

Review

Can Strategic Spatial Planning Contribute to Land Degradation Reduction in Urban Regions? State of the Art and Future Research

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Abstract: Land degradation is becoming a serious environmental issue threatening fertile agricultural soils and other natural resources. There are many driving forces behind land degradation. The expansion of artificial surfaces due to various economic activities, such as housing, industry, and transport infrastructure, known as soil sealing, constitutes one of the most intensive forms of land degradation in urban regions. Measures to halt and reverse land degradation require both strong land-use management policies, as well as effective spatial planning mechanisms. In this regard, strategic spatial planning has been increasingly practised in many urban regions worldwide, as a means to achieve sustainable land-use patterns and to guide the location of development and physical infrastructures. It is reasonable, therefore, to expect that strategic spatial planning can counteract the outlined undesired land degradation effects, specifically those resulting from soil sealing. In this paper, we review strategic spatial planning literature published between 1992 and 2017. The focus is on the phenomena causing land degradation that are addressed by strategic spatial planning literature, as well as on the mechanisms describing the role of strategic spatial planning in land degradation reduction. Results show that sustainable development and environmental concerns have become core objectives of strategic planning in recent years, yet references to the drivers of land degradation are rare. The mechanisms that exist are mainly intended to address environmental issues in general, and are not aimed at reducing particular forms of land degradation. The paper concludes by sketching future research directions, intended to support strategic spatial planning and land-use policymaking related to coping with the global phenomenon of land degradation.

Keywords: brownfield redevelopment; ecosystem services; environmental issues; food production; land management; literature review; soil sealing; soil threats; spatial planning; urban growth-management

1. Introduction

Land-use practices vary greatly across the world. Their ultimate outcome, however, is generally the same: the acquisition of natural resources for human needs, often at the expense of degraded environmental conditions, and thus increased pressure on land, soils, and water resources [1,2]. As a result, land degradation has become one of the most preoccupying environmental issues on global, regional, and local scales [3]. This has generated attention from supranational organizations, such as the United Nations and the European Union (EU), as well as from the scientific community [4–7]. In accordance with both scientific and policy-oriented literature, land degradation is understood in this paper to be the result of interactions between physical and human factors, which generate a progressive reduction in the productive capacity of ecosystem services derived from land. The consequences of

land degradation are numerous. Most importantly, land degradation threatens fertile agricultural soils and freshwater resources, which negatively affects food production and biodiversity [8–12].

There are many driving forces behind land degradation. Urbanization, including the construction of housing developments, the implementation of industrial sites and retail facilities, and the development of transportation infrastructures, has usually been referred to as a key driver. In addition, land degradation is also driven by poor management of soils and water resources [3]. These drivers lead to a range of soil threats in different biophysical and socio-economic environments [3,13–17]. For example, the European Soil Data Centre (ESDAC), through the project Preventing and Remediating Degradation of Soils in Europe through Land Care (RECARE), has identified and characterized 11 soil threats in contemporary urban regions [18]. These soil threats are (1) soil erosion by water, (2) soil erosion by wind, (3) decline of organic matter in peat soils, (4) decline of organic matter in mineral soils, (5) soil compaction, (6) soil sealing, (7) soil contamination, (8) soil salinization, (9) desertification, (10) flooding and landslides, and (11) the decline in soil biodiversity [17,19].

Of the aforementioned 11 threats to soil, we will devote particular attention in this paper to soil sealing. Soil sealing is defined in this paper as the process of covering soils with buildings, construction, transportation infrastructure, and layers of impermeable artificial material (e.g., concrete or asphalt). Due to urbanization, urban sprawl, and growing demand for land from various sectors in the economy, soil sealing activities are becoming significantly more intense in Europe and elsewhere [9,20]. In this regard, Tobias et al. consider soil sealing to be amongst the most powerful forms of land degradation affecting all ecosystem services [4]. This is in line with Salvati et al., who argue that the increase in impervious areas can be considered a suitable indicator of land degradation [21]. Tobias et al. and Salvati et al. are not alone with these claims [4,21]. Glæsner et al. and Ceccarelli et al. assert, for example, that soil sealing not only contributes to land degradation, but also poses a threat to food security and contributes to biodiversity loss [3,22]. Securing the production of food (or food security) is becoming increasingly important, in light of the growing worldwide food demand that has resulted from an expanding population [23,24]. Furthermore, Gardi et al. contend that urban development and its associated soil sealing activities inevitably prevent soil from performing some of its natural functions, such as biomass production, water storage and filtering, and functioning as a reservoir for organic matter [9].

The EU, together with the scientific community, has acknowledged that soil sealing poses a major hazard to land based ecosystem services and thus the European Commission (EC) has proposed a number of measures to tackle this environmental and social issue [25]. For example, in the context of the Thematic Strategy for Soil Protection, the EC underlines the need to develop best practices aimed at mitigating the negative effects of sealing on soil functions [26]. In 2011 and 2012, the EC published two reports on the most effective mechanisms to limit, mitigate, or compensate for soil sealing [20,27]. In 2014, a study assessing the feasibility of setting up a framework for measuring progress towards a more sustainable use of land was released [28]. This report stressed that urbanization is primarily responsible for the consumption of fertile soils that are vital for agriculture and food production. The report also highlighted that soil erosion, loss of soil organic matter, and soil contamination are considered the foremost issues that should be addressed in the coming decades. Despite the release of this report, as well as other policy-oriented documents, tackling land degradation is still a challenge for spatial planners, land system scientists, and policymakers [7,29].

From the Commission's proposed measures, we underline in this paper those recommendations that are more related to spatial planning. In these reports, spatial planning is presented as a means to achieve a more sustainable use of land. This is because spatial planning mechanisms are thought to take into account the quality and characteristics of different land areas and soil functions, and balance them against competing objectives and private interests, such as those of urban developers [27]. In this regard, Glæsner et al. highlight that sound spatial planning, capable of maintaining the non-economical functions of soil, would ensure the maintenance of soil functions [22]; similarly, Tobias reasons that spatial planning can compensate for soil sealing, thus helping to preserve ecosystem services [30].

Several examples back the Commission's claim that sound regional and local spatial planning in each of the EU member states can counteract the negative effects of land degradation. The Danish Spatial Planning Act, for instance, is given as an example, because it contains strong restrictions on the construction of large shops and shopping centres on greenfield sites outside the largest cities. The spatial planning acts of some Austrian federal states are also given as examples, because they allow for the identification and delineation of priority fertile agricultural soils and protected green areas. Soil protection and land degradation reduction are not explicitly mentioned as goals in the Austrian planning acts; they are, however, implicitly covered by the various roles soils fulfil in ecosystem functioning [20,27]. Bearing in mind this set of initiatives at the European policy level, one could expect that strategic spatial planning would be an effective approach to terminate and reverse the outlined undesired land degradation processes, especially those resulting from urbanization and the consequent sealing of soils.

