian landscape for six thousand years. The first farming activities adopted were nomadic animal husbandry. Later, slash and burn agriculture was introduced, and around 2000 BP permanent settlements were established, which included keeping cattle in stables during winter, and thus providing manure for permanent fields. The combination of animal husbandry and cropping that became the traditional way of farming in Scandinavia, was well established in the Middle Ages, when Sweden emerged as a nation. Over the centuries, until the introduction of commercial fertilisers around 1900 AD, the

landscapes surrounding agricultural settlements were dominated by meadows, pastures and forested land also used for grazing, while arable fields were rather small (National Atlas of Sweden, 1994). This long-term human intervention in the form of livestock keeping and mowing has created semi-natural grasslands, now identified as some of the most species-rich biotopes in Sweden, with the maintenance of biological values being dependent on continuous management (Lindborg et al., 2008).

As in most other Western economies, farming in Sweden underwent an impressive development during the twentieth century in terms of rationalisation, mechanisation and specialisation, and increasingly so after World War Two (Flygare and Isacson, 2003; National Atlas of Sweden, 1994). Due to growing environmental impacts related to features such as pesticides, artificial fertilisers and motorisation, farming became understood as conflicting with 'nature' and environmental goals when modern Swedish nature conservation emerged in the 1960s. During the last few decades however this has changed due to the significant abandonment and reforestation of farmland. In this process, the area of semi-natural grasslands has diminished extensively, as these lands do not fit into modern agriculture, being in general less productive (Stenseke, 2006). It has been acknowledged that many species and biotopes in the Swedish rural landscape are today dependent on farming activities for their survival (Emanuelsson, 2009). A number of national environmental aims concerning the preservation of semi-natural grasslands has been formulated (Swedish Government, 2005), and through agri-environmental schemes, farmers have been offered extra payment for the management of semi-natural grasslands, for mowing and even for sowing seeds of traditional weeds into crop fields (Swedish Environmental Protection Agency et al., 2005).

The increased interest towards rural landscapes in Sweden during the last few decades, has resulted in many projects aiming at protection, preservation and conservation of agricultural landscapes and the values associated with them. Cultural landscapes of natural value have been designated, and the expression "preserve through agricultural use" is a well established device in nature conservation (Saltzman, 2000b). It could therefore be argued that in Sweden abandonment of agricultural land is seen as a greater threat to biodiversity than ongoing conventional farming. The interest expressed by authorities and scientists could also be related to a nostalgic looking back towards presumed idylls in rural communities of past times. Modern and large scale agriculture is often mentioned among the factors that traditional, rural landscapes have to be protected against. There are today numerous Swedish Nature reserves that are aiming at the preservation of landscapes and biotopes that have been shaped through centuries of cultivation and grazing. In these reserves different forms of agriculture are used as means for nature conservation. In managing the values of agricultural landscapes, a new profession is emerging. Landscape entrepreneurs, specialised in managing biodiversity and cultural heritage, now get a significant share of their income from environmental subsidies.

#### 4. Farmers and 'nature' in Australia

In contrast to Sweden, agriculture as we recognise it today is a much more recent aspect of the Australian landscape. When the first fleet brought boatloads of convicts to the present-day site of Sydney in 1788, it also brought the materials to establish English agriculture and its associated practices in Australia: axes, hoes, hand saws, 60 bushels of seed wheat, fruit tree seedlings, horses, cattle, sheep, goats and hogs among others. Early farming in the various colonies was very much focused on subsistence needs. It was not until the 1830s that squatters moved out of established

settlements in search of more grazing land, triggering a rapid and uncontrolled expansion across large areas of the continent. Commercial crop production expanded in the second half of the nineteenth century, made possible by the establishment of railway networks (Heathcote, 1994; Young, 1996). A different sort of expansion occurred again in the middle decades of the twentieth century, as new technologies, fertilisers and crop varieties facilitated greatly increased yields in key crops such as wheat.

Farming in Australia is usually divided into agriculture and pastoralism (Aplin, 2002), together now occupying approximately 60% of the continent (Young, 1996). The former includes cropping, mixed farming and sometimes more intensive forms such as market gardens and orchards. The latter is confined to 'total or near-total reliance on extensive forms of animal rearing' (Aplin, 2002: 342), predominantly cattle and sheep. Production for export has been a significant part of Australian agriculture for most of this time.

In less than two hundred years, dramatic landscape changes accompanied this colonization process. Extensive areas of woodland and forest vegetation were cleared for cropping and grazing, and a set of more complex ecological processes leading to salinisation and land degradation were set in train (Kirkpatrick, 1999). The story of agriculture in Australia can be understood as an interplay between two narratives (Bolton, 1981; Young, 1996; Dibden and Cocklin, 2005, Cocklin and Dibden, 2009). The first is the nation-building narrative. Dominant throughout the late nineteenth and first three quarters of the twentieth century, this is the story of how agriculture and pastoralism opened up the continent, fed the nation, and was the basis of the export industry on which the Australian economy was built. The second, becoming dominant over the last few decades, is the narrative of environmental damage. Key government reports such as the *State of Environment* reports (Australia State of Environment Committee, 2006) documented ways in which agricultural thinking and practice transposed from the northern hemisphere had been responsible for substantial environmental degradation through land clearing, soil erosion, salinisation and degradation of waterways. In the strongest environmentalist perspectives on these questions agriculture and pastoralism became understood as inherently inimical to the Australian ecology. Such perspectives are embedded in legislation such as the Federal Environment Protection and Biodiversity Conservation Act 1999, which lists land clearance as a Key Threatening Process. The definition of land clearing includes 'clearance of native vegetation for crops, improved, pasture, plantations, gardens, houses, mines, buildings and roads' (<http://www.environment.gov.au/biodiversity/threatened/kt/clearing.html>). National imaginings of rurality are now more likely to be associated with economic and environmental decline (Bell, 2001).

