

# **LAND AND SKY<sup>1</sup> - AN ATTEMPT AT CREATING AN ONTOLOGY OF CULTURAL LANDSCAPES AND RELATED CONCEPTS**

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<sup>1</sup> The title is borrowed from the Norwegian songwriter and singer Erik Bye's song about Ole who builds a mountain – or in museological terms – constructs a landscape on the North Dakota plain. Ole does this for reasons of identity as well as for reasons of clarity (“the man who climbs the highest mountain will get a better view”). As such the title seems fitting in many ways; this study is concerned with landscape re/construction, with identity and related issues and it is motivated by the wish to get “a better view” of the structures that shape the field of cultural landscape studies (for those who want to listen; Land and Sky is interpreted by Hellbillies at youtube.com).

# **Land and sky- an attempt at creating an ontology of cultural landscapes and related concepts**

## **Abstract**

The aim of this study has been to attempt to create an ontology of cultural landscape and related concepts through the use of several forms of bibliometric analyses.

Cultural landscape is perceived as a transdisciplinary concept and the theoretical point of departure emphasizes this through a focus on the possibilities of communication between and beyond disciplines and existing structures.

Frequency distributions are presented in order to obtain an overview of the different concepts. Co-occurrences analyses are carried out on the different concepts and the results are presented in the form of bibliometric maps. The discussion focuses on the relations between the words and the concepts, as well as in the case of the concept of cultural landscape only, on the shifting relations between words over time, as well as on the intellectual structure of the discourse.

The heterogeneous quality of the field of cultural landscape studies makes the creation of an ontology difficult. What the study may contribute to, however, is an increased transparency as regards the structures of the discourses; this in turn may help to improve the conditions for transdisciplinary communication and collaboration.

## **Keywords**

*Cultural landscapes, cultural heritage, natural heritage, biological cultural heritage, environmental heritage, ontology, bibliometric analysis, authenticity, transdisciplinarity*

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# Table of content

<b>Table of content.....</b>	<b>3</b>
<b>Introduction.....</b>	<b>5</b>
Background .....	7
Theoretical points of departure .....	9
The myth of the framework – Karl Popper .....	9
Dialogue and the importance of the middle - Saltzman .....	9
Transdisciplinary sciences of holistic landscape study - Naveh .....	10
The European Landscape Convention .....	11
Comments .....	11
<b>Materials and methods.....</b>	<b>12</b>
The bibliometric method – co-occurrence analyses.....	12
Co-word .....	12
Co-citation.....	13
Comments .....	13
Bibexcel tool-box and Pajek .....	14
Delimitations and interpretations .....	14
<b>Results and discussion .....</b>	<b>16</b>
Definitions .....	16
An overview of frequency distributions .....	18
<i>Cultural heritage</i> .....	18
<i>Natural heritage</i> .....	19
<i>Biological cultural heritage</i> .....	20
<i>Environmental heritage</i> .....	22
<i>Cultural landscapes</i> .....	23
Comments .....	24
The co-occurrence analyses .....	24
<i>Cultural heritage</i> .....	24
<i>Natural heritage</i> .....	26
<i>Environmental heritage</i> .....	28
<i>Biological cultural heritage</i> .....	30
<i>Cultural landscapes</i> .....	32
Comments .....	34
Development over time.....	38
Co-citation analysis.....	43
<b>Concluding remarks .....</b>	<b>45</b>
<b>Literature.....</b>	<b>47</b>
Internet resources .....	51
<b>Appendixes .....</b>	<b>52</b>
Appendix 1 <i>Cultural heritage</i> .....	52
Appendix 2 <i>Natural heritage</i> .....	53
Appendix 3 <i>Environmental heritage</i> .....	54

Appendix 4 <i>Biological cultural heritage</i> .....	55
Appendix 5 <i>Cultural landscapes</i> .....	56