Since the 1990s, strategic spatial planning has been increasingly undertaken at the urban-regional level. Throughout the past two decades, the common objectives of strategic spatial planning have been the identification of a coherent spatial development strategy to frame the medium- and long-term development of urban regions, and the framing of an integrated spatial logic regarding land use, natural resource valorization, and major infrastructure development, such as housing and transportation [31,32]. Strategic spatial planning has been chosen as the specific policy field to be investigated in this review paper, because it is principally about vision-building, which involves various actors and is multi-dimensional, embedded in socio-political and institutional complexity; it is also influenced by power configurations and governance arrangements [33]. In addition, it makes more sense to focus on strategic spatial planning because this type of planning provides a narrower view of specific issues over a longer period of time when compared to spatial planning or land-use planning, which offer rather short-term perspectives. Furthermore, strategic spatial planning processes are often non-binding, and are thus less tailored to legally binding spatial planning and policy instruments, thus offering more advantages in a systematic review and generalizations that will help push the scientific frontiers and policymaking agendas further.

The geographical focuses of this review are urban regions. We have selected urban regions as a spatial scale of analysis because preserving and further valuing ecosystem services is a crucial task in urban regions [30], and because soil sealing, due to urban settlement expansion and infrastructure development, tends to occur on the most fertile agricultural soils [34]. Following the most recent literature [35–39], urban regions are defined in this paper as multi-functional territories composed of a core city (i.e., the urban area) and a surrounding area, with fuzzy boundaries that have statutory meanings (e.g., an institutionalized regional government) or are the result of informal governance arrangements and multi-level government cooperation. An example of such an urban region can be found in Norway; the Norwegian urban region of Oslo-Akershus is the result of governance arrangements among municipalities, including the Oslo core urban area and the 22 municipalities of the surrounding area of Akershus County [33,40]. The Oslo-Akershus urban region, with a combined land area of approximately 5000 km², is tied together by manifold functions (e.g., commuting, economic activities, as well as shared education and health services) and multi-purpose land uses, such as residential, industrial, transportation, trade and retail facilities, agricultural areas, and forestry.

The prime research objective guiding this literature review is to effectively push a new research agenda that is adequate to support strategic spatial planning and land-use policymaking for coping with the scale and speed of the global phenomenon of land degradation. This objective has resulted in two research questions that form the structure of the article: (1) What are the key phenomena of land degradation that have been addressed by the strategic spatial planning literature between 1992 and 2017? (2) What mechanisms of strategic spatial planning can contribute to land degradation reduction? This paper is focused, thus, on assessing published scientific literature on strategic spatial planning, and not on evaluating its practice—for example, through an evaluation of strategic spatial

plans currently in force in urban regions. An assessment of the linkage between strategic spatial plans and land degradation phenomena will be done elsewhere.

The paper is organized as follows. The next section presents the methodology adopted by this research, followed by a section that presents the results of the systematic literature review through a content analysis of the selected sample of published records. The subsequent section critically discusses how the phenomena of land degradation are addressed by the strategic spatial planning literature, followed by a discussion of the mechanisms describing how strategic spatial planning can help reduce land degradation. The last section concludes the paper with prospects for expanding the research and policymaking agendas, with respect to the roles of strategic spatial planning in land degradation reduction.

2. Research Methodology

Literature reviews can take two forms: they can be either (i) a review that serves as background for an empirical study, or (ii) a standalone piece [41]. A background review is commonly used to justify decisions made in research design, to provide theoretical context or identify a gap in the literature that the study intends to bridge [42]. A standalone review endeavours to make sense of a body of existing literature through the aggregation, interpretation, explanation, or integration of existing knowledge [43]. The systematic literature review method is thought to minimize researcher bias regarding the inclusion or exclusion of published records. It also helps to ensure that the literature is reviewed and critically analysed with transparency [44]. By critically analysing and synthesizing a group of related studies in the literature, it is possible to help push the knowledge frontier further, and to pave the way for new research agendas, as this paper intends to do [45].

This review paper employed a systematic, standalone review method of the literature on strategic spatial planning published between 1992 and 2017. This timeframe takes the 1992 Rio Declaration on Environment and Development as a starting point (UNCED) [46]. Furthermore, this review has the characteristics of a critical systematic review, in that it compares a set of documents within the literature against an established set of criteria [47–49]. The literature search and selection of the final sample of scientific publications were followed by a detailed qualitative content analysis. The search for published literature and the content analysis procedures followed in this review were based on the “Preferred Reporting Items for Systematic Reviews and Meta-Analyses” (PRISMA) guidelines [50–53]. The PRISMA guidelines were complemented with the literature review steps proposed by Xiao and Watson as well as Gomersall et al. [36,44]. The databases Google Scholar [54] and Web of Science [55] were used in the systematic search, because they cover the cross-disciplinary scope of this paper. Google Scholar includes journals, conference papers, theses and dissertations, academic books, pre-prints, abstracts, technical reports, and other scholarly literature across broad areas of research, including spatial planning and related disciplines, and is managed by the Google Corporation. Web of Science, which is maintained by Thomson Reuters, includes more than 10,000 journals, and combines several indexing databases from various disciplines, including spatial planning and land change science. The literature search and content analysis were executed and finished in December 2017. The overall systematic literature review was composed of six steps, as described below:

- **First step—formulating the research problem:** The research problem was formulated as the following: Can strategic spatial planning contribute to land degradation reduction?
- **Second step—elaborating the search queries and searching for literature:** In line with the formulated research questions and the research problem, we elaborated the following *search queries*: (i) land AND degradation; (ii) “land degradation”; (iii) “degraded land”; (iv) “land management”; (v) “agriculture land”; (vi) “agriculture soil”; (vii) “soil sealing”; and (viii) “sealed soil”. These query terms were used always use in combination with the search terms [AND strategic AND spatial AND planning]. For example, we entered into the search bars of Google Scholar and Web of Science the combined query “‘land degradation’ AND strategic AND spatial AND planning”. A published record was included in the results if it matched the *search criteria*, that is,

if it (i) dealt with strategic spatial planning conceptually or empirically, and (ii) was published between 1992 and 2017 in an English-language peer-reviewed academic journal, as a conference proceeding, as a working paper, or as an academic book or book chapter in an edited volume. In this step, we retrieved those published records that contained at least one of the identified search queries, either in the title or in the abstract, as long as they matched the search criteria. A total of 188 records were identified and downloaded as portable document format (PDF) files. In our view, this procedure offers advantages when compared to other systematic review techniques, as it allows for the collection of a larger set of published records, and thus provides substantially more material for an in-depth analysis of the stated research problem.

- **Third step—screening the abstracts of the preliminary selection of published records:** We screened the abstracts of the 188 records in detail, to assess their meaningfulness regarding the research questions, and excluded 53 records; a total of 135 records remained. In the course of this qualitative selection, we mainly excluded papers without a clear focus on strategic spatial planning, or those that only marginally referred to strategic spatial planning.
- **Fourth step—assessing quality by reviewing 135 full texts:** The remaining 135 published records were assessed for quality, which required a thorough reading. A further 25 records were then excluded, because they mainly focused on processes of strategic spatial plan making in the context of marine spatial planning [56], or the integration of geographic information system tools in participatory strategic spatial planning [57]; this resulted in a new total of 110 records. Of the final sample of 110 records, 28% were mainly conceptual publications, 50% were empirical publications with at least one case study, and 22% were conceptual publications with a number of case studies as illustrative examples. Although there was no geographic limitation in the search for scientific literature, most of the selected empirical publications with at least one case study address European urban regions, representing the strength of the scholarship and potentially the strength of the strategic spatial planning practice in this part of the world. There are, however, published records providing illustrations of processes of strategic spatial planning in, for example, Hong Kong (China) [58], Cape Town (South Africa) [59], Portland (Oregon, U.S.) [60], and in urban regions in Australia [61].
- **Fifth step—elaborating a list of search terms and performing a content analysis of the final sample:** A final sample of 110 published records was thus compiled for more detailed content analysis through the use of the following search terms:
 - **Search terms related to land degradation phenomena:** (i) agriculture land, (ii) agriculture soil, (iii) land degradation, (iv) degraded land, (v) land management, (vi) brownfield redevelopment, (vii) controlling urbanization, (viii) urban sprawl, (ix) soil sealing, and (x) sealed soil.
 - **Search terms related to environmental issues in general:** (xi) ecological aspects, (xii) ecosystem services, and (xiii) environmental concerns.