That cattle are generally not considered to belong in Australian nature is well illustrated by the contentious and politically-charged issue of grazing in alpine national parks. Seasonal cattle grazing in alpine areas was initiated by pastoralists in the nineteenth century. Long-term plot studies of grazed and ungrazed areas had shown clear detrimental impacts on vegetation by the 1950s (see Kirkpatrick, 1999 for overview), and cattle were largely removed from New South Wales national parks by the early 1960s. However political pressure exerted by graziers succeeded in maintaining access to adjacent alpine park areas in Victoria for decades longer. It is only much more recently that the Victorian government has decided not to renew grazing licences in Victorian alpine national parks (Department of Sustainability and Environment, 2010). It is notable that the strongest proponents of the presence of cattle, the Mountain Cattlemens Association of Victoria (<http://www.mca.com.au>) do so mainly on the basis of cultural heritage rather than natural. That is, they argue that the cattle belong on the basis of



cultural associations rather than because the cattle are part of nature. In this argument, grazing maintains nearly two centuries of cultural heritage.

## 5. Origins and belonging

In this section we discuss the role of origins in contemporary understandings of “rights to belong” in nature. If agriculture is considered to belong in Swedish nature but not Australian, is this basically because of its much longer history in the former location? This discussion draws on threads of time and identity. The temporal boundary of 1788 (the symbolic date of permanent British settlement in Australia) marks a number of related boundaries: between Aboriginal presence and control, and the removal of Aboriginal influence on the land, between hunting and gathering (traditionally understood as the primitive mode of production) and agro-pastoral lifeways (the basis of civilisation), and hence between the original, native nature and the introduced, exotic nature (Head and Muir, 2006). Bushtucker enterprises, where native species are farmed, are still rare enough to be considered quaint exceptions.

To a Swedish researcher in Australia it is striking that the many efforts put into landscape management and nature conservation in Australia are generally based on assumptions that point out native species as the only conceivable components of a desirable Australian nature, whereas introduced species are considered as ‘pests’ and ‘weeds’ that are to be eradicated. This seems, at least at first sight, to be a quite provocative stance, from which one could, in a Swedish context, draw a number of parallels regarding social and political matters – parallels with racist and nationalist undertones. At second thought, it is obvious that the relatively recent European settlement and the geographical separation of the Australian continent presents a quite distinctive cultural and ecological context for human relationships to the environment, for understandings of nature/culture, and for social parallels concerning rights to belong in the landscape. Most of the Australians that are today striving for restoration of native nature are themselves ‘non-natives’ under such a purist definition, and their efforts can to a large extent be understood as a self-critical dealing with the brutal history of European settlers and their impact on the Australian continent. However, the acknowledgement of Australian nature as consisting exclusively of pre-settlement biotopes and native species still implies that human activities such as agriculture and pastoralism are inherently bad for this nature, or at least quite separate from it. From a contemporary Scandinavian perspective this understanding of farmers and farm animals as intrinsically inconsistent with nature is surprising.

Even as these boundaries are inscribed in Australian nature, they contain a number of contradictions. Introduced species, such as wheat, are fostered where they provide crops for food. But agricultural weeds, i.e. the sort that would be removed from a wheat paddock, are no less native than the wheat itself. To develop the cattle example further, their contingent positioning is illustrated by Gill and Anderson (2005) in their analysis of pastoralism and inland Australia, where there has always been grazing of ‘unimproved native’ pasture. Gill and Anderson show how pastoralists delineate introduced rabbits as feral and wild, but introduced cattle as natural and domesticated, part of the appropriate order of things. Parallels can be drawn here with the place of wolves in Swedish pastoralism, since they pose a significant threat to sheep, and it is indeed questioned by farmers whether wolves are to be considered natural (Sjölander-Lindqvist, 2008). Similar to the position of the mountain cattlemen discussed above, the notion of cattle being ‘natural’ in this context is precisely the opposite of their belonging to wild nature. They are part of the package of

civilisation, and their belonging is at least partly to do with being productive, or helping render the land productive.