## Introduction

In the autumn of 2010 I worked on a project at Fredriksdal museum. The project was concerned with the reconstruction of two farms in the museums open air presentation of types of cultural landscape in Skåne. During the project I encountered words that were central to the process of reconstruction; the most outstanding of these were the word “authenticity”. The key word of “authenticity” played a major role in the process of choosing farms, it was, however necessarily filtered through economical, pedagogical and material considerations. I became interested in “authenticity” and equally curious about other words that help shape the discourse of *cultural landscapes*. Which are these words and how do we interpret the complex discourse they help shape? Are there any “given” list of key words or a set of categories of entities that constitute the discourse of cultural landscape – and if so, how do these words or categories of entities relate to each other. Is it possible to formulate an ontology<sup>2</sup> of *cultural landscapes*? One of the benefits of an ontology is the way it enables a common understanding of the structure of information within a given field. This would seem to be of special importance within the field of cultural landscape studies; a broad field which is also seen to include not only the concept of *cultural landscapes*, but also the concepts of *cultural heritage*, *natural heritage*, *biological cultural heritage* and *environmental heritage* respectively. *Cultural landscapes* as a concept is shaped in close interaction with these and in order to understand the structure of one concept it is necessary to understand the structure of the other concepts. Through bibliometric analysis this study aims at elucidating the structures of these different concepts. The bibliometric analysis seems well suited to the task as it visualizes the intellectual or conceptual structures of a given field.

The concept of *cultural landscapes* encompasses landscapes both within and outside of museums as well as stakeholders from within a variety of disciplines; including ecologists, geographers, botanists, pedagogical staff, politicians, farmers, ethnographers and the public. Within museology the concept of *cultural landscapes* is a relevant concept to consider as it concerns open air museums, such as Fredriksdal and Skansen as well as heritage sites such as Linnes Råshult, Skånes Naturskyddsföreningens farm Hörjelgården or the garden of Tjöloholm castle, it is

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<sup>2</sup> Ontology; the philosophical study of the nature of being, existence or reality as such, as well as the basic categories of being and their relations (<http://en.wikipedia.org/wiki/ontology>), but also explicit formal specifications of the terms of a domain and relations among them. (Gruber 1993)

furthermore a concept which is close to what is termed *eco museums*. The concept of the *eco museum* emphasizes the holistic quality of the landscape, a holistic quality which is equally representative for the concept of *cultural landscapes* as discussed by Graeme Aplin in “World Heritage Cultural Landscape”. (Aplin:2007)

The concept of *cultural landscape*<sup>3</sup> has a long history, but was first mentioned in the records of UNESCO’s World Heritage Committee<sup>4</sup> in 1987, following a long debate of the interrelatedness of *cultural-* and *natural heritage*. (Aplin 2007:427f). In 1992 *cultural landscapes* were introduced into the Operational Guidelines for the Implementation of the World Heritage Convention<sup>5</sup>. As the body to develop the criteria for an inscription on the World Heritage List, the World Heritage Committee and UNESCO can be seen as significant stakeholders within the field of cultural landscape studies.

The discourse of *cultural landscapes* is an interdisciplinary field, with stakeholders from within the natural as well as the cultural sciences. I will argue that this places it well within a new scientific paradigm, a paradigm with a focus on complexity as opposed to reductionism, on inter- and transdisciplinarity as opposed to mono- and multidisciplinary. This makes it an interesting object of study for more than one reason; inter- and transdisciplinarity, cooperation and collaboration across disciplines as well as across political and communal levels may well be the key to future preservation and development.