We searched for these 13 terms in each of the selected 110 PDF files. The paragraphs containing at least one of the listed terms, along with the reference and page number, were then copied to a separated database for an in-depth qualitative analysis. For example, from Scolozzi et al. we extracted the following: “The soil sealing is becoming a political issue (Blum et al., 2004) acknowledged a ‘serious problem’ (EC, 2006). Between 1950 and 1990, in many regions of Italy, more than 20% of natural and agricultural land covers were sealed by urbanization and infrastructure development (EEA, 2002), and recently land consumption is occurring at an increasing rate (Barberis, 2006; Montanari et al., 2009)” (Scolozzi et al., p. 134, [62]).

- **Sixth step—reporting findings:** In this step, our findings were reported. Recently published policy documents made available primarily by the United Nations Development Programme (UNDP) and the EU, and other literature on strategic spatial planning and land degradation were used

in addition to the selected samples throughout this review, in order to place the paper's key findings in the context of current debates. Although the entire sample of published records was analysed, for readability reasons and because of the length limitations of this paper, not every record is referred to in the results section. The references of the 110 selected records can be found in Appendix A.

3. Results

3.1. Key Phenomena of Land Degradation Addressed in Strategic Spatial Planning Literature

Strategic spatial planning gained popularity, both in theory and practice, mainly after 1992. It is after this year that the literature seeks empirical evidence of the application of strategic spatial planning, while expanding theoretical considerations, primarily regarding strategic spatial planning's objectives. The phenomenon of land degradation and the associated negative effects of soil sealing have been largely neglected by the strategic spatial planning literature published between 1992 and 2017. There are, however, some noteworthy findings showing that ecological aspects, sustainable development (balancing ecological, economic, and social issues), and environmental concerns were increasingly considered in strategic spatial planning debates over this period. Yet these references and overall environmental preoccupations emerged without much specification regarding what kind of "environmental concerns" researchers and practitioners were preoccupied with. For example, Jurgens in 1993 touched upon the idea that land use and land development were in dire need of a planning approach that was firmly grounded in ecological knowledge. Jurgens urged planners to adopt mechanisms to prevent the degradation of ecological systems, and thus contribute to sustainable development [63]. Roberts and Chan, four years later, expanded on Jurgens' claims, but did not report directly on land degradation. Instead, they underlined the clear signs of growing environmental degradation, mainly in the least-developed countries. Roberts and Chan also underlined the dangers of urbanization and development processes [64]. Healey et al. developed Roberts and Chan's concerns further, and pointed out examples of spatial plans in Europe that were intended to control urbanization [65]. It was with the publication of the book by Healey et al. in 1997 that environmental concerns entered the strategic spatial planning discourse with higher intensity. Land degradation, however, was still absent from the empirical work of Healey et al. [65].

The book by Healey et al. is a flagship work on strategic spatial planning, and is relevant to the arguments put forward in this review, as well as the overall objectives of this special issue on land degradation and sustainable land management. Healey et al.'s book reports on the evolution of strategic spatial planning towards more sustainable land management. For example, while in the 1960s a strategic spatial planning approach to land use in urban regions was dominant, by the 1990s, strategic spatial planning was more focused on infrastructure investment, urban transformation projects, the location of business parks, and the development of new housing [65]. From the 1960s onwards, strategic spatial planning started to put more emphasis on emergent sectorial conflicts among urban development projects, environmental concerns, and agricultural land uses in urban regions [66,67]. It is, however, only after 2000 that the literature more often started to highlight the need for strategic spatial planning to be a cooperative process involving the transport, economic affairs, and agriculture departments of municipalities and regional entities, each contributing to more sustainable practices of land management [68].

Based on the selected records published between 2002 and 2006, we can argue that strategic spatial planning literature started to become more proactive in this period, regarding the need to preserve the environment, secure sustainable development, and control urbanization. For example, in 2002, Watson reflected on the utility of high-density urban development as a means of reducing the urbanization of rural land [59]; Chan, reflecting on strategic spatial planning processes in Hong Kong, argued that strategic planning expanded its focus to include the notion and tenets of sustainable development. This shift in strategic spatial planning in Hong Kong was the result of an increasing awareness that

signs of environmental deterioration had begun to emerge. In this case, strategic spatial plans were developed with the intent of addressing environmental degradation overall [58]. It was with the work of Carsjens and van der Knaap in 2002 that a call was made to interpret land-use allocation issues as complex spatial planning problems [69]. After 2003, the literature began to prominently debate the complex relationships between strategic spatial planning interventions, land use, and property development processes. In this period, land degradation issues were also rarely debated by those researching strategic spatial planning. An increasing awareness of environmental issues, however, is visible in the publications from this time. Albrechts, Healey, and Kunzmann published a flagship paper on strategic spatial planning, which provided examples of a number of strategic plans that were prepared with the objectives of stopping the deterioration of the environment, and of providing effective answers to the needs of different sectors of society (housing, economy, nature, agriculture, and infrastructures) [32]. Albrechts', Healey's, and Kunzmann's reflections were a replication of the empirically-substantiated cases of strategic spatial planning presented in the book by Healey et al. [65].

Based on the selected records published between 2007 and 2011, a shift in the focus of strategic spatial planning is apparent compared with previous years. For example, a number of papers focused on more specific environmental issues, such as water management [70] or climate change [71], yet there were still no direct references to land degradation phenomena. It is in such a context of a broader conception of the ecosystems approach to strategic spatial planning that water management policies, especially in Europe, strained to integrate land management and living resources. It is in this period that a wake-up call regarding the social and economic impacts of environmental degradation was sent to governments, and to the public in general. The aim was to spur the development of sustainable land management policies. For example, in Romania, several participatory planning mechanisms were introduced, based on the demands of the three 1992 Rio de Janeiro conventions: the Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (UNCBD), and the Convention to Combat Desertification (UNCCD). Other jointly-prepared land management policies were implemented with the intent of improving soil quality and water storage capacity. As a positive consequence of the participatory planning mechanisms, the implementation of development plans and the successful application of the Romanian Land Reclamation Fund (Law 18/1992), a large-scale afforestation of the degraded areas was put into practice [72].

