

RESEARCH

Preservation of Agricultural Land as an Issue of Societal Importance

Elin Slätmo

Based on concerns about food security and food sovereignty, it is appropriate to scrutinise societal measures for protecting agricultural land from conversion to other uses. Changes from agricultural to urban land use are particularly problematic, as they are largely irreversible. By analysing relevant Swedish policy, the present study investigated how the protection of agricultural land is framed as an issue of societal importance. Protection of agricultural land is enshrined in Swedish law, but its use is still continually changing to housing and other constructions. In a structured policy analysis, two questions were examined: (1) what are the societal motives for protecting agricultural land in Sweden, and (2) how do these motives influence the governance of agricultural land? The meaning of 'national importance', 'suitable for cultivation' and 'significant national interests' in Swedish land-use law was also analysed. The results showed that formulations in the law reflect the ambivalent discourses on agricultural land preservation and that the Swedish authorities view other land uses as more important than agriculture.

The Swedish governance system is currently built on trust that municipal institutions will make satisfactory decisions concerning land and water use. However, it has been shown that these decisions have not been satisfactory concerning the protection of agricultural land, and it is important to acknowledge that the sum of local decisions can be degrading for these life-supporting resources. The present analysis revealed a looming conflict between the preservation of soils for food production, on one hand, and local participation in decision making, on the other. This raises the question of whether it is more important to defend subsidiarity or to preserve certain resources which are important for food security, such as agricultural land.

Keywords: Agricultural land; Food security; Food sovereignty; Governance; Policy analysis

Introduction

Studying the Competition for Cultivated Land by Analysing National Legislation

The competition for cultivated land is increasing, since it is used not only for food production but also for production of fibre and bioenergy as well as for buildings and roads (Barr 2003; Overbeek 2009; UNEP 2014). Using arable land for other uses can affect national and international food security as well as access by individuals to food and the possibility of remaining on their land in this and future generations (e.g., food sovereignty) (FAO 2009; Patel 2009). Based on concerns about food security and food sovereignty, it is appropriate to scrutinise the societal measures for protecting agricultural land from conversion to other uses. Changes from agriculture to urban land uses are particularly problematic, as they are viewed as irreversible (Amundson et al. 2015; Seto et al.

2011; Skog & Steinnes 2016). In the political rhetoric of the European Union (EU), this is currently called 'soil sealing' (i.e., soils that are permanently covered with asphalt or concrete) (European Commission 2012, 2013).

FAO-initiated studies have found that the global arable land area per capita is decreasing (e.g., from 0.45 hectares per capita in 1960 to 0.25 hectares in 2000). Estimates for the year 2050 indicate that only 0.19 hectares of land per capita will be available for agriculture by that time (FAO 2015: 230). Assessments of the situation in Europe show that, between 1990 and 2000, at least 275 hectares of soil were lost per day in the EU (Prokop, Jobstmann & Schönbauer 2011). These changes amount to 1,000 km² per year, with half of this soil being sealed by layers of concrete and asphalt. What makes up the other half of the 1000 km² is not explicitly analysed in that report, but it includes, for instance, soils changed for recreational purposes, such as lawns and parks. Although the trend in the EU has been cut back (e.g., to approximately 252 hectares lost per day in 2006), Prokop, Jobstmann & Schönbauer (2011) point

out that the rate of land conversion to urban uses is still worrying. Furthermore, in the global forum, the issue of soils and soil protection has been acknowledged by the Food and Agriculture Organization of the United Nations (FAO), which designated 2015 as the 'year of soils'. That initiative focused on mapping and investigations of the status and trends in global soils and their governance. It concluded that, for instance, there is a need for regional and national assessments and initiatives for sustainable soil management (FAO 2015).

Using the case of Swedish legislation as a focal point, the present study examined how the protection of soils is framed as an issue of societal importance. More specifically, an analysis of the paragraph of the relevant law that aims to protect agricultural land was conducted to expose the motives behind the regulatory measures it prescribes. The analysis drew on lessons learned in the multidisciplinary field of political ecology. The fundamental finding in political ecology applied here is the need for attention to issues of distribution of responsibility and power between different actors concerning governance of land and resources (Lawhon & Murphy 2012; Robbins 2012). The relevant law and regulations were analysed on the basis that these tools of governance are expressions representing state actors' perspectives, in this case on agricultural land and soils. How the paragraphs of the law are formulated, both in terms of wording and intention, can have effects on practical activities, as they form the societal space within which public and private actors can manoeuvre without risking sanctions from the state authority. As such, the study sought to improve the current understanding of governance of soils for agricultural production.

'No net land take' and protection of soils in the EU

In the European context, several studies have reported on how EU policy affects agriculture and land use, for instance, through the implementation of European agro-environmental schemes (de Snoo et al. 2013) and amenities in rural policies (Penker 2005; Pinto-Correia, Gustavsson & Pirnat 2006). Rather less attention has been devoted to investigating attempts at preservation of agricultural land in current policies in the Global North. However, Trauger (2015) explores cases in such places as the United Kingdom (UK), Norway and Canada.

At the EU level, there have been initiatives to implement directives on the protection of agricultural land during the past decade or so (e.g., in terms of a soil protection policy). A directive proposal was put forward in 2006, but as the member states could not agree, this proposal was withdrawn in 2014. Failure to adopt the directive has been attributed to concerns about subsidiarity, with some of the member states refusing to agree to the issue being dealt with on the supranational level and claiming that the issue of agricultural land and land protection is state politics (cf. FAO 2015: 232). However, since 2013, protection of soils is included in the Seventh Environmental Action Plan for the EU. This plan states that, by 2020, land in the EU should be managed sustainably, and soil should be adequately protected (European Commission 2013).

In particular, action point no. 23 highlights the issue of so-called soil sealing:

Every year more than 1000 km² of land are taken for housing, industry, transport or recreational purposes. Such long-term changes are difficult or costly to reverse, and nearly always involve trade-offs between various social, economic and environmental needs. Environmental considerations including water protection and biodiversity conservation should be integrated into planning decisions relating to land use so that they are made more sustainable, with a view to making progress towards the objective of 'no net land take', by 2050. (European Commission 2013, action point no. 23)

Related to this action plan, there are guidelines for avoiding soil sealing, which is stated to be one of the main causes of soil degradation in the EU (European Commission 2012). These guidelines call on member states to take action to meet the above-stated goals of land preservation and 'no net land take'. There are no binding directives within the EU directed towards preservation of agricultural land, as the relevant domains have traditionally been within the remit of national state politics. Therefore, the present study primarily focused on law and policy in one of the EU member states, namely Sweden.

Sweden and preservation of agricultural land

In Sweden, several policy measures to halt agricultural land-use change are in place. In the first instance, the Swedish Environmental Code contains regulations aiming to protect farmland (Ds 2000: 61). The national Environmental Quality Objectives (EQO), established in 1999, also include goals and targets for agricultural land preservation (Swedish Environmental Protection Agency 2016). Despite these regulatory measures, the amount of cultivated land in Sweden has decreased. Between 1951 and 2010, 28 percent of Swedish farmland was forested, turned into fallow land or shifted to other land uses, such as housing, roads, and commercial and recreational areas (Statistics Sweden 2013). Measures for meeting the EQO 'A Varied Agricultural Landscape' show that the amount of land for arable production has decreased, from 2.8 million hectares in 1995 to 2.59 million hectares in 2015 (Swedish Environmental Protection Agency 2016). Concerning the issue of soil sealing, the Swedish Board of Agriculture (in Swedish *Jordbruksverket*) estimates that 3,430 hectares changed specifically to urban purposes in the period 1996–2005 (Jordbruksverket 2006; Slätmo et al. 2012). Swedish state authorities report that conversion of farmland to other purposes is continuing, and this situation is perceived as worrying, as only about 7 percent of the total Swedish land area is designated as agricultural land use (Statistics Sweden 2013; Statistics Sweden et al. 2012).