However, as there are many readings of nature, our argument should not be interpreted as denying completely any link between cattle and notions of nature in Australia. For example, verdant dairy landscapes with contented cows are used to market milk and butter through visual and semiotic connections to nature. Nor are historically influenced understandings never likely to change, particularly as new waves of immigrants engage differently with the environment. In many ways these contradictions emphasise our argument, including through the histories that are rendered invisible. Take for example the fact that over 95% of the land managed by the New South Wales National Parks and Wildlife Service has some history of pastoralism and grazing (Harrison, 2004), and similar stories can be told about the role of pastoralism in Swedish national parks – from the large Sarek and Padjelanta in the North to the much smaller Ängsö and Dalby Söderskog in the South. As Harrison argues, this is a history that is mostly hidden in renderings of national parks as protecting ‘nature’.

Although we have emphasised the temporal dimensions of belonging here, the spatial aspects are also relevant to this discussion. In Australia the boundary of the nation is more or less contiguous with that of a continent whose distinctive ecology has evolved in relative isolation over recent geological time. In Sweden there are clear spatial connections to continental northwest Europe in the south, and to other Arctic landscapes in the north. Furthermore, the national borders have changed over time – as late as 1809 Sweden lost its eastern half, present-day Finland, to Russia. These circumstances would presumably make it harder to delineate any species as definitively ‘Swedish’, and yet actors such as the Swedish Species Information Centre, connected to the Swedish University of Agricultural Sciences, put much effort into the monitoring of Swedish species (<http://www.artdata.slu.se>).

## 6. Humans in the agricultural landscape – interference or positive involvement?

Questions of which species belong in nature lead us to the question of who belongs in the agricultural landscape. In the previous sections we introduced both positive and negative connotations of human engagement with the natural world via agricultural practices. In this section we develop our comparative perspective by further exploring the relationship between farming activities and the protection of environmental values. We ask whether agriculture is understood as a threat or a contribution to nature and landscape questions.

Landscape management with the farmer as a key actor is clearly expressed in the World Heritage status of the Agricultural Landscape of Southern Öland, which states that modern farming is a prerequisite for rather than a threat to the natural and cultural values of this landscape. By stressing the importance of ongoing agricultural development in the landscape of Southern Öland, the authorities have formulated a frame for conservation which will call for continuous considerations, consultations and conversations among the people who are involved in the different ways of using and appreciating this particular landscape (Saltzman, 2000b; Stenseke, 2009).

Though recognising the important role of farmers in maintaining nature qualities in agricultural land, it is mostly farming methods and land use from times before mechanization that have been promoted in Swedish landscape management and planning. Thus, there is a tendency, felt among farmers, that it is yesterday’s farmers and yesterday’s farming that is good, but not so much the farmer of today (Stenseke, 2004). Furthermore there is a difference

between cultivation and grazing in the nature protection perspective. That is, there has been a great focus on semi-natural grasslands as important reservoirs of biodiversity, while arable land and large scale intensive farming are not very much appreciated.

The general public share the view of farming land as a kind of nature to a significant extent. In a national survey on outdoor recreation in Sweden, 80% of the respondents considered arable fields and pastures mainly as nature (Fredman et al., 2008). In contrast, when an Australian farmer wants to protect or preserve 'nature', he or she has to find a way to do it *in spite of* the farming activities, not *as part of* the farming activities. For example, he/she might preserve some uncleared native vegetation on part of the land, or restore previously cleared vegetation corridors along creek or fence lines. While there is much discussion about how to make the actual farming activities more sustainable and environmentally friendly, at heart they are rarely considered 'natural' or normal or as belonging to the Australian continent.

An illustrative example is the emergence of the Landcare program in the late 1980s. Building on a number of smaller scale efforts in erosion mitigation and tree preservation (outlined by Campbell, 1994), the key catalyst was a partnership between the National Farmers Federation and the Australian Conservation Foundation. This 'unholy alliance' was able to persuade the Federal government to fund a major program through the 1990s, the 'Decade of Landcare'. A variety of different Landcare groups sprang up, working in different ways on environmental issues in rural areas. Here was a means for farmers to express their stewardship of the land, and some resources to take action on issues such as salinity and vegetation restoration. The partnership between farmers and 'greenies' also had considerable symbolic value, in showing that environmental issues were not just about pristine landscapes and endangered species, and that environmental passion could be found throughout conservative as well as radical sectors of society. Even when Australian farmers present themselves as environmental stewards, our field experience is that they do so in a context of defensiveness, whereby they find themselves having to combat an understanding of themselves as environmental destroyers. The Landcare program has now been subject to considerable critique from various directions, for example in relation to its voluntarism, its ecological effectiveness and by scholars of neoliberalism (Dibden et al., 2009). It has had limited success at habitat protection beyond the scale of the individual farm, for example in enhancing connectivity of habitat at a landscape scale (Gill et al., 2010).

A similar story of defensiveness can be told about farmers in some parts of Sweden, in particular crop farmers in the fertile agricultural plains in the southern parts of the country. These farmers are used to being depicted as responsible for a number of environmental problems, including an impoverishment of the rural landscape due to the use of more and more efficient cultivation techniques (Lewan et al., 1995). Livestock and dairy farmers in the forested and intermediate areas of Sweden on the other hand, would be more likely to acknowledge their own impact on nature as beneficial to biodiversity as well as to the maintenance of the open landscape.