The study starts by briefly situating the topic in contemporary discussions before moving on to an overview of the frequency distributions of the different concepts. This is followed by an introduction to bibliometrics and by the bibliometric analysis. The analysis is a co-word analysis with the focus on the co-occurrence of the main words of the different discourses. Throughout the study I have chosen to use “word” to refer to the different key words as they are obtained through the analyses. I have chosen to use “concept” to refer to the five main concepts of the study; i.e. *cultural landscapes*, *cultural heritage*, *natural heritage*, *biological cultural heritage* and *environmental heritage* respectively and I have chosen to use “discourse” to refer to the discussion (as represented by the articles) within the field. As a rule I deal with the concept of cultural landscape last. This in order to obtain a broader knowledge of the entire field before looking closer at what is arguably, in this study, the main

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<sup>3</sup> Aplin refers to late 19<sup>th</sup> century German and French geographers and their understanding of “landschaften” and “pays” respectively; their terminology share with the concept of *cultural landscapes* a holistic understanding of the interactive relation between nature and culture in shaping a particular area. In a Swedish context the ethnographer Åke Cambell published a book entitled *The cultural landscape* in 1936. His definition of the cultural landscape was similarly holistic in the sense that it focused on the landscape that had evolved through the work of man.

<sup>4</sup> The World Heritage committee consists of representatives from 21 of the States Parties to the Convention and it is elected by their General Assembly. The committee meets once a year and is responsible for the implementation of the World Heritage Convention, it defines the use of the World Heritage Fund and allocates financial assistance upon request, it furthermore has the final say whether a property is inscribed on the World Heritage List or not as well as it decides on the inscription or deletion of properties from the list of World Heritage in Danger. (<http://whc.unesco.org/en/committee/>)

<sup>5</sup> The precise criteria for the inscription of properties on the World Heritage List as they are developed by the World Heritage Committee. (<http://whc.unesco.org/en/guidelines/>)

concept. The last part of the study includes a comparative co-occurrence analysis of the development of the concept of *cultural landscapes* specifically since 1995, as well as a co-citation analysis of the most frequent author citations within the same concept, apart from these two exceptions I have focused equally on the different concepts and consider all to be part of the extended field of cultural landscape studies.

## Background

The integrated field of *natural-* and *cultural heritage* presents a challenge to its stakeholders through its interdisciplinarity, but also through the fact that nature and culture alike are in constant flux. The concept of *cultural landscapes* thus applies to a dynamic process shaped through the complex interaction of several different disciplines or instances. How then is this complexity and dynamism reflected and enabled through the discourse? These are questions that concern the authors of *Cultural landscapes of universal value: components of a global strategy* (1995); a volume edited by the ecologist Bernd von Droste in cooperation with UNESCO and with the explicit aim to explore the concept of *cultural landscapes* in its UNESCO interpretation. The book, with contributions from scholars within the cultural as well as the natural sciences, attempts to present and promote the interdisciplinary quality and meaning of the concept. It is however arguable to which extent the authors succeed in celebrating the full consequences of an acknowledgement of the interdependent relationship between man and nature as discussed by the geographer David Lowenthal. (Lowenthal 2000)

In “Biological Diversity and Cultural Diversity: The Heritage of Nature and Culture through the Looking Glass of Multilateral Agreements” Peter Bridgewater, Salvatore Arico and John Scott argue that one key area of research activity (pertaining to the role of cultural landscapes) is to examine the definition of *cultural landscapes* and to link these definitions back to an analysis of the multi-functional nature of landscapes. (Bridgewater et al 2007:416) Bridgewater, Arico and Scott thus emphasize the need to examine the definition of *cultural landscapes* at the same time as their focus is on the utility of the cultural landscape, as exemplified through the use of words such as “role” and “multi-functional”. This move towards the aspect of utility is one that further characterizes the politics of *cultural landscapes*, as discussed by Thymio Papayannis and Peter Howard in their introduction to the special number of the International Journal of Heritage Studies on Nature as Heritage. (Papayannis & Howard 2007). It is a reminder of the anthropic character of the construction of *cultural landscapes*. The ecofeminist Val Plumwood argues that an anthropocentric and utilitarian view can be seen to ignore nature’s own voice and to help maintain a monolog relationship with nature. To counter this Plumwood argues that nature has intrinsic value and should be given its own voice<sup>6</sup>. The nature/culture dichotomy is central to the way we understand *cultural landscapes*; morally, historically and