It should be noted that all the above figures are rough estimates, Statistics Sweden (2008) even comments that statistics on agricultural land-use change are

lacking. This is probably related to the fact that there is no existing reporting system on the intended use of converted agricultural land. In countries such as Norway, municipalities are required to report each change in agricultural land area (in hectares, for what purpose and based on what legislation) to regional and state authorities. This reporting system is enabling more strict governance of soils for food production (Slåtmo 2014).

Policy measures are expressions of the state discourse on preservation of Swedish agricultural land. Drawing on Adger et al. (2001: 683), discourse is understood here as the shared meanings of an issue. Concerning the issue of agricultural land, it is well acknowledged on the global scale that agriculture and soils are critical for human survival and well-being (FAO 2009; UNEP 2014; van Vliet et al. 2015a). In the present analysis, a global and long-term perspective on resource use, rooted in equity and caution, was adopted, based on the understanding that it is problematic that agricultural land in Sweden is being changed to other purposes. It is especially problematic considering that the climate conditions for food production in Northern Europe are favourable, with large water resources and relatively few extreme weather events, such as floods and droughts (Linnér & Messing 2012). However, other perspectives on the issue can also be found, as discussed in the following sections.

Theorising Change and Preservation of Agricultural Land

Agricultural land change and its environmental effects

The fact that agricultural land in Sweden is being changed to other uses may or may not be regarded as a problem, depending on the perspective applied. The use of land for agriculture in a global perspective, combined with trade relations within today's highly globalised food sector, means that the consequences of changes in agricultural land in Sweden must be placed in a broader geographical setting. This is necessary to include the relevant context, such as depending and supporting relations for food production and consumption (cf. Almås & Campbell 2012; Clapp 2014; Meyfroidt et al. 2013; Primdahl & Swaffield 2010).

Globally, land for agricultural uses was both abandoned and brought into cultivation during the 1900s and 2000s (UNEP 2014). In a global perspective, an increase in land area for agricultural production is the dominant trend, and this increase is taking place at the expense of forested land and wetlands. This has been reported as having severe negative effects, such as the biodiversity and carbon-storage potential of the land in question (FAO 2013; Meyfroidt et al. 2013; Rockström et al. 2009). However, this additional cultivated land is often less suitable (poorer) for agriculture and is brought into cultivation due to strong economic incentives to produce for global market exports (Clapp 2014; Meyfroidt et al. 2013). Some examples include the exploitation of tropical rain forest land for oil palm tree cultivation, soy production or grazing for beef cattle (Lindsey & Simmon 2007). Indeed, in areas with highly intensive agriculture, characterised by monocultures

with high use of chemicals, a perspective of negative environmental effects of agriculture dominates (Antrop 2004; Cramer & Hobbs 2007). From this perspective, changes from agricultural to other land uses are viewed as positive for biodiversity and the functioning of ecosystems.

The increase in agricultural land area is not the only trend in the global use of land for agriculture. As pointed out by Cramer & Hobbs (2007), agricultural land is also being abandoned in most parts of the world. Those authors concluded that, from a biodiversity perspective, the change from productive agricultural land use into long-lying fallow land can be both positive and negative. On a positive note, it can be seen as an opportunity to re-establish ecosystems that were in place before agricultural activities or to shape new environments through so-called 'rewilding' (MacDonald et al. 2000; Navarro & Pereira 2012). On the more negative side, from a biodiversity perspective, it can mean that the ecosystems and biodiversity which developed due to agricultural activities are lost. These different views on agricultural land abandonment vary between researchers and also clearly depend on the region in which the land abandonment is taking place (Beilin et al. 2014; Matson & Vitousek 2006). They also depend on the time perspective applied, for example, how long agriculture has been pursued in a region and therefore the degree to which the current ecosystem co-exists with human activities.

For instance, different types of meadows and semi-natural pastures in the Global North and extensive agroforestry in the Global South have been reported to have high rates of biodiversity (Jose 2012; Lindborg et al. 2008; Schroth et al. 2004). Continued agricultural use of these lands, in a primarily extensive manner, is necessary for preservation of the species they host and for the values of cultural heritage associated with them. In both European and Swedish policies and legislation, the abandonment of meadows and semi-natural pastures is regarded as problematic for these reasons (European Commission 2016a; Stenseke et al. 2016). Changing agricultural land to housing, concrete and asphalt is a global practice (Alterman 1997; Ives & Kendal 2013; Wästfelt & Zhang 2016). These changes are primarily taking place in urban and peri-urban areas, as most cities have developed in close proximity to agriculture (Alterman 1997; Barr 2003; Mbiba & Huchzermeyer 2002; Overbeek 2009; Theobald 2001). Processes of counter-urbanisation also play a significant role (Primdahl et al. 2013). Some studies even show that the agriculture sector's own contribution to soil sealing is considerable in terms of soils covered for new greenhouses, machinery sheds, roads and other constructions (Saglie et al. 2006).

Research reports that land-use changes in close proximity to urban areas are affecting soils with the most favourable conditions for agriculture (European Environment Agency 2006; Skog & Steinnes 2016). These changes are seen as problematic, as they mean loss of land which, through continuous farming, has gained high landesque capital, such as investments and practices that create more or less permanent improvements in specific

pieces of land (Widgren & Håkansson 2014). Indeed, the issue of soil sealing is also related to research on the concept of 'peak soil' (Hermele 2012). This strand of research considers it a problem that agricultural land in Sweden (and elsewhere) is being changed to other uses. Scholars engaged in 'peak soil' research claim that we have reached a threshold in exploitation of agricultural soils for uses other than agriculture if the aim is to ensure good quality of life for the whole global population (Amundson et al. 2015; Hermele 2012; Seto et al. 2011).

Other researchers, particularly those adopting a specifically economic perspective on agriculture, claim that the change in agricultural land to housing and other urban uses is not a problem, as it represents a relatively small proportion of the total land area used for agricultural production (Mariola 2005). The continued intensification of food production through increased use of chemicals, nutrients and genetically modified organisms (GMO) is also perceived as providing possibilities to further increase the production rate per hectare. These types of developments in production methods could mean that fewer hectares are needed to produce the same amounts of foodstuffs. However, researchers such as Lambin (2012), Meyfroidt et al. (2013) and Rockström et al. (2017) claim that using such methods to increase production will have severe negative effects on economic, environmental and social aspects, especially in a long-term and global perspective. This calls for precaution with the land now in use for agricultural production.

Agricultural land change, food security and food sovereignty

The different studies on agricultural land change referred to above demonstrate that parallel discourses exist concerning whether such change is a problem or not. Complementing the studies cited above with studies on the issues of food security and food sovereignty complicates the picture further. Although most previous studies on food security and food sovereignty have adopted a Global South perspective, some research has also highlighted the importance of overcoming such North-South divides because access to and availability of nutritious food, and sovereignty in relation to the resources needed to produce (and consume) food, are universally important (Carolan 2013; Trauger 2015). However, this does not mean that the causes of the problem or its solutions are universal. For instance, contesting a global consensus framing of food security, Mooney & Hunt (2009) show that the food security discourse circulates around hunger, community and risk, but that the use and applicability of these discourses vary with the context.

On the local farm level, changing agricultural land to other uses has negative economic, social and environmental effects (Altieri 2009; Chappell et al. 2013; Patel 2009). Continued farming provides incomes and employment and, from a food sovereignty perspective, enables control of the resource base (i.e., the land and soil quality). This is an important prerequisite for long-term investments and plans for farming-based livelihoods (Garibaldi et al. 2017; Godfray et al. 2010; Lowder et al.