Further, in most Australian cases as well as in the more productive farmlands of Southern Sweden, the 'productive' and 'restorationist' land uses are separate within the farm landscape, i.e. the latter is found along creek and river lines and along fence lines where it will not interrupt the technology of large scale mechanization. Another relevant trend to mention is the recent expansion of 'sustainable' (or *avant boutique*) agriculture for affluent markets, including for example olives, wine, traditional grains such as spelt, and small scale specialist cheese makers. These farmers are often able to position themselves in contrast to the sort of agribusiness

that would be represented by major crops such as wheat, but are in fact not necessarily environmentally benign (e.g. irrigated vineyards use huge amounts of water, Common Olives (*Olea europaea*) have become invasive in some bushland areas of South Australia).

In our broad discussion here we have emphasised differences between Sweden and Australia by generalising about each. It is important to emphasise the internal variability and nuances emerging from new research. Full-time farmers and amenity migrants may differ considerably in attitudes and practices, and nor can even these categories be considered homogeneous. For example, Gill et al. (2010: Table 2) characterize three different types of stewardship expressed by new rural landowners in the Jamberoo Valley, New South Wales. These are termed 'lifestyle agrarian' (akin to traditional farming stewardship, husbandry through production), 'regenerative' (production goals often present, along with conservation goals) and 'conservationist' (primary focus on ecological restoration of previous negatively perceived agricultural uses). But in support of our central argument about Australia, all three share an emphasis on doing better than the damaging agricultural activities of the past. Further, in that study and others, there is little evidence that these mostly individual practices have transcended property boundaries to the extent that would be needed for landscape-scale restoration (see Gill et al., 2010 for review, cf. Stenseke, 2001).

## 7. Implications – integrated and separationist approaches to environmental protection and food production

We have shown how the longer history of agriculture in Sweden than Australia has led to a situation where certain types of farming and farmers are considered unproblematically to belong, the former to nature and the latter in the landscape. In Australia by contrast the much shorter history of agriculture, and its association with the social and ecological impacts of colonisation, leave it in a more ambivalent space. This affects the way in which biodiversity and environmental protection occurs: in Sweden as part of farming, in Australia in spite of it. We can consider whether this means the environmental protection paradigms in Swedish agricultural landscapes have more potential to be integrated, holistic and flexible. In the Australian case separationist approaches are more likely, either between agricultural and conservation land uses, or between the components of the intra-farm mosaic. In this section we consider these implications in more detail, conscious of the broader context of climate change, sustainability and food security issues. The point of this discussion will not be what can Australia learn from Sweden or vice versa, but rather what can be learned from the comparison? The point here is that the future is not fixed, and that a diversity of approaches will be needed in years to come. If the future is likely to demand different ways of doing things, what will be the consequences of alternative pathways?

Australia will not have several thousand years for cows to become native, but there are several ways in which the 'belonging' of agriculture will need to be accommodated, both conceptually and materially. If a separationist paradigm is likely to persist for the foreseeable future, how can connectivity and associations be enhanced? First, it is now acknowledged that biodiversity conservation objectives cannot be fulfilled on public lands alone. 'The tension between conservation and production in agricultural landscapes' (House et al., 2008: 153) is a central issue in Australian natural resource management, providing both challenge and opportunity. A range of innovative partnerships that connect habitat in fragmented landscapes will be needed, along the lines of Indigenous Protected Areas and Voluntary Conservation Agreements (Adams and English, 2005; Adams, 2008). A more systematic acknowledgement of multifunctional agricultural landscapes will

become necessary in order to support and scale up the efforts of farmers who are protecting or restoring habitat on their land. As Cocklin and Dibden (2009: 5) argue, 'there has been 'a general tendency in Australia to under-value biodiversity on *farmed* (contrasted with *wild*) lands' (emphasis in original). An important aspect of biodiversity conservation is the management of invasive species, which are predicted to become more of an issue under climate change (Low, 2009).

Second, the focus on 'native nature' within nature protection and landscape management could, at least to some extent, be combined with an interest in environmental values created by human/non-human interaction in past and present time. The radical transformation of Australian landscapes during the last 200 years cannot be undone. The translation of European farming to Australia has certainly caused a great loss of biodiversity and other values commonly connected to nature, but it has also resulted in new values. Most scientific approaches now stress managing the ecologically hybrid reality – with a focus on invasives – rather than aspiring to restore the pristine (Macintyre and Hobbs, 1999; Seastadt et al., 2008; Hobbs and Suding, 2009). An acknowledgement of nature and landscape values of present-day Australia does not necessarily exclude recognition either of the values of native biodiversity, or of Aboriginal knowledge about and relations to the landscape (Trigger et al., 2005).

Third, the question of whether and which existing agricultural practices will be able to belong in future decades is very much open, with predictions that Australia could go from being a net exporter of wheat to an importer by 2050 (Howden et al., 2009). Food production is already under stress in the irrigated areas of the Murray-Darling Basin. The combined drivers of population growth and increasing drought under climate change scenarios will challenge the viability of much existing agriculture. As current debates around rice and cotton production indicate, Australia is having a conversation about what kinds of agricultural production will be viable in the future, with projections of much drier southern temperate areas and wetter tropical areas (CSIRO, 2007). Here, it is likely that some land will need to be retired from farming altogether. In Sweden on the other hand, the effects of climate change on agriculture have so far not been as high on the agenda, perhaps because the predicted changes are estimated to be mainly beneficial for agricultural production in Scandinavia (Fogelfors et al., 2009).