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<sup>6</sup> In “The concept of a cultural landscape” (2006) Plumwood argues that the concept of cultural landscape downplays natural agency. Another approach that emphasizes the responsibilities of humans towards the natural world as well as the interdependence between man and nature is the Gaia theory as developed by amongst others James Lovelock. (Lovelock 2000)

politically. The ideal may be (a return to) nature untouched by man; to what may be termed wilderness. This view can however be contested, as exemplified by Lowenthal as well as by the Swedish land historian Mårten Sjöbeck. Lowenthal emphasizes that “nature is an artifact of the present” and argues that “we can return neither to a state of nature nor to any supposed ‘balance’” (Lowenthal 2006:87), while Sjöbeck, through the development of the transdisciplinary subject of “markhistorie”, emphasized a holistic view of landscapes in which the interdependence between man and nature was observed. (Gustavsson 2009)

*Cultural landscapes* are often expressions of intangible *cultural heritage*. In *Cultural landscapes of Universal Value* (1995) Harald Plachter and Mechtild Rössler emphasize that:

A cultural landscape is a complex phenomenon with a tangible and an intangible identity. The intangible component arises from ideas and interactions which have an impact on the perceptions and shaping of a landscape, such as sacred beliefs closely linked to the landscape and the way it has been perceived over time.

(Plachter & Rössler 1995:15).

The intangible *cultural heritage* is part of the complex web that constitutes the concept of *cultural landscape*. It is reflected not only through the sacred beliefs of indigenous tribes, but arguably, also in the way we, on the basis of our ideas of nature and wilderness seek to construct and reinvent nature as discussed by amongst others William Cronon as well as by Kenneth Olwig in their contributions to *Uncommon Ground Toward Reinventing Nature*<sup>7</sup>. (Cronon (ed) 1995)

In their editorial to the special issue of the International Journal of Heritage Studies on Nature as Heritage, Papayannis and Howard emphasize the need for a common language when it comes to the conservation of the European *natural heritage*, while at the same time they acknowledge the need for (a conservation of) as many languages as possible, in the cultural sense, but presumably also within the framework of the discourse. It seems, however to be imperative to communicate between disciplines and institutions and therefore there is a need for a careful definition of the concept of *cultural landscapes*, but also as Papayannis and Howard emphasize of concepts such as *conservation*, *natural heritage* and *cultural heritage*. (Papayannis & Howard 2007:301). Concepts are value laden, as exemplified by Olwig in “Time out of Mind, Mind out of Time” (2001). It is therefore important not only to define the different concepts and key terms, but to acknowledge the extent to which they are not neutral but carries meaning beyond the strictly factual.

The concept of *cultural landscapes* and the structures that help shaping it are thus, for all its implications, more than worthy of further investigation. How we perceive and relate to *cultural landscapes* say something about the way we comprehend the past, the present as well as the future.

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<sup>7</sup> Cronon, William “The Trouble with wilderness: or, Getting Back to the Wrong Nature” (Cronon (ed) 1995)

Olwig, Kenneth “Reinventing Common Nature: Yosemite and Mount Rushmore-A Meandering Tale of Double Nature” (Cronon (ed) 1995)



## Theoretical points of departure

### The myth of the framework – Karl Popper

In *The Myth of the Framework In Defense of Science and Rationality* (1994) Karl Popper argued against the notion that the existence of different frameworks prevented communication between the frameworks. He maintained that it is possible to communicate between and beyond frameworks. This is perhaps the main theoretical point of departure of the study; we can and ought to communicate between frameworks and disciplines but how do we best understand and enable this communication?

The concept of *cultural landscapes*, and the discourse it gives rise to, is complex and ever changing; my philosophical points of departure accordingly emphasize a world view in which an understanding of dynamic, non-linear, complex structures are central. It can be argued that we are in a period of transition from a focus on static and linear structures to a focus on emergence and creativity, a transition away from reductive strategies towards integrative structures with a focus on (inter)relations and transdisciplinarity.