2014). Considering that most farms across the globe are family farms, the possible effects of changing agricultural land to other uses are therefore to be viewed as severe (Graeub et al. 2016; van Vliet et al. 2015b).

Methods for Analysing Protection of Agricultural Land in Sweden

As stated above, the aim of the present analysis was to clarify the societal motives behind soil preservation by using the example of a country (Sweden) with a relatively well-functioning planning and bureaucratic system (Böhme 2002; FAO 2015; Hofstad 2013). The following questions were addressed: Why is the paragraph in the Swedish Environmental Code that aims to protect agricultural land in Sweden in place, and what societal motives does it connote? And, How does the paragraph affect Swedish public authorities' governance of soils for agriculture?

The main method used for addressing these questions was a structured analysis of the current version and the legislative history behind the paragraph in the Swedish Environmental Code that aims to protect agricultural land. The documents included in the analysis were the Swedish Environmental Code (Ds 2000:61), the Swedish Natural Resource Act (SFS 1987:12) and the supporting parliamentary bills for these laws (Proposition 1985/86:3; Proposition 1997/98:45). The analysis of the documents focused on both the content and arguments in the text (Bergström & Boreus 2012; Silverman 2010) to answer the research questions listed above. Additional insights were gained from interviews and discussions with a range of different Swedish stakeholders on the meaning, intention and practice of the paragraph of law in question.

As described in the following sections, interviewing and engaging with these stakeholders was of fundamental importance in understanding the governance of soil for food production in Sweden. The encounters took place in several roundtable discussions, seminars and workshops arranged by, for instance, the Royal Swedish Academy of Agriculture and Forestry (in Swedish *Kungliga Skogs och Lantbruksakademien*, in Stockholm, 2011–2013) and the Swedish Board of Agriculture (in Uppsala, 2015) and provided important insights on why soils for food production should (or should not) be protected. Participants in these seminars and roundtable discussions included administrators and officials from municipal, regional and national public authorities and also stakeholders representing other societal institutions, such as non-government organisations (NGOs) for farming, nature conservation and soil preservation, as well as researchers, consultants, advisors and politicians from national and different regional and local levels in Sweden. Moreover, to validate the results of the analysis, they were discussed with a representative from the Swedish National Farmers' Union and two academics with long expertise in the field of Swedish environmental law (in Uppsala, 2017).

In the following sections the results are presented and discussed, starting with a description of the legal in force paragraph in the Swedish Environmental Code that aims

to protect agricultural land and its development. Based on insights from the stakeholders interviewed, this is followed by an in-depth examination of three of the core terms included in the paragraph. In a final section, some conclusions are drawn, and the implications for governance of agricultural land are discussed.

Results and Analysis

Emergence and current state of the soil preservation paragraph

Agricultural land in Sweden is currently protected by law through the Environmental Code. The first and second paragraphs in the Environmental Code (EC Chapter 3, Section 4) state the following:

Agriculture and forestry are of national importance. Agricultural land that is suitable for cultivation may only be used for development or building purposes if this is necessary in order to safeguard significant national interests where this need cannot be met satisfactorily from the point of view of public interest by using other land. (Ds 2000:61: 17)

At a first glance, the paragraph appears to state that agricultural land that is suitable for cultivation should not be used for housing or other constructions and that only 'significant national interests' can enable exceptions to be made to this rule. It also appears to state that other alternative options for the location of planned housing or construction must be scrutinised before a change of agricultural land for these purposes can be accepted. Importantly, how land and water resources are used is a political decision. Regardless of whether these decisions are made by a private landowner or a public authority, the use of any resource is based on valuations of how to use that resource (cf. Olwig & Mitchell 2007).

From the perspective of the general public, certain values are of fundamental importance, for example, keeping the air quality good enough to breathe without causing negative impacts on public health and ensuring land is available for sufficient food production. The bill on establishment of the Environmental Code (Proposition 1997/98:45) states that the overarching purpose of the whole law is to protect human health, to ensure biodiversity, to sustain natural resources and to protect natural and cultural landscapes. The primary aim of the Environmental Code is therefore to ensure sustainable use of land and resources. By including principles for evaluating different resource uses for environmental governance through spatial planning, it is argued that this law is an important tool for proactively preserving resources.

The paragraph on agricultural land preservation in the Environmental Code is a direct implementation from the previous Natural Resources Act (NRA) of 1987 (Proposition 1997/98:45). The choice of wording in the above-cited and currently in use paragraph emanates from the language already used within public administration practices regarding spatial planning since the 1970s

(Proposition 1985/86:3:15: 27–28). In Sweden, a national physical planning process (in Swedish *fysisk riksplanering*) was initiated by the government in the late 1960s. This multilevel governance process involved state, regional and municipal levels in planning how to use and preserve natural resources within the Swedish territory.

The formulation in the NRA (and later the Environmental Code) was made with regard to this process to make it understandable to the public administrators and officials active at that time, at whom the paragraph was directed. This has two important consequences for the current use of the Environmental Code. First, writing the law with officials and administrators in mind introduced the risk of excluding actors other than those administrators from using the paragraph of law. Second, directing the paragraph and the law towards active administrators made it difficult for officials to understand how it can and should be applied today. This second point is further elaborated upon below, after a brief description of the Swedish governance system for soil and agricultural land.

Since the current law came into force in January 1999, reported use of the paragraph within the Swedish spatial-planning system shows that it has not been a strong policy measure, as in practice it has not prevented municipalities (which have most of the decision-making power regarding land and water use in Sweden) from using agricultural land for housing or other types of development (cf. Granvik et al. 2015; Jordbruksverket 2013). Interviews and discussions with stakeholders involved at different levels of Swedish public institutions revealed uncertainty within the Swedish bureaucratic system about how to handle the issue of soil preservation, and especially who (in terms of actors or institutions) should bear the main responsibility, including at the national level. In the latter case, there was uncertainty about whether soil preservation should mainly be a task for the Swedish Environmental Protection Agency or the Swedish Board of Agriculture, or rather a task for the National Board of Housing, Building and Planning, as the land-use change issue most often arises when new constructions is being considered. Moreover, at the 21 regional levels in Sweden (county administration boards, in Swedish *Länsstyrelse*), there are usually officials working with the environment and agricultural issues, but not all consider the issue of soil preservation to be important. In Sweden, there are 190 municipalities, whereof most do not have officials working with agriculture, and many of these have been reported as lacking analysis of trade-offs and decision support when deciding to change agricultural land to housing or other constructions (Granvik et al. 2015; Jordbruksverket 2013).

It became evident during interactions with the different public officials and with stakeholders at private consultancy firms and NGOs that the meaning and intention of the paragraph in the Environmental Code need to be clarified for it to be useful for the preservation of agricultural land and soils in public management and administration today. In particular, these discussions revealed that the meaning of the terms 'national

importance', 'suitable for cultivation' and 'significant national interests' in the paragraph are largely unclear or, rather, open to interpretation. Negotiations concerning soil governance by public authorities in Sweden are based on these terms, so what they connote is important for how the public authorities govern soils for agriculture. In the following sections, therefore, these three terms and the related concepts are examined in depth.

Agriculture of national importance, but not a national interest

The labelling of agriculture as of 'national importance' is significant for use of the law as a tool for environmental governance in practice. In the Environmental Code, certain resource uses (e.g., reindeer husbandry, mineral extraction, outdoor recreation and nature conservation) and specific geographical areas (e.g., the Swedish islands of Öland and Gotland and the mountain area of Långfjället-Rogen) are written into the law as 'national interests' (in Swedish *Riksinträsse*).¹ In the legal documents analysed here, the rights of regional and state authorities to interfere in local municipal decisions are described as being especially overriding when it comes to those interests designated 'national interests' (Proposition 1985/86:3: 35).