Connected to all the above points is the role of human activity in both Australian and Swedish landscapes, and whether it is considered separate to, or part of, what stands for nature. Greater attention to the role of diverse human actors is an important research need. Fine-grained research with new rural landholders is a good example of this, illustrating outcomes of diverse practices that will surely increase (Klepeis et al., 2009; Gill et al., 2010). Many of these landscapes have been shaped through unequal power relations. For example, many of the old landscape elements that are today perceived as very valuable components of typical Swedish rural landscapes have in a concrete sense been formed by people in subordinate positions, through hard manual labour and the use of marginal resources. Any opinion about *who* and *what* belongs *where*, is an expression of a specific interpretation of the landscape. In both Sweden and Australia, rural landscapes are changing with amenity migration and the production of new values such as life-style, recreation and cultural heritage (Burnley and Murphy, 2004; Costello, 2007). In Sweden about 50% of people have access to second homes (Fredman et al., 2008), and they are an important feature of the rural landscape in many areas (Marjavaara and Müller, 2007).

Our comparison has been at a level of generalisation and it is important to emphasise that there are exceptions, contradictions, variability and disruption within each of the categories we have

called Sweden and Australia. In the Swedish case, the less separationist possibilities would appear not to extend far beyond agricultural grasslands used for grazing. Mels (1999, 2002) has shown how the power of wild nature, without humans, informed the establishment of National Parks in Sweden, with problematic consequences for both the Saami lands of the arctic north (see also Beach, 2001, 2004; Nilsson Dahlström, 2003), and the forest parks of Skåne, such as Söderåsen. Mels argues that the concept of nature promoted in National Parks and through the Swedish EPA<sup>2</sup> is one heavily informed by biological science views that exclude humans. The park principle 'remains committed to an image of parks as spaces of natural science rather than social convention' (Mels, 1999, p.174). Parks such as Söderåsen, Stenshuvud and Dalby Söderskog had long histories of cultural engagement and transformation, indeed were 'to a substantial degree the product of human practices' (Mels, 1999, p. 170). They responded in unexpected ways to management plans which fenced them and left them to take care of themselves.

## 8. Conclusions

We have not tried to answer the question of whether or not cows belong in nature. Rather we have used it as an entry point because the concept and practice of agriculture is an important, and under-developed, aspect of discussions about contemporary nature/culture relations. Our comparison of Swedish and Australian agriculture in this paper has elucidated variability along two key axes of boundary making in rural landscapes. The first axis guided us while looking at origins and belonging, particularly in terms of the different timescales. Agriculture is understood to belong to nature in Sweden through a history that dates back to at least six thousand years, and has occurred in tandem with the key ecological changes since the end of the Pleistocene. In Australia the year of British colonisation, 1788, symbolises the temporal boundary of belonging. People and organisms who were here then are considered native, natural and belonging to the deep past. Such broad brush strokes leave farms and food production landscapes in ambivalent or hostile space. The second axis helped us examine the role of humans and human activities in the landscape, and whether these are beneficial or detrimental. We then considered the broad differences between Sweden and Australia in terms of their considerable implications for environmental management and biodiversity protection in rural landscapes. In Sweden, at least for grassland ecosystems, environmental protection can occur as part of farming, in Australia it must usually be done in spite of it. We have categorised these patterns as integrationist and separationist respectively. These patterns should themselves be considered historically contingent, and they give us some inklings of future possible trajectories. In a globalised world, and facing environmental problems which are increasingly interpreted and discussed at a global level, it is likely that rationales for environmental management will develop towards convergence rather than continuing difference.

## Acknowledgements

Lesley Head's work in Sweden was made possible by the King Carl XVI Gustaf Visiting Professorship in Environmental Science at Högskolan Kristianstad, and funding from the Australian Research Council (DP 0665932). Joachim Regnell is thanked for many stimulating and helpful discussions. Katarina Saltzman's work in Australia was funded by a University of Wollongong International

<sup>2</sup> Naturvårdsverket.



Links Grant. We thank the members of the Wollongong-Trondheim-Göteborg video seminar for discussions, and several anonymous referees for helpful comments.