Based on the selected records published between 2012 and 2017, it is possible to give examples of research projects concerning the linkage between land-use planning, land management, and spatial (strategic) planning. For example, Stead identified a large number of European-based projects containing best practices in spatial planning. Stead highlighted the projects "RESCUE—Regeneration of European sites in cities and urban environments", which was aimed at brownfield regeneration, and "TRANSLAND—Integration of transport and land-use planning", which was developed to identify best practices in transport and land-use planning [73]. In line with Stead, Todes argued that linking strategic spatial planning and infrastructure development rests on the premise that infrastructures play important roles in shaping the spatial organization, as well as the sustainability and inclusiveness of urban regions in both developed and less developed countries [74]. It was only in 2012 that soil sealing processes and the consequent impacts on land degradation emerged in the literature [62]. Scolozzi contended that soil sealing had become a political issue and a serious environmental concern of policy makers. These authors also highlighted the fact that between 1950 and 1990, in many Italian urban regions, more than 20% of natural and agricultural land was sealed due to urbanization and infrastructure development [62]. Furthermore, Scolozzi showed that little attention has been paid to the negative effects of soil sealing on natural and agricultural land; however, this author convincingly states that knowing the effects of soil sealing is very important for guiding strategic spatial planning towards a more sustainable environment.

The role of neoliberal thinking in urban politics [75], in spatial governance [76], and urban development projects [77] has been part of academic debates among spatial planning experts and human geographers since the early 1980s. However, it became more widespread and focused on

strategic spatial planning starting in 2012 [78,79]. For example, some authors have been debating the linkage between neoliberal urban planning policies and strategic spatial planning in relation to growing socio-spatial inequalities, a lack of affordable housing [80], and transboundary environmental threats [81]. In spite of critics who argued that strategic spatial planning had become increasingly co-opted into the dominant neo-liberal discourse, only a few examples of strategic spatial plans concerned with societal progress, equal living conditions, and a good and lasting sustainable environment for the benefit of people could be identified [82]. Not until the literature published in 2017 did we find evidence of the phenomena of land degradation being debated in strategic spatial planning literature, despite academic and policy-oriented documents suggesting a dramatic intensification of land degradation owing to weakly-planned urban and infrastructure developments [3,4,21,22]. Soil sealing and related processes of urbanization were contested in an edited book, due to their contribution to the reduction in the amount of agricultural land in urban regions [83].

In summary, the findings of this systematic review show that in the past 25 years, the strategic spatial planning literature we assessed largely neglected land degradation. However, environmental concerns, as well as aspects of nature protection and measures intended to control urbanization, have been preoccupations of those involved in strategic spatial planning research and practice [82,84,85]. Table 1 provides a summary of the findings. The second step of this literature content analysis sought to identify and debate mechanisms and measures describing the role of strategic spatial planning in contributing to land degradation reduction.

Table 1. Key phenomena of land degradation (and related phenomena) that have been addressed by the selected strategic spatial planning literature published between 1992 and 2017.

1992–1996	1997–2001	2002–2006	2007–2011	2012–2017
Environmental change	Sustainable development	Stop environmental degradation	Environmental concerns	Sustainable development
Ecological aspects	Environmental degradation	Sustainable development	Sustainable development	Environmental management
Agricultural land preservation	Controlling urbanization	Controlling urbanization	Agricultural land integrated in strategic spatial plans	Soil sealing as responsible for natural and agricultural land degradation
Secure sustainable rural development	Inter-department cooperation in strategic plan making	Reduce urbanization of rural land		

Source: Authors' own elaboration based on the findings of the content analysis of 110 records.

3.2. Mechanisms of Strategic Spatial Planning that Can Contribute to Reducing Land Degradation

Our findings show that the mechanisms of strategic spatial planning that can contribute to land degradation reduction are mainly intended to overcome the drawbacks of environmental dereliction in general, and not to overturn the negative effects of land degradation. References to mechanisms describing, for instance, how strategic spatial planning can counteract urban expansion and consequently limit soil sealing processes are limited. It was possible, however, to identify a handful of significant examples of how strategic spatial planning worked by itself as a mechanism with the following goals: (i) supporting sustainable rural development [63], (ii) balancing urban and rural development [66], (iii) preventing environmental degradation [86], and (iv) safeguarding agricultural land from exacerbated urban expansion [87,88]. For example, Murray underlined that most of the strategic spatial plans in the U.K. and Ireland developed in the 1990s were thought to support public-sector investment in infrastructure, but to work also as spatial guidance documents for sustainable land management [89]. Focusing on the Dutch spatial planning system, Salet and Woltjer gave the examples of the “establishment of development agencies”, “contract and project management”, “financial and taxation expertise”, and “pro-active use of land policies” as strategic spatial planning mechanisms that supported the sustainable management of natural resources, including water and land [90]. Searle and Bunker gave the example of the 1992 Portland Regional Framework Plan (Oregon, U.S.) to stress that this was a pioneering plan, because it proposed a number of mechanisms aimed at safeguarding land for natural resource protection outside of the urban growth boundary [60]. The plan,

officially adopted in 1997, identifies regional policies to implement the 2040 Growth Concept. The 2040 Growth Concept, a long-range plan amended in 2014 as part of the adoption of the Climate Smart Strategy [91], encourages, among other things, a compact urban development that uses land and money efficiently, as well as the protection of farms, forests, rivers, and natural areas [92].

Starting in 2015, the strategic spatial planning scholarship began to acknowledge strategic environmental assessment (SEA) as a mechanism to integrate environmental concerns into a more strategic planning process [93]. While environmental impact assessment (EIA) has mainly been used to assess the environmental impacts of context-specific construction projects, the SEA mechanism has been employed on a higher decision-making level to assess the environmental impacts of spatial policies and plans [94]. Furthermore, SEA plays a fundamental role by strategically addressing impacts on biophysical, institutional, social, and economic settings, as well as by ensuring that the environmental issues are taken into account [95,96]. Hendricks, in Hepperle et al., acknowledged that soil sealing reduces permanently the available agricultural land. He then suggested that urban regions could use the building land potential of inner areas to halt and reverse soil sealing and the consequent land degradation. This potential refers to brownfields, gaps between buildings, and densification potential. Hendricks also suggested that planning for the unsealing of outdated roads would be an important measure for expanding agricultural areas [83]. Soil unsealing is a process intended to remove the artificial surface and convert the area to an urban park, or to restore soils for agriculture and forestry [4].

Given these findings, we argue that there is an evident gap in the strategic spatial planning literature, in terms of mechanisms describing the role of strategic planning in reducing land degradation. Even the most recent spatial planning scholarship neglects land degradation. This is surprising, because newly published papers on land degradation neutrality, a concept that is focused on maintaining or enhancing land-based natural capital and its associated ecosystem services, suggest the need to increasingly integrate land degradation into existing spatial plans [5–7]. The next section takes these and other shortcomings of the strategic spatial planning literature into account to propose future research directions.

4. Future Research Directions

A research agenda is sketched in this section, with the goal of supporting strategic spatial planning and land-use policymaking to cope with the global phenomenon of land degradation. The review clearly shows that the importance of preventing or neutralizing land degradation appears to be overlooked by strategic spatial planning researchers. Furthermore, little is known regarding how strategic spatial planning can effectively contribute in addressing this global phenomenon.