The statements in the legal paragraph and lessons from practical application of the law over time reveal that those 'national interests' have higher status for protection (or reassurance, depending on the type of resource) than areas and land uses that are not assigned this label. Swedish agricultural land is described as being of national *importance*, but not as a *national interest*. In the discussions with public administrators and officials, they reported that regional authorities interfere with local municipal decisions to a higher extent if a case concerns 'national interests' than if it does not. Moreover, the responsibility for providing a robust basis for municipal decisions is regulated in the law, where it is stated that this regional and state responsibility is specifically important for those resource uses and geographical areas that have been designated 'national interests'. The basis for decision making concerning agriculture and agricultural land was described by several administrators within Swedish municipal and regional institutions as currently lacking (e.g., knowledge of where and what type of agriculture exists and maps of qualities of agricultural land).²

The legal paragraph in question aims at securing the natural resources needed for agriculture, but not securing the agricultural activities as such (Proposition 1997/98:45: 242). This is due to the overarching focus of the Environmental Code on management of land and water. The focus on the land, and not the activities, in the law implies a security perspective on preserving soils. Drawing on Mooney & Hunt (2009), this indicates that the food security discourse in the Swedish case circulates specifically around risk prevention. The fact that there exists a legal paragraph which aims to preserve soils can be seen as a measure to ensure food production, especially in the event of a humanitarian or environmental crisis that would prevent Swedish food consumption from being based on imports.

The formulation in the paragraph, highlighting the land and not the activities, should also be viewed in light of the neoliberal economic logic that prevailed during the 1980s and 1990s in Sweden, which posited that activities such as agriculture should be altered with market logics and not state policies (Proposition 1997/98:45: 242). Taking the Swedish policy history into account, the agricultural sector was (at least on paper) completely deregulated before Sweden entered the EU and the European Common Agricultural Policy (CAP) in 1992. Today, however, activities in the Swedish agricultural sector are regulated by a combination of Swedish and European policies. The CAP is a relatively strong policy measure, as it made up approximately 40 percent of the total EU budget in 2014 (Eriksson 2016; European Commission 2016b; Potter & Tilzey 2005).

The use of the term and label 'national interests' in the Environmental Code is an expression of state governance concerning resource use. The law includes agriculture as an interest to consider in decisions on land and resource use. However, the fact that agriculture and related natural resources (e.g., soils) are not designated 'national interests' but instead 'of national importance' is an expression of a low valuation of agriculture in relation to other land uses. This indicates that the issue of food security and that of food sovereignty were not a strong priority when the law was formulated in the 1980s or amended in later years.

What land is 'suitable for cultivation'?

The paragraph in the Environmental Code aiming to protect agricultural land states that agricultural land suitable for cultivation should not be used for housing or other constructions. However, it is not clear what values make land 'suitable for cultivation'. In the proposition (1985/86:3: 53) for the forerunner to the Environmental Code, namely the NRA, the formulations in the paragraph are discussed (author's translation):

Agricultural land is a limited resource of fundamental importance to ensure food security in the nation. Regardless of which type of production that seems appropriate from one time to another, I am of the opinion that it is crucial that the land that is suited for the purpose also in the future gets satisfactory protection.

This statement makes clear that it is the preservation of land as such (in terms of soil), and not certain production types, that is considered important for agriculture from a food security perspective. However, it is not clear what 'land that is suited for the purpose' refers to. In practical public management, maps categorising Sweden into 10 different productivity classes, developed by state and regional authorities during the national physical planning process in the 1960s and 1970s, have been used. These maps were based on the type of production and yields of that time, but they are reported to still be in use to some extent in current spatial-planning processes in Sweden, for instance, through reference to different plots

of arable fields as important to preserve from housing or other constructions as they have '9- or 10-class soils'. Interviewees from the Swedish Board of Agriculture and the National Farmers' Union report that another more recent and more pragmatic strategy which they promote is to designate all actively used land as valuable. In practice, this means that land for which the owner has received EU subsidies is considered actively used and therefore designated 'suitable for cultivation'.

Nevertheless, the fact that land is perceived as 'suitable for cultivation' by public authorities does not serve as strict protection but rather as a strategy to acknowledge that this land has other values that are not readily commensurable with the valuation of urban land uses. The valuation of urban land uses is often based on other logics, although attempts have been made to integrate a broader range of values into land and geographical areas for decision making, for instance, the so-called ecosystem services approach (Setten, Stenseke & Moen 2012). Even if such schemes were developed and used, it is important to highlight that the conflicts over how to use land would not disappear. Researchers concerned with the politics of land use (Berry & Plaut 1978; de Groot 2006; Niemelä et al. 2005; Pacione 2013) highlight that valuation of land and decisions over the purpose for which land should be used is a matter of politics. The prioritisation of one type of land use over all other possible ways of using a defined physical entity of land is based in how that entity is valued. For instance, the continued use of a field for farming is, from the landowner's perspective, a prioritisation of farming above other possible types of land uses, such as forestry, nature conservation or housing. This type of value prioritisation (e.g., between agriculture and other land uses) is political and is performed on several scales (e.g., farmer/landowner, municipal, national, regional levels). When a field is no longer considered to be valued as agricultural land, because the landowner, the municipality or another institution has new plans for it, the social and economic values tied to that land alter. As expressed by, for instance, Wästfelt (2004), such immaterial value changes often indicate coming changes to the physical entity.

If not agriculture, then what are 'significant national interests'?

The paragraph on land protection in the Environmental Code states that it is only 'significant national interests' that can justify exceptions from the rule on not using agricultural land for housing and constructions. Note that the term 'significant national interests' is not to be confused with the above discussed designation 'national interests' which imparts higher legal protection status. The main principle in how to weigh up different land uses if there are conflicting interests concerning the use of a physical entity *without* 'national interests' rests in what 'significant national interests' means in practice and in the legal documents. The first proposition (1985/86:3: 53) studied here states that such 'significant national interests' could be, for instance, meeting demand for housing, the interest in locating housing and workplaces in close proximity, developing well-functioning and

adequate technical infrastructure and ensuring important recreational interests. This is also in line with the vision for Swedish society in 2025 established by the National Board of Housing, Building and Planning in 2012 (Boverket 2012) and indicates that these land uses are perceived by the Swedish state as more significant than land for agriculture.

As discussed above, agricultural land is not considered a 'national interest', and the law as such therefore prescribes other interests as more important to preserve or maintain. This draws attention to the issue of why agricultural land is not designated a 'national interest' but 'only' of 'national importance'. The bills for the NRA and Environmental Code give quite a fascinating answer from a governance perspective. In state documents referring to the legal paragraph in question (Proposition 1985/86:3; Proposition 1997/98:45), the main reason stated for not designating land for agriculture and forestry as 'national interests' is that this would clash with the principle of letting Swedish municipalities have the responsibility for land and water planning. The formulation of the paragraph is thus an expression of the trust placed by Swedish state authorities in the municipalities regarding governance of land and water resources. This trust was further highlighted in recent (2008) changes to the Swedish Constitution, where the shared responsibility between the state and local authorities was more clearly emphasised in the Instrument of Government (Sveriges Riksdag 2016: 20–22).

The decision not to designate agricultural land as a 'national interest' is thus based on arguments on the subsidiarity principle. This is also the reason given by some EU member states for not wanting to implement a legal directive on soil preservation on an EU level in 2014 (FAO 2015). It should be noted, however, that Swedish municipalities in general do not follow the rules prescribed in the soil preservation paragraph of the Environmental Code. Agricultural land in Sweden today is generally sealed under asphalt or concrete without the basis for the decision and motivations that the law requires (cf. Granvik et al. 2015; Jordbruksverket 2013).