## References

- Adams, M., 2005. Beyond Yellowstone? Conservation and indigenous rights in Australia and Sweden. In: Cant, G., Goodall, A., Inns, J. (Eds.), *Discourses and Silences: Indigenous Peoples, Risks and Resistance*. Department of Geography, University of Canterbury, Christchurch.
- Adams, M., English, A., 2005. 'Biodiversity is a whitefella word': changing relationships between Aboriginal people and the NSW National Parks and Wildlife Service. In: Taylor, L., Ward, G., Henderson, G., Davis, R., Wallis, L.A. (Eds.), *The Power of Knowledge, the Resonance of Tradition*. Aboriginal Studies Press, Canberra.
- Adams, M., February 2008. Foundational myths: country and conservation in Australia. *Transforming Cultures eJournal* 3 (1). <http://epress.lib.uts.edu.au/ojs/index.php/TfC/article/view/684>.
- Amcoff, J., 2006. Rural population growth in Sweden in the 1990s – unexpected reality or spatial-statistical chimera. *Population, Space and Place* 12, 171–185.
- Anderson, K., 1997. A walk on the wild side: a critical geography of domestication. *Progress in Human Geography* 21, 463–485.
- Anderson, K., 2003. White natures: Sydney's royal agricultural show in post-humanist perspective. *Transactions of the Institute of British Geographers* 28, 422–441.
- Aplin, G., 2002. *Australians and Their Environment*. Oxford University Press, Melbourne.
- Australia State of Environment Committee, 2006. *Australia, State of the Environment 2006: Independent Report to the Australian Government Minister for the Environment and Heritage*. Department of the Environment and Heritage, Canberra.
- Beach, H., 2001. World heritage and indigenous peoples – the example of Lapland. In: Sundin, B. (Ed.), *Upholders of Culture: Past and Present*. Royal Swedish Academy of Engineering Sciences (Kungl. Ingenjörsvetenskapsakademien-IVA), Stockholm, pp. 90–98.
- Beach, H., 2004. Political ecology in Swedish Saamiland. In: Anderson, D., Nuttall, M. (Eds.), *Cultivating Arctic Landscapes. Knowing and Managing Animals in the Circumpolar North*. Berghahn Books, New York, pp. 110–123.
- Beesley, K., Millward, H., Ilbery, B., Harrington, L., 2003. *The New Countryside: Geographic Perspectives on Rural Change*. Brandon University and Saint Mary's University, Canada.
- Bell, S., 2001. The wheatbelt in contemporary rural mythology. In: Lockie, S., Bourke, L. (Eds.), *Rurality Bites: The Social and Environmental Transformation of Rural Australia*. Pluto Press, Annandale.
- Bjorkhaug, H., Richards, C.A., 2008. Multifunctional agriculture in policy and practice? A comparative analysis of Norway and Australia. *Journal of Rural Studies* 24, 98–111.
- Bolton, G., 1981. *Spoils and Spoilers: Australians Make Their Environment 1788–1980*. George Allan and Unwin, Sydney.
- Burnley, I., Murphy, P., 2004. *Sea Change: Movement from Metropolitan to Arcadian Australia*. University of New South Wales Press, Sydney.
- Campbell, A., 1994. *Landcare. Communities Shaping the Land and the Future*. Allen and Unwin, Sydney.
- Castree, N., 2004. Nature is dead! Long live nature! *Environment and Planning A* 36, 191–194.
- Cocklin, C., Dibden, J., 2009. Systems in peril: climate change, agriculture and biodiversity in Australia. IOP Conference Series: Earth and Environmental Science 8, 1–21.
- Costello, L., 2007. Going bush: the implications of urban-rural migration. *Geographical Research* 45, 85–94.
- Cronon, W., 1983. *Changes in the Land. Indians, Colonists, and the Ecology of New England*. Hill and Wang, New York.
- CSIRO, 2007. *Climate Change in Australia*. CSIRO, Australian Bureau of Meteorology. Department of Sustainability and Environment, Victoria, 2010. *A New Beginning for the Alpine National Park*. <http://www.dse.vic.gov.au/DSE/nrenpr.nsf/childdocs/4095233FDC7210E8CA25700700063A32?open> (last accessed 02.02.10.).
- Dibden, J., Cocklin, C. (Eds.), 2005. *Sustainability and Change in Rural Australia*. University of New South Wales Press, Sydney.
- Dibden, J., Cocklin, C., 2009. 'Multifunctionality': trade protectionism or a new way forward? *Environment and Planning A* 41, 163–182.
- Dibden, J., Potter, C., Cocklin, C., 2009. Contesting the neoliberal project for agriculture: productivist and multifunctional trajectories. *European Union and Australia Journal of Rural Studies* 25, 299–308.
- Emanuelsson, U., 2009. *The Rural Landscapes of Europe: How Man Has Shaped European Nature*. Formas, Stockholm.
- European Commission, 2005. *Agri-environment Measures. Overview on General Principles, Types of Measures and Application. Unit G-4 – Evaluation of measures applied to Agriculture, Studies*. Available at: [Directorate General for Agriculture and Rural Development ec.europa.eu/agriculture/publi/reports/agrienv/rep\\_en.pdf](http://DirectorateGeneralforAgricultureandRuralDevelopment.ec.europa.eu/agriculture/publi/reports/agrienv/rep_en.pdf) (accessed 12.11.09.).
- Fogelfors, H., Wivstad, M., Eckersten, H., Holstein, F., Johansson, S., Verwijst, T., 2009. *Strategic Analysis of Swedish Agriculture: Production Systems and Agricultural Landscapes in a Time of Change*. Department of Crop Production Ecology, Swedish University of Agricultural Sciences, Uppsala.
- Flygare, I., Isacson, M., 2003. *Det Svenska Jordbrukets Historia. Band 5, Jordbruket i Valfärdssamhället: 1945–2000*. Natur och kultur/LT, Stockholm.
- FAO, 2005. [www.fao.org/statistics](http://www.fao.org/statistics).
- Fredman, P., Karlsson, S.-E., Romild, U., Sandell, K. (Eds.), 2008. *Besöka naturen – hemma eller borta? Delresultat från en nationell enkät om friluftsliv och naturturism i Sverige*. The research program Outdoor recreation in change, Report no. 3.