Recent authors within the field of landscape studies that work with similar theoretical points of departure are amongst others the Swedish ethnographer Katarina Saltzman as well as the ecologist Zev Naveh (see below). It is furthermore worth noticing that the much of the discussion concerning the European Landscape convention (2000) can be seen to be tangential to some of the same theoretical considerations.

### Dialogue and the importance of the middle - Saltzman

In her dissertation *Inget landskap är en ö* Katarina Saltzman (2001) discusses the dialectical nature of the landscape and concludes that there is an ongoing dialogue in landscapes between idea and matter, past and present, nature and culture. The dialectical approach to landscapes emphasizes the significance of the borderline position; it is what happens in the middle between nature and culture, between past and present that matters. Saltzman traces her theoretical foundations to the social theorist David Harvey and concludes that Harvey's models corresponds to an emerging scientific cosmology that traces its roots back to the pre-socratics notably Heraclit. It is has been re-actualized throughout the 20<sup>th</sup> century with the advances within quantum physics and cybernetics.

In Saltzman's most recent book *Mellanrummens möjligheter: studier av föränderliga landskap* (Saltzman (ed.) 2009) the focus is, to an even greater extent, on the

borderline positions; as in between the urban and the rural. References are made to the philosopher Gilles Deleuze and psychoanalyst Felix Guattari. In the introduction to their book *A thousand plateaus: capitalism and schizophrenia* -they conclude that:

The middle is by no means an average; on the contrary, it is where things pick up speed. Between things do not designate a localizable relation going from one thing to the other and back again, but a perpendicular direction, a transversal movement that sweeps one and the other away, a stream without a beginning or end that undermines its banks and picks up speed in the middle.

(Deleuze and Guattari 1987:25)

A focus on the middle would seem to run counter to an attempt at creating an ontology and Deleuze and Guattari are clear as to why they prefer American and English literature stating that “they know how to move between things, establish a logic of the AND, overthrow ontology, do away with foundations, nullify endings and beginnings.”(Deleuze and Guattari 1987:25) I still think it makes sense to attempt to create an ontology, but, at the same time, to emphasis the dynamic quality as well as the pragmatic use(s) of such an ontology.

### Transdisciplinary sciences of holistic landscape study - Naveh

The discourse concerned with landscape ecology and restoration ecology respectively puts an emphasis on the need to transform these ecologies into transdisciplinary sciences of holistic landscape study. (Naveh 2005) Naveh’s focus is on the importance of the ongoing holistic and transdisciplinary scientific revolution and its consequences for (in this case) landscape ecology and restoration ecology. These are disciplines closely linked to the field of cultural landscape studies and the consequences are more than relevant for the entire field. In Naveh’s words, the scientific revolution is concerned with “a shift from reductionist and mechanistic to holistic and organismic paradigms, based on systems thinking of complexity, networks and hierarchic order”, replacing the belief in the objectivity and certainty of the scientific truth with the recognition of the limits of human knowledge. (Naveh 2005:385) In these new paradigms mono- and multidisciplinary approaches are replaced by inter- and transdisciplinary approaches of which the transdisciplinary approaches are seen to be the more radical in scope. The prefix “trans” indicates something that goes not only between, but also across and, perhaps most importantly, even beyond disciplines, creating a new type of integrative knowledge. Naveh’s approach emphasizes the importance of emergence and creativity within the new paradigm as well as on a more practical level the consequences the new worldview will have for the way in which we view cooperation between, across and even beyond disciplines. Transdisciplinary integration is thus seen to involve “not only the scientific and technological disciplines as in interdisciplinarity, but also the involvement of planners and administrators.”(Naveh 2005:381) Transdisciplinarity can thus be seen to be of crucial importance in dealing with the complexity of *cultural landscapes*<sup>8</sup>.

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<sup>8</sup> For a discussion of transdisciplinarity and of new forms of knowledge production see also *A Sociological Theory of Communications: the Self-Organization of the Knowledge-Based Society* (Leydesdorff 2001a) and *The Challenge of Scientometrics the Development, Measurement, and Self-Organization of Scientific Communications* (Leydesdorff 2001b).