Concluding Discussion: Agricultural Land in Need of Legal Protection?

A society's concerns and ways of formulating the preservation of agricultural land in law are an expression of its set of values. As noted above, Sweden has a law requiring protection of agricultural land. Despite this, agricultural land is still continually changing to housing and other construction uses without the basis for the decision and motivations that the law requires. Recent debates on food security, food sovereignty and the implementation of EU policy on soil protection and 'no net land take' call for discussions on the need to strengthen the administrative practices surrounding the policy measures in place for the preservation of agricultural land (FAO 2015; European Commission 2013; Amundson et al. 2015; Seto et al. 2011).

The present study has revealed that Swedish agricultural land is stated to be of 'national importance',

which emanates from concerns about food security, primarily circulating around a risk perspective. However, agriculture and related natural resources (e.g., soils) are not given the more protected designation of 'national interest' in Sweden, which can be taken as a reflection of a low state valuation of agriculture in relation to other land uses. This indicates that the issues of food security and food sovereignty were not strong priorities when the law was formulated in the 1980s or updated in later years. Furthermore, in interviews and seminars with stakeholders, the three terms 'national importance', 'suitable for cultivation' and 'significant national interests' in the relevant paragraph of the Swedish Environmental Code were identified as being important in negotiations concerning soil governance in Sweden. This study found that these formulations and their meaning reflect the politics of land use and that valuations of land as 'suitable for cultivation' change over time. The fact that the three critical concepts in the relevant law are open to interpretation in each local municipal planning case is a result of a governance structure that, at least on paper, is based in subsidiarity and municipal decision making to preserve soils and agricultural land. All the local land-use decisions combined, however, make up the national state of Sweden's resource governance of the agricultural land within its territory, within which resource use is constantly formed. This is an example of what Bridge (2014: 126) calls the "formative and reciprocal processes of resource and state formation".

In practice, resource governance is shared (or rather diffused) between a multitude of private and public stakeholders and institutions. Based in Hacking's (2004) work on the well-known Foucauldian power/knowledge stance, this can be viewed as a rather anonymous expression of power. It is the formation of the bureaucratic governance system in itself, and not one specific stakeholder within it, that is responsible for the total sum of changes from agricultural land to housing, commercial and other uses. With such a perspective, it is unclear who (in terms of actors or institutions) should be considered as having the overriding responsibility for agricultural land governance. The governance of agricultural land in Sweden is thus what Bixler (2014) describes as "responsibility floating", whereby different actors and institutions pass off the problem of soil and agricultural land governance to each other.

As shown in the above analysis, the subsidiarity principle is used as an argument for not establishing strict preservation of soils and agricultural land on both the EU level and Swedish state level. The subsidiarity principle means that decision making should be as close to citizens as possible with respect to the capacity to conduct it satisfactorily (Marshall 2007). The principle as such aims to ensure participation and acknowledgement of local contexts, and the Swedish governance system currently builds on trust in municipal institutions to make such satisfactory decisions concerning land and water use. From a democratic perspective, the right to decide how to use land and resources with considerations to local contexts and knowledges can indeed be regarded as sustainable resource governance. However, on another scale of

decision making, and especially considering that previous studies have shown that many Swedish municipalities do not follow the rules prescribed in the soil preservation paragraph of the Environmental Code (Granvik et al. 2015; Jordbruksverket 2013), it is important to acknowledge that the sum of local decisions can be degrading for life-supporting resources (cf. Neumann 2009). In discussions with some of the municipal officials concerned, however, they were not totally clear which body or sector on the state level has the overall responsibility for preserving and monitoring Swedish agricultural land and therefore could be of assistance to them. The issue is shared between the Swedish Environmental Protection Agency, the Swedish Board of Agriculture and the National Board of Housing, Building and Planning, which complicates the governance system.

The present analysis of agricultural land as an issue of societal importance revealed a looming conflict between preservation of soils for food production, on the one hand, and local participation in decision making on the other (see also Newig, Schulz & Jäger (2016) for what they call scalar "misfits"). The remaining question is whether it is more important to protect participation in decision making than to protect certain resources, or whether there must be a choice between these.

Notes

- ¹ The term 'national interest' had already been used in its predecessor, the Nature Resource Act from 1987, and in the Swedish Housing Act of 1947 (Proposition, 1985/86:3: 27–28).
- ² Checklists on how municipalities can work with agriculture and soil protection have recently (2015) been developed by a private consultancy firm, commissioned by the Swedish Board of Agriculture. Although this initiative was reported as progressive by municipal and regional officials, the concrete valuation and prioritisation between land uses must still be done by politicians at the municipal planning level.

Acknowledgements

The warmest thank you to the interviewed stakeholders for insights on the topic of soil governance in Sweden, and to the anonymous reviewers and the editor of the journal for helpful comments on earlier drafts. This study has been conducted with financial support from the King Carl XVI Gustaf's 50th foundation for Science, Technology and the Environment, and the Royal Swedish Academy of Science (Margit Althin and Geosciences). The author is grateful for their financial support.

Competing Interests

The author has no competing interests to declare.

References

- Adger, W. N., Benjaminsen, T. A., Brown, K. & Svarstad, H. (2001). Advancing a political ecology of global environmental discourses. *Development and Change*, 32, 681–715. DOI: <https://doi.org/10.1111/1467-7660.00222>