- Gill, N., Anderson, K., 2005. Improvement in the Inland: Culture and Nature in the Australian Rangelands. <http://www.australianhumanitiesreview.org/archive/Issue-Jan-2005/gill.html>.
- Gill, N., Klepeis, P., Chisholm, L., 2010. Stewardship among lifestyle oriented rural landowners. *Journal of Environmental Planning and Management* 53, 317–334.
- Harrison, R., 2004. *Shared Landscapes. Archaeologies of Attachment and the Pastoral Industry in New South Wales*. University of New South Wales Press, Sydney.
- Head, L., 2000. *Second Nature. The History and Implications of Australia as Aboriginal Landscape*. Syracuse University Press, Syracuse.
- Head, L., Muir, P., 2006. Suburban life and the boundaries of nature: resilience and rupture in Australian backyard gardens. *Transactions of the Institute of British Geographers* 31, 505–524.
- Heathcote, R.L., 1994. *Australia*, second ed. Longman, Harlow, UK.
- Hobbs, Richard J., Suding, K.N. (Eds.), 2009. *New Models for Ecosystem Dynamics and Restoration*. Island Press, Washington D.C.
- Holmes, J., 2006. Impulses towards a multifunctional transition in rural Australia: gaps in the research agenda. *Journal of Rural Studies* 22, 142–160.
- House, A.P.N., MacLeod, N.D., Cullen, B., Whitbread, A.M., Brown, S.D., McIvor, J.G., 2008. Integrating production and natural resource management on mixed farms in eastern Australia: the cost of conservation in agricultural landscapes. *Agriculture, Ecosystems and Environment* 127, 153–165.
- Howden, M., Crimp, S., Nelson, R., Park, S., Marshall, N., McKeon, G., 2009. Australian agriculture in a climate of change. In: Paper Presented to Greenhouse 2009 Conference, Perth W.A., CSIRO Adaptation Flagship.
- Hugo, G., 2005. The state of rural populations. In: Cocklin, C., Dibden, J. (Eds.), *Sustainability and Change in Rural Australia*. UNSW Press, Sydney, pp. 56–79.
- Kirkpatrick, J., 1999. *A Continent Transformed. Human Impact on the Natural Vegetation of Australia*. Oxford University Press, Melbourne.
- Klepeis, P., Gill, N., Chisholm, L., 2009. Emerging amenity landscapes: invasive weeds and land subdivision in rural Australia. *Land Use Policy* 26, 380–392.
- Knobloch, F., 1996. *The Culture of Wilderness. Agriculture as Colonization in the American West*. The University of North Carolina Press, Chapel Hill.
- Latour, B., 2004. *Politics of Nature. How to Bring the Sciences into Democracy*. Harvard University Press, Cambridge, Mass.
- Lewan, L., Stenseke, M., Lewan, N., 1995. *Landscape and Life: Farmers in the Southern Plain: Case Studies from the Parishes of Bösarp, Gylle and Simlinge*. Department of Social and Economic Geography, Lund.
- Lindborg, R., Bengtsson, J., Berg, A., Cousins, S.A.O., Eriksson, O., Gustafsson, T., Hasund, K.-P., Lenoir, L., Pihlgren, A., Sjödin, E., Stenseke, M., 2008. A landscape perspective on conservation of semi-natural grasslands. *Agriculture, Ecosystems and Environment* 125, 213–222.
- Low, T., 2009. Climate change and invasive species. Box 5.12. In: Steffen, W., Burbidge, A.A., Hughes, L., Kitching, R., Lindenmayer, D., Musgrave, W., Stafford Smith, M., Werner, P. (Eds.), *Australia's Biodiversity and Climate Change: A Strategic Assessment of the Vulnerability of Australia's Biodiversity to Climate Change*. A report to the Natural Resource Management Ministerial Council commissioned by the Commonwealth Department of Climate Change. CSIRO Publishing.
- Macintyre, S., Hobbs, R., 1999. A framework for conceptualizing human effects on landscapes and its relevance to management and research models. *Conservation Biology* 13, 1282–1292.
- Marjavaara, R., Müller, D.K., 2007. The development of second homes' assessed property values in Sweden 1991–2001. *Scandinavian Journal of Hospitality and Tourism* 7, 202–222.
- Mels, T., 1999. *Wild landscapes: the cultural nature of Swedish National Parks*. Diss. Lund University Press, Lund.
- Mels, T., 2002. Nature, home and scenery: the official spatialities of Swedish national parks. *Environment and Planning D: Society and Space* 20, 135–154.
- Ministry for Sustainable Development, 2005. *Third National Report (submitted by Sweden) on the status of implementation of the convention on biological diversity*. Available at: <http://www.cbd.int/reports/> (accessed 18.08.10.).
- National Atlas of Sweden, 1994. *Landscape and Settlements*. Almqvist & Wiksell International, Stockholm.
- Nilsson Dahlström, Å., 2003. *Negotiating wilderness in a cultural landscape. Predators and Saami reindeer Herding in the Laponian World Heritage Area*. Diss., Acta Universitatis Upsalensis, Uppsala.
- Olofsson, P., Magnusson, S.-E., Magntorn, K., 2005. *Vattenriket. Årsbok för Naturskyddsföreningen i Skåne*, Lund.
- Olwig, K.R., 2002. *Landscape, Nature and the Body Politic. From Britain's Renaissance to America's New World*. University of Wisconsin Press, Madison.
- Ratzel, F., 1896. *The History of Mankind*. Macmillan, London.
- Ruddiman, W.F., 2003. The anthropogenic greenhouse era began thousands of years ago. *Climatic Change* 61, 261–293.
- Saltzman, K., 2000a. Rural nature: ideology versus practice in a controversial countryside. In: Hornborg, A., Pålsson, G. (Eds.), *Negotiating Nature: Culture, Power, and Environmental Argument*. Lund Studies in Human Ecology, vol. 2. Lund University Press, Lund, pp. 61–77.
- Saltzman, K., 2000b. Att bevara det föränderliga. Om nomineringen av Södra Ölands Odlingsskapskap till UNESCO:s världsarvslista. *Bebyggelsehistorisk tidskrift* 38, 61–78.