The fact that land degradation is not being adequately addressed in strategic spatial planning is even more worrisome in the current context of an increasing interest in strategic spatial planning as an active force suited to support spatial transformation in urban regions in the long term [97–101]. It is of vital importance, therefore, to raise awareness, so that future land management decision-making could lead to more sustainable and resilient agricultural systems, landscape conservation, and the preservation of ecosystem services in urban regions. In general, this research agenda advocates that both academic and policy-oriented research must become more active in nurturing responsiveness concerning land degradation. Specifically, this agenda suggests that strategic spatial planning research must move far beyond the acknowledgement that (i) environmental issues have to be addressed, (ii) sustainable development practices must be implemented, and (iii) strategic spatial plans must be prepared through the involvement of all sectors of society [32,66]. These aspects have been part of the strategic spatial planning discourse for the past 25 years, as the above results demonstrate, yet have had little impact on overturning the progressive degradation of land in urban regions, including the degradation of the most fertile agricultural lands [30,34].

Future research on strategic spatial planning should become more action-based and practice-oriented in terms of land degradation, by employing specific data on land use and soil

quality. This could be achieved if strategic spatial planning researchers are willing to engage more with land use and soil science. For example, the CORINE land cover database shows significant changes in land use for Europe that have an impact on soil [102]. By incorporating data provided by this database, strategic spatial planning could play an important role in supporting sustainable land management policies, by balancing the quality and characteristics of different land areas and soil functions against competing objectives and economic interests. In addition, more case studies in urban regions are clearly needed to solidify the emerging understanding of land degradation and soil sealing processes. This type of research is best conducted through mapping techniques [103,104]. In this regard, the use of a geographic information system (GIS) could support strategic spatial planning researchers in (i) mapping ecosystem services, (ii) identifying the most fertile soils in urban regions, and (iii) devising strategies tailored to soil quality of within urban regions.

Strategic spatial planning usually requires prior vision building, i.e., it follows a trajectory from envisioning and a strategy-making process (the plan-making phase) to a final plan implementation phase. Envisioning is especially necessary to trigger change and raise awareness of the need to do things differently [84]. However, the strategic spatial planning literature has largely been proposing the same “new” kinds of spatial transformations, i.e., new housing settlements, new roads, new industrial or retail facilities, and new sportive or cultural venues. Expanding from Tobias’ insights [30], future research should therefore also consider developing strategies to support the preservation of green and agricultural areas, and to move from sustainable land management to overall sustainable spatial transformation.

This literature review shows that in spite of claims about including soil unsealing measures in brownfield redevelopment projects [4,27], brownfield redevelopment land is hardly referred to in strategic spatial planning. Strategic spatial planning research, consequently, must explore ways to better propose planning interventions and spatial strategies that support the transformation of brownfields [105–107], as well as effectively devise growth-management policies [108] and restrict urban sprawl [109]. Brownfield land, for example, can be defined as land that has previously been developed, but which is not in current active use or remains vacant for redevelopment [105,106]. Brownfields are part of the urban structure, and they are often easily accessible to existing technical and social infrastructures within an urban region. Through their redevelopment, the conversion of agricultural land or forests to urbanized land can be diminished, and urban sprawl tendencies contained. The redevelopment of brownfields is hence often part of spatial policies that support compact cities and densification [107], but could be more enthusiastically integrated into strategic spatial planning. The research on brownfields provides a number of examples of how such areas can be reclaimed, thus improving the environment. In Portugal, for example, the International Exhibition in 1998 (popular know as Expo 1998) was implemented on a large piece of brownfield land in the eastern part of Lisbon. This area, now known as *Parque das Nações*, was redeveloped after Expo 1998, and has become an urban area with commercial spaces, offices, housing, and transportation hubs (*Gare to Oriente*) integrated into green spaces, and continues to attract many people. This case and other best practices in brownfield redevelopment could be taken as comparative examples in further research. The work of Tobias et al. offers other interesting examples of brownfield regeneration and soil unsealing [4].

Redeveloping brownfields instead of developing on greenfield land reduces net soil sealing and further land degradation [100,110]. Restoring degraded lands is important, because the demand for accessible fertile agricultural soils is increasing as human population and consumption escalate globally. More research is also needed on how to effectively integrate growth-management policies, like those intended to control urban sprawl, into strategic spatial planning. Existing research reveals that establishing rigorous restrictions and heavy financial penalties on development activities that occur outside the planning boundary could contain urban sprawl [109]. Yet doubts remain as to whether these types of financial schemes are truly effective in today’s context of speedy urbanization and the growing pressures of private economic actors on the consumption of fertile agriculture

land, as well as on greenfields in general. Strategic spatial planning research would greatly benefit from more cross-case comparative studies, particularly of those involving brownfield regeneration and growth-management policies focused on managing the location, timing and quality of urban development [108,111]. Processes of strategic spatial plan making and plan implementation could become more effective if supported by scientific research, showing how some urban regions have been integrating soil unsealing measures and procedures to ameliorate contaminated soils into their strategic spatial planning processes.

The outlined findings suggest also that the strategic spatial planning scholarship might further benefit from deepening the interrelationship with socio-ecological systems research [112,113]. A socio-ecological systems approach to strategic spatial plan making, for example, might be particularly useful to better understand how land degradation affects people and nature, because of its impacts on fertile agricultural soils, food production, drinking water purification, natural habitats, and recreation areas. Furthermore, in today's strategic planning practices, socio-ecological systems are already a relevant topic, especially in the context of climate change adaptation and resilience [114]. This is also in line with Stolte et al., who suggest the integration of ecological and social solutions to foster ecosystem services in urban regions [17].

In the following, we suggest a succinct list of the main tasks and priorities, in the form of a research agenda intended for all actors at the interface of strategic spatial planning and land degradation, in order to better cope with the global phenomenon of land degradation. We acknowledge, however, that the potential applications of some of these recommendations are challenged by power relations, governance arrangements, and funding mechanisms, as underlined in Oliveira and Hersperger [33], and that they require long-term and cross-disciplinary research, as recently called for by Bai et al. [115]:

- (i) Developing and disseminating methods to assess the impacts of soil sealing could help to ensure public support in devising soil unsealing strategies, to mitigate land degradation;
- (ii) Developing procedural, planning, and economic strategies to control sealed soils—for example, by supporting the re-use of empty buildings, brownfield lands, unused transportation infrastructures (e.g., rail and road networks), and by increasing the density of developed land, which alleviates, at least partially, the need for further soil sealing and land consumption;
- (iii) Actively involving land degradation specialists in, for instance, the processes of strategic spatial plan making and plan implementation, as they could support strategic planners and their initiatives to address soil contamination issues, which are a primary barrier to brownfield redevelopment [116];
- (iv) Developing the means to strengthen engagement and knowledge exchange initiatives between strategic spatial planning experts, land system scientists, policymakers, and the citizens could contribute to a transdisciplinary coproduction of growth-management policies that support urban densification and urban containment [117], as well as urban sprawl control measures [118];
- (v) Mapping soil quality and associated ecosystem services, and integrating crowdsourced geographic information could lead to more effective processes of strategic spatial planning, in the sense of locating, for instance, areas for growth and the protection of fertile soils;

The outlined future research directions are essential for improving existing knowledge about the role strategic spatial planning can play in preventing, terminating, and effectively addressing land degradation in contemporary urban regions.

Despite efforts to systematically assemble a sound set of studies and published records, there are of course limitations to this review paper. First, the study is limited to published literature, as it relies mainly on scientific journal articles retrieved through the selected databases [45,46]; it is likely that there are undocumented cases of urban regions that successfully address land degradation in their strategic plans. Second, the content analysis is based on results reported by other authors in those selected publications, and there is little space to control for the quality and completeness of their results, or for their selective biases. These drawbacks notwithstanding, this research presents a

broad reading of the state of the literature on strategic spatial planning, and finds noteworthy trends concerning land degradation, soil sealing, and sustainable land management, which will contribute to opening up new research avenues.