- Almås, R. & Campbell, H.** (2012). Introduction: Emerging challenges, new policy frameworks and the resilience of agriculture. In: Almås, R. & Campbell, H. (Eds.), *Rethinking Agricultural Policy Regimes: Food Security, Climate Change and the Future Resilience of Global Agriculture* (pp. 1–22). Bingley: Emerald. DOI: [https://doi.org/10.1108/S1057-1922\(2012\)0000018003](https://doi.org/10.1108/S1057-1922(2012)0000018003)
- Alterman, R.** (1997). The challenge of farmland preservation: Lessons from a six-nation comparison. *Journal of the American Planning Association*, 63(2), 220–243. DOI: <https://doi.org/10.1080/01944369708975916>
- Altieri, M. A.** (2009). Agroecology, small farms, and food sovereignty. *Monthly Review*, 61(3), 102–113. DOI: https://doi.org/10.14452/MR-061-03-2009-07_8
- Amundson, R., Berhe, A. A., Hopmans, J. W., Olson, C., Sztein, A. E. & Sparks, D. L.** (2015). Soil and human security in the 21st century. *Science*, 348(6235). DOI: <https://doi.org/10.1126/science.1261071>
- Antrop, M.** (2004). Landscape change and the urbanization process in Europe. *Landscape and Urban Planning*, 67(1–4), 9–26. DOI: [https://doi.org/10.1016/S0169-2046\(03\)00026-4](https://doi.org/10.1016/S0169-2046(03)00026-4)
- Barr, N.** (2003). Future agricultural landscapes. *Australian Planner*, 40(2), 123–127. DOI: <https://doi.org/10.1080/07293682.2003.9995268>
- Beilin, R., Lindborg, R., Stenseke, M., Pereira, H. M., Llausàs, A., Slåtmo, E., Cerqueira, Y., Navarro, L., Rodrigues, P., Reichelt, N., Munro, N. & Queiroz, C.** (2014). Analysing how drivers of agricultural land abandonment affect biodiversity and cultural landscapes using case studies from Scandinavia, Iberia and Oceania. *Land Use Policy*, 36, 60–72. DOI: <https://doi.org/10.1016/j.landusepol.2013.07.003>
- Berry, D. & Plaut, T.** (1978). Retaining agricultural activities under urban pressures: A review of land use conflicts and policies. *Policy Sciences*, 9(2), 153–178. DOI: <https://doi.org/10.1007/BF00143740>
- Bixler, R. P.** (2014). From community forest management to polycentric governance: Assessing evidence from the bottom up. *Society & Natural Resources*, 27(2), 155–169. DOI: <https://doi.org/10.1080/08941920.2013.840021>
- Böhme, K.** (2002). Nordic echoes of European spatial planning: Discursive integration in practice (Doctoral dissertation, Stockholm, Nordregio). <http://hdl.handle.net/2066/19205>.
- Boverket.** (2012). *Vision för Sverige 2025*. Retrieved from: <http://www.boverket.se/globalassets/publikationer/dokument/2012/vision-for-sverige-2025.pdf>.
- Bridge, G.** (2014). Resource geographies II: The resource-state nexus. *Progress in Human Geography*, 38(1), 118–130. DOI: <https://doi.org/10.1177/0309132513493379>
- Carolan, M.** (2013). *Reclaiming food security*. Abingdon and New York: Routledge. DOI: <https://doi.org/10.4324/9780203387931>
- Chappell, M., Wittman, H., Bacon, C., Ferguson, B., Barrios, L., Barrios, R., Jaffee, D., Lima, J., Méndez, V., Morales, H., Soto-Pinto, L., Vandermeer, J. & Perfecto, I.** (2013). Food sovereignty: An alternative paradigm for poverty reduction and biodiversity conservation in Latin America. *F1000Research*, 2(235). DOI: <https://doi.org/10.12688/f1000research.2-235.v1>
- Clapp, J.** (2014). Financialization, distance and global food politics. *Journal of Peasant Studies*, 41(5), 797–814. DOI: <https://doi.org/10.1080/03066150.2013.875536>
- Cramer, V. A. & Hobbs, R. J.** (2007). *Old Fields. Dynamics and Restoration of Abandoned Farmland*. Washington, D.C.: Island Press. DOI: <https://doi.org/10.1093/envhis/13.3.579>
- de Groot, R.** (2006). Function-analysis and valuation as a tool to assess land use conflicts in planning for sustainable, multi-functional landscapes. *Landscape and Urban Planning*, 75(3–4), 175–186. DOI: <https://doi.org/10.1016/j.landurbplan.2005.02.016>
- de Snoo, G. R., Herzon, I., Staats, H., Burton, R. J. F., Schindler, S., van Dijk, J., Lokhorst, A. M., Bullock, J. M., Lobley, M., Wrba, T., Schwarz, G. & Musters, C. J. M.** (2013). Toward effective nature conservation on farmland: Making farmers matter. *Conservation Letters*, 6(1), 66–72. DOI: <https://doi.org/10.1111/j.1755-263X.2012.00296.x>
- Ds.** (2000:61). *The Swedish environmental code*. Swedish Ministry of the Environment and Energy. English translation of SFS 1998:808. Retrieved from: <http://www.government.se/legal-documents/2000/08/ds-200061,2016-11-18>.
- Eriksson, C.** (2016). Jordbrukspolitiken: Från överproduktion till bristande självförsörjning. In: Öhlén, M. & Silander, D. (Eds.), *Svensk politik och EU: Hur svensk politik har förändrats av medlemskapet i EU* (pp. 59–78). Stockholm: Santerus.
- European Commission.** (2012). *Guidelines on best practice to limit, mitigate or compensate soil sealing*. Luxembourg: Publications Office of the European Union. Retrieved from: http://ec.europa.eu/environment/soil/sealing_guidelines.htm.
- European Commission.** (2013). *Decision No. 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'*. Retrieved from: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013D1386&from=EN>.
- European Commission.** (2016a). Agriculture and biodiversity. Retrieved from: http://ec.europa.eu/agriculture/envir/biodiv_en.
- European Commission.** (2016b). CAP post-2013: Key graphs & figures. Retrieved from: http://ec.europa.eu/agriculture/sites/agriculture/files/cap-post-2013/graphs/graph1_en.pdf.
- European Environment Agency.** (2006). *Urban sprawl in Europe: The ignored challenge*. (10/2006). EEA report, Luxembourg: Office for Official Publications of the European Communities. Retrieved from: https://www.eea.europa.eu/publications/eea_report_2006_10.