- Saltzman, K., 2008. Kor i naturen? Om landskapets vård och värde i Sverige och Australien. In: Jönsson, L.-E., Wallethe, A., Wienberg, J. (Eds.), *Kanon och kulturarv: historia och samtid i Danmark och Sverige*. Makadam, Gothenburg.
- Seastadt, T.R., Hobbs, Richard J., Suding, K.N., 2008. Management of novel ecosystems: are novel approaches required? *Frontiers in Ecology and the Environment* 6, 547–553.
- Sjölander-Lindqvist, A., 2008. Local identity, science and politics indivisible: the Swedish wolf controversy deconstructed. *Journal of Environmental Policy & Planning* 10, 71–79.
- Stenseke, M., 2001. Farmers, entrepreneurs and hobby peasants: postwar changes in some Skåne parishes. In: Buttimer, A. (Ed.), *Sustainable Landscapes and Life-ways: Scale and Appropriateness*. Cork University Press, Cork, pp. 182–198.
- Stenseke, M., 2004. The human factor in biodiversity. In: Palang, H., Sooväli, H., Antrop, M., Setten, G. (Eds.), *European Rural Landscapes: Permanence, Persistence and Change in the Globalising Environment*. Kluwer Academic Publishers, Dordrecht, pp. 397–410.
- Stenseke, M., 2006. Biodiversity and the local context. Linking seminatural grassland and their future use to social aspects. *Environmental Science & Policy* 9, 350–359.
- Stenseke, M., 2009. Local participation in cultural landscape maintenance: lessons from Sweden. *Land Use Policy* 26, 214–223.
- Statistics Sweden, 2007. Agricultural holdings and holders in 2007. SCB Statistiska meddelanden JO 34 SM 0801.
- Swedish Commission on Climate and Vulnerability, 2007. Sweden Facing Climate Change – Threats and Opportunities. Final report from the Swedish Commission on Climate and Vulnerability. Swedish Government official reports SOU 2007: 60
- Swedish Environmental Protection Agency, National Heritage Board, Board of Agriculture, 2005. Odlingslandskap i förändring. En uppföljning av LIM:s referensområden. (Agricultural landscapes in change. A Monitoring Report on LIM:s Reference Areas. Report No 5420.
- Swedish Government, 2005. Svenska miljömål – ett gemensamt uppdrag. (Environmental quality objectives – a shared responsibility) Government bill 2004/05:150.
- Thomas, J., 1991. Rethinking the Neolithic. Cambridge University Press, Cambridge.
- Tonts, M., 2005. Government policy and rural sustainability. In: Cocklin, C., Dibden, J. (Eds.), *Sustainability and Change in Rural Australia*. UNSW Press, Sydney, pp. 194–211.
- Trigger, D., Mulcock, J., Gaynor, A., Toussaint, Y., 2005. Ecological restoration, cultural preferences and the negotiation of 'nativeness' in Australia. *Geoforum* 39, 1273–1283.
- Whatmore, S., 2002. Hybrid Natures. Sage, London.
- Williams, R., 1972. Ideas of nature. In: Benthall, J. (Ed.), *Ecology, the Shaping Enquiry*. Longman, London.
- Wilson, G.A., 2001. From productivism to post-productivism... and back again? Exploring the (un)changed natural and mental landscapes of European agriculture. *Transactions of the Institute of British Geographers* 26, 77–102.
- Wilson, G.A., 2008. From 'weak' to 'strong' multifunctionality: conceptualising farm-level multifunctional transitional pathways. *Journal of Rural Studies* 24, 367–383.
- Young, A., 1996. Environmental Change in Australia Since 1788. Oxford University Press, Melbourne.