5. Conclusions

The results of this systematic literature review have revealed a growth in environmental and sustainability concerns in strategic spatial planning literature over the past two decades. The results also showed various shifts in the objectives of strategic spatial planning between 1992 and 2017. Throughout the 1990s, for example, strategic spatial planning was promoted as a markedly different practice than traditional land-use planning. In the first decade of the 2000s, strategic spatial planning was mainly preoccupied with controlling urbanization, territorial competitiveness, and strategic positioning. Between 2010 and 2017, the strategic spatial planning scholarship witnessed a tightening of the strategic approach, as a result of market forces and economic interests. This shift has prompted several critiques of strategic spatial planning. The ever-growing challenges of the soil, water, and biological degradation of land systems have been lightly addressed by the strategic spatial planning literature, as revealed. Additional cross-disciplinary research is needed, however, to understand the extent to which planning practice has been coping with such global environmental challenges.

Given the lack of attention paid in the strategic spatial planning literature to phenomena of land degradation, such as soil sealing, this paper points out future research directions. The presented research agenda is expected to expand the strategic spatial planning scholarship, mainly by recommending possible theoretical and empirical linkages among strategic spatial planning, land degradation, and sustainable land management. Strengthening these connections would require a stronger integration of the expertise and concerns of land degradation specialists into strategic spatial planning processes in and for urban regions. The agenda acknowledges that effectively addressing land degradation worldwide will have co-benefits for climate change mitigation and biodiversity conservation. In addition, neutralizing the negative effects of land degradation would contribute to enhancing food security and sustainable livelihoods. The agenda, furthermore, emphasizes that it is paramount to develop strategic spatial planning mechanisms that are effective in terminating land degradation, but active also in restoring degraded lands and unused sealed soils, such as outdated industrial and commercial facilities in core urban areas or their vicinity. Including the restoration of degraded land into strategic spatial planning is an indispensable prerequisite to re-establish any lost ecosystem services in urban regions facing exponential urbanization. It is also crucial to develop and further implement growth-management policies, for example through building densification, in order to effectively steer urban development towards compact urban forms.

Based on the findings of this study, we would argue that the strategic spatial planning literature has been demonstrating awareness regarding environmental issues, and has suggested a number of interventions intended to contribute to environmentally sound development. Academics, but mostly practitioners and policy makers, must acknowledge that preserving land and ecosystem services is vital for human survival, and for the sustainability and livability of urban regions. The challenges to agriculture we face today, for instance, are unlike anything we have experienced before. Tackling these and other challenges posed to ecosystem services requires revolutionary spatial planning mechanisms and land-use management policies, in order to solve land degradation, food production, and sustainability problems. This can only be achieved if policymakers involved in strategic spatial planning have concrete evidence about, for instance, soil quality, or information about where contaminated soils are located, to help them manage land in a more sustainable manner, and thus to counteract the negative effects of land degradation. At the same time, we acknowledge that the scope and applicability of measures to alleviate land degradation are stymied by competing interests (e.g., preserving fertile soils versus expanding residential areas) and power struggles between, for example, environmental organizations and real estate developers.

It is important to convince policymakers that the concept of “smart cities”, for example, is not only about the implementation of technologies, but also about human-oriented and nature-based strategic spatial planning. The redevelopment of brownfield land, together with growth-management policies, must be communicated as a “smart growth” strategy. Providing scientific-based evidence tailored to the realities of a territory, the availability of technologies, and of crowdsourced geographic information means that strategic spatial planning would become more effective in halting and reversing the deep conundrum of land degradation in contemporary urban regions.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A. Scholarly Literature Content Analysed in Line with the Research Questions ($n = 110$).

ID	Year	Publication Name	Title of the Published Record with Direct URL	Author(s)
01	1992	Urban Studies	The Fall and Rise of Regional Planning in the Economically Advanced Nations	Glasson, J.
02	1993	Landscape and Urban Planning	Strategic planning for sustainable rural development	Jurgens, C.R.
03	1993	Regional Studies	Managing the Strategic Planning and Development of Regions: Lessons from a European Perspective	Roberts, P.
04	1993	Town Planning Review	Strategic planning in Hong Kong: lessons from TDS (Territorial Development Strategy) and PADS (Port and Development Strategy)	Ng, M.K.
05	1994	European Planning Studies	Development plans: New approaches to making frameworks for land use regulation	Healey, P.
06	1996	Planning Practice & Research	Strategic Plan-making in Europe: Institutional innovation	Hull, A.
07	1996	Environmental Policy and Governance	European Spatial Planning and the Environment: Planning for Sustainable Development	Roberts, P.
08	1996	Town Planning Review	Environmental concerns and economic imperatives in strategic plan making	Davoudi, S.; Hull, A. and Healey, P.
09	1996	Environment and Planning B: Urban Analytics and City Science	The Communicative Turn in Planning Theory and its Implications for Spatial Strategy Formation	Healey, P.
10	1997	International Planning Studies	A Tale of Two Regions: Strategic planning for sustainable development in East and West	Roberts, P. and Chan, R.C.K.
11	1997	Environment and Planning B: Urban Analytics and City Science	Strategies for Improving the Performance of Planning: Some Empirical Research	Needham, B.; Zwanikke, T. and Faludi, A.
12	1997	Environment and Planning B: Urban Analytics and City Science	Evaluation of Strategic Plans: The Performance Principle	Mastop, H. and Faludi, A.
13	1997	University College London Press	Making Strategic Spatial Plans: Innovation in Europe	Healey, Khakee, Motte and Needham (Editors)
14	1999	European Planning Studies	European developments in strategic spatial planning	Healey, P.; Khakee, A.; Motte, A. and Needham, B.