- FAO.** (2009). *FAO at work 2009–2010: Growing food for nine billion* (F731(E), F., Trans.). Rome: FAO.
- FAO.** (2013). *FAOSTAT: Resources*. Rome: FAO. Retrieved from: <http://faostat3.fao.org/faostat-gateway/go/to/download/R/RL/E>.
- FAO.** (2015). *Status of the world's soil resources*. Rome: FAO. Retrieved from: <http://www.fao.org/documents/card/en/c/c6814873-efc3-41db-b7d3-2081a10ede50>.
- Garibaldi, L. A., Gemmill-Herren, B., D'Annolfo, R., Graeb, B. E., Cunningham, S. A. & Breeze, T. D.** (2017). Farming approaches for greater biodiversity, livelihoods, and food security. *Trends in Ecology & Evolution*, 32(1), 68–80. DOI: <https://doi.org/10.1016/j.tree.2016.10.001>
- Godfray, H. C. J., Beddington, J. R., Crute, I. R., Haddad, L., Lawrence, D., Muir, J. F., Pretty, J., Robinson, S., Thomas, S. M. & Toulmin, C.** (2010). Food security: The challenge of feeding 9 billion people. *Science*, 327(5967), 812–818. DOI: <https://doi.org/10.1126/science.1185383>
- Graeb, B. E., Chappell, M. J., Wittman, H., Ledermann, S., Kerr, R. B. & Gemmill-Herren, B.** (2016). The state of family farms in the world. *World Development*, 87, 1–15. DOI: <https://doi.org/10.1016/j.worlddev.2015.05.012>
- Granvik, M., Jacobsson, T., Blix-Germundsson, L. & Larsson, A.** (2015). The approach of Swedish municipalities to the preservation of agricultural land in a planning context. *International Journal of Agricultural Resources, Governance and Ecology*, 11(2), 190–204. DOI: <https://doi.org/10.1504/IJARGE.2015.072903>
- Hacking, I.** (2004). The archaeology of Michael Foucault. In: Hacking, I. (Ed.), *Historical Ontology* (pp. 73–86). Cambridge & London: Harvard University Press.
- Hermele, K.** (2012). Land matters. Agrofuels, unequal exchange, and appropriation of ecological space. (PhD thesis, Human Ecology Division, Lund University). Retrieved from: <http://portal.research.lu.se/ws/files/4010041/2969357.pdf>.
- Hofstad, H.** (2013). Planning models in Sweden and Norway: Nuancing the picture. *Scandinavian Political Studies*, 36(3), 270–292. DOI: <https://doi.org/10.1111/1467-9477.12006>
- Ives, C. D. & Kendal, D.** (2013). Values and attitudes of the urban public towards peri-urban agricultural land. *Land Use Policy*, 34, 80–90. DOI: <https://doi.org/10.1016/j.landusepol.2013.02.003>
- Jordbruksverket.** (2006). *Exploatering av jordbruksmark vid bebyggelse- och vägutbyggnad 1996/98–2005*. (Rapport 2006:31). Jönköping: Jordbruksverket.
- Jordbruksverket.** (2013). *Väsentligt samhällsintresse? Jordbruksmarken i kommunernas fysiska planering* (Rapport 2013:35). Jönköping: Jordbruksverket.
- Jose, S.** (2012). Agroforestry for conserving and enhancing biodiversity. *Agroforestry Systems*, 85(1), 1–8. DOI: <https://doi.org/10.1007/s10457-012-9517-5>
- Lambin, E. F.** (2012). Global land availability: Malthus versus Ricardo. *Global Food Security*, 1(2), 83–87. DOI: <https://doi.org/10.1016/j.gfs.2012.11.002>
- Lawhon, M. & Murphy, J. T.** (2012). Socio-technical regimes and sustainability transitions: Insights from political ecology. *Progress in Human Geography*, 36(3), 354–378. DOI: <https://doi.org/10.1177/0309132511427960>
- Lindborg, R., Bengtsson, J., Berg, Å., 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 & Environment*, 125(1–4), 213–222. DOI: <https://doi.org/10.1016/j.agee.2008.01.006>
- Lindsey, R. & Simmon, R.** (2007). Tropical deforestation. NASA, Earth observatory. Retrieved from: http://earthobservatory.nasa.gov/Features/Deforestation/deforestation_update.php.
- Linnér, H. & Messing, I.** (2012). Agricultural land needs protection. *Acta Agriculturae Scandinavica, Section B – Soil & Plant Science*, 62(8), 706–710. DOI: <https://doi.org/10.1080/09064710.2012.697574>
- Lowder, S. K., Skoet, J. & Singh, S.** (2014). *What do we really know about the number and distribution of farms and family farms in the world?* (ESA Working Paper No. 14–02). Rome: FAO.
- MacDonald, D., Crabtree, J. R., Wiesinger, G., Dax, T., Stamou, N., Fleury, P., Gutierrez Lazpita, J. & Gibon, A.** (2000). Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response. *Journal of Environmental Management*, 59(1), 47–69. DOI: <https://doi.org/10.1006/jema.1999.0335>
- Mariola, M.** (2005). Losing ground: Farmland preservation, economic utilitarianism, and the erosion of the agrarian ideal. *Agriculture and Human Values*, 22(2), 209–223. DOI: <https://doi.org/10.1007/s10460-004-8281-1>
- Marshall, G.** (2007). Nesting, subsidiarity, and community-based environmental governance beyond the local scale. *International Journal of the Commons*, 2(1), 75–97. DOI: <https://doi.org/10.18352/ijc.50>
- Matson, P. A. & Vitousek, P. M.** (2006). Agricultural intensification: Will land spared from farming be land spared for nature? *Conservation Biology*, 20(3), 709–710. DOI: <https://doi.org/10.1111/j.1523-1739.2006.00442.x>
- Mbiba, B. & Huchzermeyer, M.** (2002). Contentious development: Peri-urban studies in sub-Saharan Africa. *Progress in Development Studies*, 2(2), 113–131. DOI: <https://doi.org/10.1191/1464993402ps032ra>
- Meyfroidt, P., Lambin, E. F., Erb, K.-H. & Hertel, T. W.** (2013). Globalization of land use: Distant drivers of land change and geographic displacement of land use. *Current Opinion in Environmental Sustainability*, 5(5), 438–444. DOI: <https://doi.org/10.1016/j.cosust.2013.04.003>
- Mooney, P. H. & Hunt, S. A.** (2009). Food security: The elaboration of contested claims to a consensus frame. *Rural Sociology*, 74(4), 469–497. DOI: <https://doi.org/10.1111/j.1549-0831.2009.tb00701.x>
- Navarro, L. M. & Pereira, H. M.** (2012). Rewilding abandoned landscapes in Europe. *Ecosystems*,

- 15(6), 900–912. DOI: <https://doi.org/10.1007/s10021-012-9558-7>
- Neumann, R. P.** (2009). Political ecology: Theorizing scale. *Progress in Human Geography*, 33(3), 398–406. DOI: <https://doi.org/10.1177/0309132508096353>
- Newig, J., Schulz, D. & Jager, N. W.** (2016). Disentangling puzzles of spatial scales and participation in environmental governance—The case of governance re-scaling through the European Water Framework Directive. *Environmental Management*, 58(6), 998–1014. DOI: <https://doi.org/10.1007/s00267-016-0753-8>
- Niemelä, J., Young, J., Alard, D., Askasibar, M., Henle, K., Johnson, R., Kurttila, M., Larsson, T.-B., Matouch, S., Nowicki, P., Paiva, R., Portoghesi, L., Smulders, R., Stevenson, A., Tartes, U. & Watt, A.** (2005). Identifying, managing and monitoring conflicts between forest biodiversity conservation and other human interests in Europe. *Forest Policy and Economics*, 7(6), 877–890. DOI: <https://doi.org/10.1016/j.forpol.2004.04.005>
- Olwig, K. R. & Mitchell, D.** (2007). Justice, power and the political landscape: From American space to the European Landscape Convention. *Landscape Research*, 32(5), 525–531. DOI: <https://doi.org/10.1080/01426390701552688>
- Overbeek, G.** (2009). Rural areas under urban pressure in Europe. *Journal of Environmental Policy & Planning*, 11(1), 1–7. DOI: <https://doi.org/10.1080/15239080902774903>
- Pacione, M.** (2013). Private profit, public interest and land use planning—A conflict interpretation of residential development pressure in Glasgow's rural-urban fringe. *Land Use Policy*, 32, 61–77. DOI: <https://doi.org/10.1016/j.landusepol.2012.09.013>
- Patel, R.** (2009). Food sovereignty. *Journal of Peasant Studies*, 36(3), 663–706. DOI: <https://doi.org/10.1080/03066150903143079>
- Penker, M.** (2005). Society's objectives for agro-landscapes as expressed in law. *Land Use Policy*, 22(3), 197–206. DOI: <https://doi.org/10.1016/j.landusepol.2004.03.004>
- Pinto-Correia, T., Gustavsson, R. & Pirnat, J.** (2006). Bridging the gap between centrally defined policies and local decisions – Towards more sensitive and creative rural landscape management. *Landscape Ecology*, 21(3), 333–346. DOI: <https://doi.org/10.1007/s10980-005-4720-7>
- Potter, C. & Tilzey, M.** (2005). Agricultural policy discourses in the European post-Fordist transition: Neoliberalism, neomercantilism and multifunctionality. *Progress in Human Geography*, 29(5), 581–600. DOI: <https://doi.org/10.1191/0309132505ph569oa>
- Primdahl, J., Andersen, E., Swaffield, S. & Kristensen, L.** (2013). Intersecting dynamics of agricultural structural change and urbanisation within European rural landscapes: Change patterns and policy implications. *Landscape Research*, 38(6), 799–817. DOI: <https://doi.org/10.1080/01426397.2013.772959>
- Primdahl, J. & Swaffield, S.** (2010). Globalisation and the sustainability of agricultural landscapes. In: Primdahl, J. & Swaffield, S. (Eds.), *Globalisation and Agricultural Landscapes: Change Patterns and Policy Trends in Developed Countries* (pp. 1–15). Cambridge & New York: Cambridge University Press. DOI: <https://doi.org/10.1017/CBO9780511844928>
- Prokop, G., Jobstmann, H. & Schönbauer, A.** (2011). *Overview on best practices for limiting soil sealing and mitigating its effects in EU-27*. Austria: Environment Agency. Retrieved from: <http://ec.europa.eu/environment/soil/sealing.htm>.
- Proposition.** (1985/86:3). *Med förslag till lag om hushållning med naturresurser m.m.*
- Proposition.** (1997/98:45). *Miljöbalk*.
- Robbins, P.** (2012). *Political ecology: A critical introduction* (2nd ed.). Oxford: Wiley & Blackwell.
- Rockström, J., Steffen, W., Noone, K., Persson, A., Chapin, F. S., Lambin, E. F., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H. J., Nykvist, B., de Wit, C. A., Hughes, T., van der Leeuw, S., Rodhe, H., Sorlin, S., Snyder, P. K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R. W., Fabry, V. J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P. & Foley, J. A.** (2009). A safe operating space for humanity. *Nature*, 461(7263), 472–475. DOI: <https://doi.org/10.1038/461472a>
- Rockström, J., Williams, J., Daily, G., Noble, A., Matthews, N., Gordon, L., Wetterstrand, H., DeClerck, F., Shah, M., Steduto, P., de Fraiture, C., Hatibu, N., Unver, O., Bird, J., Sibanda, L. & Smith, J.** (2017). Sustainable intensification of agriculture for human prosperity and global sustainability. *Ambio*, 46(1), 4–17. DOI: <https://doi.org/10.1007/s13280-016-0793-6>
- Saglie, I.-L., Falleth, E. I., Holst Bloch, V. V., Snellingen Bye, A. & Steinnes, M.** (2006). *Spredt utbygging og jordvern. Om omfang og drivkrefter bak bygging på jordbruksareal* (2006:6). NIBR: Oslo & Alta.
- Schroth, G., da Fonseca, G. A. B., Harvey, C. A., Vasconcelos, H. L., Gascon, C. & Izac, A.-M. N.** (2004). Introduction: The role of agroforestry in biodiversity conservation in tropical landscapes. In: Schroth, G., da Fonseca, G. A. B., Harvey, C. A., Gascon, C., Vasconcelos, H. L. & Izac, A.-M. N. (Eds.), *Agroforestry and Biodiversity Conservation in Tropical Landscapes* (pp. 1–12). Washington, Covelo, London: Island Press.
- Seto, K. C., Fragkias, M., Güneralp, B. & Reilly, M. K.** (2011). A meta-analysis of global urban land expansion. *PLoS ONE*, 6(8): e23777. DOI: <https://doi.org/10.1371/journal.pone.0023777>
- Setten, G., Stenseke, M. & Moen, J.** (2012). Ecosystem services and landscape management: three challenges and one plea. *International Journal of Biodiversity Science, Ecosystem Services & Management*, 8(4), 305–312. DOI: <https://doi.org/10.1080/21513732.2012.722127>
- SFS.** (1987:12). *Lag om hushållning med naturresurser m.m.* Stockholm: Miljödepartementet.