ID	Year	Publication Name	Title of the Published Record with Direct URL	Author(s)
15	2000	Planning Practice & Research	The Performance of Spatial Planning	Faludi, A.
16	2001	International Planning Studies	In Pursuit of New Approaches to Strategic Spatial Planning. A European Perspective	Albrechts, L.
17	2002	Book series on Cities and Regions, Routledge	Change and Continuity in Spatial Planning Metropolitan planning in Cape Town under political transition	Watson, V.
18	2002	Sustainable Development	The Scottish Strategic and Spatial Context for Sustainable Development	Roberts, P.
19	2002	Landscape and Urban Planning	Strategic Land-Use Allocation: Dealing with Spatial Relationships and Fragmentation of Agriculture	Carsjens, G.J. and van der Knaap, W.
20	2002	Sustainable Development	Towards Strategic Planning and Regional Sustainability: Hong Kong in the Pearl River Delta Region	Chan, R.C.K.
21	2003	Spon Press, Taylor & Francis Group	Metropolitan Governance and Spatial Planning—Comparative Case Studies of European City Regions	Salet, W.G.M.; Thornley, A. and Kreukels, A. (Editors)
22	2003	Planning Theory	Collaborative Planning in Perspective	Healey, P.
23	2003	European Planning Studies	Polycentricity in European Spatial Planning: From an Analytical Tool to a Normative Agenda	Davoudi, S.
24	2003	Journal of the American Planning Association	Strategic Spatial Planning and Regional Governance in Europe	Albrechts, L.; Healey, P. and Kunzmann, K.
25	2004	International Journal of Urban and Regional Research	The Treatment of Space and Place in the New Strategic Spatial Planning in Europe	Healey, P.
26	2004	Environment and Planning B: Urban Analytics and City Science	Strategic (Spatial) Planning Reexamined	Albrechts, L.
27	2004	Planning Theory & Practice	Strategic Spatial Planning and the Longer Range	Friedmann, J.
28	2004	Innovation: The European Journal of Social Science Research	Strategic Spatial Planning on the Island of Ireland	Murray, M.
29	2005	European Planning Studies	The Hidden Face of European Spatial Planning: Innovations in Governance	Rivolin, U.J. and Faludi, A.
30	2005	European Planning Studies	Transforming Spatial Planning Policy in Mediterranean Countries: Europeanization and Domestic Change	Giannakourou, G.
31	2005	Environment and Planning A: Economy and Space	Where has the Future Gone? Rethinking the Role of Integrated Land-Use Models in Spatial Planning	Couclelis, H.
32	2006	Local Environment	Adapting to Climate Change at the Local Level: The Spatial Planning Response	Wilson, E.
33	2006	Town Planning Review	From Equal Opportunities to Gender Awareness in Strategic Spatial Planning Reflections based on Swedish Experiences	Larsoon, A.
34	2006	European Planning Studies	Bridge the Gap: From Spatial Planning to Strategic Projects	Albrechts, L.
35	2006	European Planning Studies	Relational Complexity and the Imaginative Power of Strategic Spatial Planning	Healey, P.
36	2006	Environment and Planning A: Economy and Space	Shifts in Strategic Spatial Planning? Some Evidence from Europe and Australia	Albrechts, L.
37	2006	WIT Transactions on Ecology and the Environment	Strategic (Spatial) Planning Approach in Turkey: New Expectations	Ozden, P.

ID	Year	Publication Name	Title of the Published Record with Direct URL	Author(s)
38	2006	European Planning Studies	Strategic Spatial Planning and Contested Ruralities: Insights from the Republic of Ireland	Scott, M.
39	2006	WIT Transactions on Ecology and the Environment	Strategic Spatial Planning and Environmental Management: The impact of Guanabara Bay Cleaning Programme in Rio de Janeiro	Silva, V.A.C. and Ribeiro, G.
40	2007	Journal of the American Planning Association	Integrating Water Management and Spatial Planning	Woltjer, J. and Al, N.
41	2007	Planning, Practice & Research	The Emergence of the Spatial Planning Approach in England	Nadin, V.
42	2008	disP - The Planning Review	European Spatial Planning Systems, Social Models and Learning	Nadin, V. and Stead, D.
43	2008	Ukio Technologinis ir Ekonominis Vystymas	Participatory aspects of strategic sustainable development planning in local communities: Experience of Lithuania	Čiegis, R. and Gineitiene, D.
44	2008	European Planning Studies	Strategic Spatial Planning: Collective Action and Moments of Opportunity	Newman, P.
45	2008	International Planning Studies	The Changing Position of Strategic Spatial Planning in Flanders. A Socio-Political and Instrument-Based Perspective	van den Broeck, P.
46	2009	Chapter 8 of the book: Conceptions of Space and Place in Strategic Spatial Planning, Routledge	Asymmetric Development In Spatial Planning: Positivist Content And Poststructuralist Processes	Davoudi, S.
47	2009	Applied Geography	Biodiversity, Land Degradation, And Climate Change: Participatory Planning In Romania	Stringer, L.C.; Scriciub, S.S. and Reed, M.S.
48	2009	Planning Theory & Practice	In Search of the “Strategic” in Spatial Strategy Making	Healey, P.
49	2009	International Journal of Public Sector Management	New Concepts of Strategic Spatial Planning Dilemmas in the Dutch Randstad Region	Salet, W.G.M. and Woltjer, J.
50	2009	Environment and Planning A: Economy and Space	Soft Spaces, Fuzzy Boundaries, And Metagovernance: The New Spatial Planning In The Thames Gateway	Allmendinger, P. and Haughton, G.
51	2009	European Planning Studies	Spatial Strategic Planning in the Stockholm Region—Discourses on the Space-economy and Growth Factors	Hermelin, B.
52	2009	Habitat International	The mitigation–adaptation dichotomy and the role of spatial planning	Biesbroek, G.R.; Swart, R.J.; and van der Knaap, W.
53	2009	European Planning Studies	Towards an Integrated Spatial Planning?	Vigar, G.
54	2010	Habitat International	Applying The Lessons Of Strategic Urban Planning Learned In The Developing World To The Netherlands: A Case Study Of Three Industrial Area Development Projects	Graaf, R.S. and Dewulf, G.P.M.R.
55	2010	European Planning Studies	Examination of the Interpretation of Strategic Spatial Planning in Three Cases from Turkey	Gedikli, B.
56	2010	Computer-Aided Civil and Infrastructure Engineering	Integration of Sustainability Issues in Strategic Transportation Planning: A Multi-criteria Model for the Assessment of Transport Infrastructure Plans	Lopez, E. and Monzon, A.
57	2010	Planning Theory	Metropolitan strategic planning: An Australian paradigm?	Searle, G. and Bunker, R.
58	2010	Environment and Planning B: Urban Analytics and City Science	More of the same is not enough! How could strategic spatial planning be instrumental in dealing with the challenges ahead?	Albrechts, L.
59	2010	Environment and Planning C: Government and Policy	Spatial Planning, Devolution, And New Planning Spaces	Allmendinger, P. and Haughton, G.

ID	Year	Publication Name	Title of the Published Record with Direct URL	Author(s)
60	2010	NIRSA Working papers	Coordinating the Spatial Impacts of Sectoral Policies? Practices of and Potentials for Strategic Spatial Planning in the Dublin City-region	Walsh, C.
61	2010	NIRSA Working papers	Strategic Spatial Planning in European City Regions: Parallel Processes or Divergent Trajectories?	Allin, S. and Walsh, C.
62	2010	Planning Theory & Practice	Territorial Cohesion Discourses: Hegemonic Strategic Concepts in European Spatial Planning	Servillo, L.
63	2010	Land Use Policy	Wind power, landscape and strategic, spatial planning—The construction of ‘acceptable locations’ in Wales	Cowell, R.
64	2011	Urban Research & Practice	Self-Organization In Urban Development: Towards A New Perspective On Spatial Planning	Boonstra, B. and Boelens, L.
65	2011	Transactions of the Institute of British Geographers	Post-Political Spatial Planning in England: A Crisis of Consensus?	Allmendinger, P. and Haughton, G.
66	2011	International Journal of Biodiversity Science, Ecosystem Services & Management	Reasons and options for integrating ecosystem services in strategic environmental assessment of spatial planning	Geneletti, D.
67	2011	Urbani izziv	Venturing Into Unknown Territory: Strategic Spatial Planning In Post-Communist Cities	Tsenkova, S.
68	2011	Geografiska Annaler: Series B, Human Geography	The Europeanization of Regional Development: Local Strategies and European Spatial Visions in Northern Finland	Luukkonen, J.
69	2012	Planning Practice & Research	Best Practices and Policy Transfer in Spatial Planning	Stead, D.
70	2012	Ecological Indicators	Delphi-Based Change Assessment In Ecosystem Service Values To Support Strategic Spatial Planning In Italian Landscapes	Scolozzi, R.; Morri, E. and Santolini, R.
71	2012	Land Use Policy	Developing An Integrated Approach For The Strategic Monitoring Of Regional Spatial Plans	Mascarenhas, A.; Ramos, T. and Nunes, L.
72	2012	Land Use Policy	Historical And Critical Review Of Spatial And Transport Planning In The Netherlands	Alpkokin, P.
73	2012	Journal of Planning Education and Research	New Directions in Spatial Planning? Linking Strategic Spatial Planning and Infrastructure Development	Todes, A.
74	2012	Environment and Planning C: Government and Policy	Soft Spaces as Vehicles for Neoliberal Transformations of Strategic Spatial Planning?	Olesen, K.
75	2012	European Planning Studies	Strategic Planning in Transition: Contested Rationalities and Spatial Logics in Twenty-First Century Danish Planning Experiments	Olesen, K. and Richardson, T.
76	2012	International Planning Studies	Strategic Spatial Planning: Responding to Diverse Territorial Development Challenges: Towards an Inductive Comparative Approach	Walsh, C. and Allin, S.
77	2012	Regional Studies	The Role of Spatial Data and Spatial Information in Strategic Spatial Planning	Dühr, S. and Müller, A.
78	2012	Land Use Policy	The Adaptive Efficiency of Land Use Planning Measured by the Control of Urban Sprawl. The Cases of the Netherlands, Belgium and Poland	Halleuxa, J.M.; Marcinczak, S. and van der Krabben, E.
79	2012	Cities	Urban Growth and Strategic Spatial Planning in Johannesburg, South Africa	Todes, A.
80	2013	Planning Theory	Reframing Strategic Spatial Planning By Using A Coproduction Perspective	Albrechts, L.

ID	Year	Publication Name	Title of the Published Record with Direct URL	Author(s)
81	2013	disP—The Planning Review	Coping with the Paradox of Strategic Spatial Planning	Mäntysalo, R.
82	2013	disP—The Planning Review	Strategic Planning: A Chance for Spatial Innovation and Creativity	Kunzmann, K.
83	2013	Ecology and Society	Strategic Spatial Planning and the Ecosystem Services Concept—an Historical Exploration	Wilkinson, C.; Saarne, T.; Peterson, G. D. and Colding, J.
84	2013	Urban Studies	The Governability of National Spatial Planning: Light Instruments and Logics of Governmental Action in Strategic Urban Development	Savini, F.
85	2014	Planning Theory	The Neoliberalisation Of Strategic Spatial Planning	Olesen, K.
86	2014	Planning Practice & Research	With or Without You? Strategic Spatial Planning and Territorial Re-Scaling in Grenoble Urban Region	Cremer-Schulte, D.
87	2014	Journal of Environmental Planning and Management	Strategic Environmental Assessment and Spatial Planning in Italy: Sustainability, Integration and Democracy	Rega, C. and Bonifazi, A.
88	2014	Journal of Planning Literature	Reflections on the Three Schools of Thought on Strategic Spatial Planning	Bafarasat, A.Z.
89	2015	Urban Policy and Research	Designing Institutions for Strategic Spatial Planning: Auckland's Governance Reforms	McFarlane, K.; Solomon, R. and Memon, A.
90	2015	Land Use Policy	Ecosystem Services In Spatial Planning And Strategic Environmental Assessment—A European And Portuguese Profile	Mascarenhas, A.; Ramos, T.B.; Haase, D. and Santos, R.
91	2015	Environment and Planning B: Urban Analytics and City Science	Ingredients For A More Radical Strategic Spatial Planning	Albrechts, L.
92	2015	Environmental Development	Integrating Strategic Environmental Assessment Into Spatial Planning In Egypt	Hegazy, I.R.
93	2015	Land Use Policy	Is Spatial Planning a Collaborative Learning Process? A Case Study From a Rural–Urban Gradient in Sweden	Elbakidze, M.; Dawson, L.; Andersson, K.; Axelsson, R.; Angelstam, P.; Stjernquis, I.; Teitelbau, S.; Schlyter, P. and Thellbro, C.
94	2015	disP—The Planning Review	Redefining Territorial Scales and the Strategic Role of Spatial Planning	Galland, D. and Elinbaum, P.
95	2015	Land Use Policy	Reframing Strategic Spatial Planning as a 'Coproductive Trading Zone' between State-Led and Place-Based Interests: Reflections from Maryland and Finland	Kalliomäki, H.
96	2015	Planning Theory & Practice	The paradox of strategic spatial planning: A theoretical outline with a view on Finland	Mäntysalo, R.; Kangasoja, J.K. and Kanninen, V.
97	2015	Regional Environmental Change	The Practice Of Settling And Enacting Strategic Guidelines For Climate Adaptation In Spatial Planning: Lessons From Ten Swedish Municipalities	Storbjork, S. and Uggla, Y.
98	2015	Land Use Policy	The planning of strategy: A contribution to the improvement of spatial planning	Goncalves, J. and Ferreira, J.A.
99	2016	European Planning Studies	An Assessment of the Effectiveness of Strategic Spatial Planning: A Study of Sardinian Municipalities	Abis, E. and Garau, C.

ID	Year	Publication Name	Title of the Published Record with Direct URL	Author(s)
100	2016	Land Use Policy	A Better Zoning System for South Africa?	Nel, V.
101	2016	Land Use Policy	Attitudes Of A Farming Community Towards Urban Growth And Rural fragmentation—An Auckland Case Study	Curran-Couranane, F.; Cain, T.; Greenhalghand, S. and Samarsinghe, O.
102	2016	Environment and Planning C: Government and Policy	Building Consensus for Network Power? Some Reflections on Strategic Spatial Planning in the North West Region of England	Bafarasat, A.Z. and Baker, M.
103	2016	Journal Urban Planning and Development	National Spatial Strategic Plan of England	Wang, J.
104	2017	Routledge	Situated Practices of Strategic Planning	Albrechts, P.; Balducci, A. and Hillier, J. (Editors)
105	2017	Planning Practice & Research	An Integrative Spatial Capital-Based Model for Strategic Local Planning—An Israeli Case	Frenkel, A. and Porat, I.
106	2017	Land Use Policy	A Thriving Coal Mining City in Crisis? The Governance and Spatial Planning Challenges at Witbank, South Africa	Campbell, M.; Nel, V. and Mphambukeli, T.
107	2017	Vdf Hochschulverlag AG an der ETH Zürich	Land Ownership and Land Use Development—The Integration of Past, Present, and Future in Spatial Planning and Land Management Policies	Hepperle, Dixon-Gough, Mansberger, Paulsson, Hernik and Kalbro (Editors)
108	2017	Environmental Impact Assessment Review	Multi-actor involvement for integrating ecosystem services in strategic environmental assessment of spatial plans	Rozas-Vásquez, D.; Fürst, C.; Geneletti, D. and Munoz, F.
109	2017	European Planning Studies	Talk To The Hand: Strategic Spatial Planning as Persuasive Storytelling of The Loop City	Olesen, K.
110	2017	Routledge	Encounters in Planning Thought	Haselsberger, B. (Editor)

Source: Authors' own elaboration.

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