- Silverman, D.** (2010). *Doing qualitative research: A practical handbook*. London, Thousand Oaks, New Delhi & Singapore: SAGE publications.
- Skog, K. L. & Steinnes, M.** (2016). How do centrality, population growth and urban sprawl impact farmland conversion in Norway? *Land Use Policy*, 59, 185–196. DOI: <https://doi.org/10.1016/j.landusepol.2016.08.035>
- Slätmo, E.** (2014). Jordbruksmark i förändring. Drivkrafter bakom och förutsättningar för offentlig styrning i Sverige och Norge. *Meddelanden från Göteborgs universitets geografiska institutioner*. Avhandlingar. Serie B, nr 125, Göteborg.
- Slätmo, E., Edling, P., Norderhaug, A. & Stenseke, M.** (2012). *Jorden vi ärvde. Den svenska åkermarken i ett hållbarhetsperspektiv*. Kungliga Skogs- och Lantbruksakademiens Tidskrift, Stockholm (Nr. 6, Årgång 151).
- Statistics Sweden.** (2008). *Markanvändningen i Sverige*. Sveriges officiella statistik, Stockholm.
- Statistics Sweden.** (2013). *Land use in Sweden* (6th ed.).
- Statistics Sweden, Jordbruksverket, Naturvårdsverket & Lantbrukarnas Riksförbund.** (2012). *Hållbarhet i svenskt jordbruk 2012*. Stockholm: SCB, enheten för Miljö- och turismstatistik.
- Stenseke, M., Lindborg, R., Jakobsson, S. & Sandberg, M.** (2016). How to bring historical forms into the future?: An exploration of Swedish semi-natural grasslands. In: Head, L., Saltzman, K., Setten, G. & Stenseke, M. (Eds.), *Nature, Temporality and Environmental Management: Scandinavian and Australian Perspectives on Peoples and Landscapes* (pp. 204–219). London and New York: Routledge.
- Sveriges Riksdag.** (2016). The Constitution of Sweden. The Fundamental Laws and the Riksdag Act. Retrieved from: <http://www.riksdagen.se/en/SysSiteAssets/07.-dokument--lagar/the-constitution-of-sweden-160628.pdf>.
- Swedish Environmental Protection Agency.** (2016). 13. A varied agricultural landscape. *Environmental Objectives*. Retrieved from: <http://www.miljomal.se/Environmental-Objectives-Portal/Undre-meny/About-the-Environmental-Objectives/13-A-Varied-Agricultural-Landscape>.
- Theobald, D. M.** (2001). Land-use dynamics beyond the American urban fringe. *Geographical Review*, 91(3), 544–564. DOI: <https://doi.org/10.1111/j.1931-0846.2001.tb00240.x>
- Trauger, A.** (2015). *Food sovereignty in international context: Discourse, politics and practice of place*. Abingdon and New York: Routledge.
- UNEP.** (2014). *Assessing Global Land Use: Balancing Consumption with Sustainable Supply*. A Report of the Working Group on Land and Soils of the International Resource Panel. In: Bringezu S., Schütz H., Pengue W., O'Brien M., Garcia F., Sims R., Howarth R., Kauppi L., Swilling M. & Herrick J. Retrieved from: <http://www.unep.org/resourcepanel/publications/areasofassessment/assessinggloballandusebalancingconsumptionw/tabid/132063/default.aspx>.
- van Vliet, J. A., de Groot, H. L. F., Rietveld, P. & Verburg, P. H.** (2015a). Manifestations and underlying drivers of agricultural land use change in Europe. *Landscape and Urban Planning*, 133, 24–36. DOI: <https://doi.org/10.1016/j.landurbplan.2014.09.001>
- van Vliet, J. A., Schut, A. G. T., Reidsma, P., Descheemaeker, K., Slingerland, M., van de Ven, G. W. J. & Giller, K. E.** (2015b). De-mystifying family farming: Features, diversity and trends across the globe. *Global Food Security*, 5, 11–18. DOI: <https://doi.org/10.1016/j.gfs.2015.03.001>
- Wästfelt, A.** (2004). *Continuous landscapes in finite space: Making sense of satellite images in social science*. (PhD thesis, Stockholm University, Department of Human Geography). Stockholm: Hugo förlag.
- Wästfelt, A. & Zhang, Q.** (2016). Reclaiming localisation for revitalising agriculture: A case study of peri-urban agricultural change in Gothenburg, Sweden. *Journal of Rural Studies*, 47, Part A, 172–185. DOI: <https://doi.org/10.1016/j.jrurstud.2016.07.013>
- Widgren, M. & Håkansson, T.** (2014). Introduction: Landesque capital: What is the concept good for? In: Widgren, M. & Håkansson, T. (Eds.), *Landesque Capital: The Historical Ecology of Enduring Landscape Modifications New frontiers in Historical Ecology* (pp. 10–30). Walnut Creek: Left Coast Press.

How to cite this article: Slätmo, E. (2017). Preservation of Agricultural Land as an Issue of Societal Importance. *Rural Landscapes: Society, Environment, History*, 4(1): 2, 1–12, DOI: <https://doi.org/10.16993/rl.39>

Submitted: 13 December 2016 **Accepted:** 10 November 2017 **Published:** 27 December 2017

Copyright: © 2017 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/4.0/>.



Rural Landscapes: Society, Environment, History is a peer-reviewed open access journal published by Stockholm University Press.

OPEN ACCESS