## The European Landscape Convention

The emerging understanding of (cultural) landscapes, replacing binary, cultural and spatial logic with a more complex approach, is reflected in the discourse concerning the interpretation of The European Landscape Convention (2000) as discussed in Monica Sassatelli's article "European Identity between Flows and Places: Insights from Emerging European Landscape Policies". (Sassatielli 2010 ) Landscapes are seen to transcend reductive strategies and to emphasize active contribution and participation as well as to allow for multiple identifications. (Sassatelli 2010:73f)

## Comments

The theoretical works provide a starting point for the study and ground its relevance in contemporary thinking. At the same time it presents a challenge to the bibliometric analyses when it comes to grasp the value in between as well as the additional value created through the production of new words and new thoughts from working across several fields. It furthermore presents a challenge to me, as I, in my reading and knowledge cover only part of the disciplines and the knowledge I encounter throughout the study and hence remain but an amateur when it comes to drawing conclusions, as all the others I exist somewhere in between concepts, disciplines, words, preconceptions and experience.

## Materials and methods

The material in this study is collected from records from the ISI Web of Knowledge database. The overview of the frequency distributions is based on information provided by the database. I have used Excel to create graphs and charts in order to visualize the information. The different co-occurrence analyses provide the main methodological framework of the study and will be presented more thoroughly over the next pages.

The searches in the ISI Web of Knowledge database were carried out in several steps. In order to cover the field as comprehensively as possible the searches were carried out on “topic” only, that is it was not limited to specific journals or years of publishing. The results from the first search for each concept were then analyzed using the analyze function of the database to delimit the number of journals to be included in the overview and analysis. A journal was included in the final material if the number of articles in the journal exceeded a set threshold level. The threshold level varies between the concepts and is dependent on the total number of articles within the field. No delimitations were made for the year of publishing.

### The bibliometric method – co-occurrence analyses

The use of the bibliometric method enables a quantitative analysis of patterns of publication, or of patterns of attention, within a given (scientific) field. The bibliometric method furthermore enables a visualization of the obtained results through the creation of maps, thus highlighting the structures of the given field.

### Co-word

This study employs a co-word analysis in order to elucidate the central words within the field of cultural landscape studies<sup>9</sup> as well as the relations between these terms. Co-word analysis is explored by amongst others Courtial and Law (1989), Whittaker (1989), Law and Whittaker (1992) and Courtial (1994). The words that are included in the co-word analysis of the field of cultural landscape studies are obtained from the abstracts of articles with *cultural landscape*, *cultural heritage*, *natural heritage*, *environmental heritage* and *biological cultural heritage* respectively as main topic. There was a choice between using words from the titles, from the key words or from the abstracts. It can be argued that title words do not give full credit to the complex themes presented in a long article. (Whittaker 1989:491) Key words would seem to be

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<sup>9</sup> This, arguably, includes the concept of *cultural landscape* as well as the tangential concepts of *cultural heritage*, *natural heritage*, *environmental heritage* and *biological cultural heritage*.

able to grasp this complexity in a better way, though there have been criticisms against the use of key words based on the possibility of an indexer effect, Whittaker however concludes that this can be safely disregarded. (Whittaker 1989:491) There were several articles in my search which lacked key words, whether it be authors or indexers, the choice was therefore made to use words obtained from the abstracts. The list of words which is obtained from a search contained trivial as well as non-trivial words. The process of choosing the words for further analysis is a subjective process. I have kept every word that would seem to give meaning in its own right, as an example I have removed the word “can”, but kept the word “process”. The meaning and usage of words do however change over time (Åström 2002:186) and furthermore they do, as pointed out by amongst others Olwig (2001) and Papayannis & Howard (2007), change between disciplines. Complexities such as these are impossible to grasp with the kind of co-word analysis I have been carrying out. An exception may be the analyses of the different concepts; *natural heritage*, *cultural heritage*, *environmental heritage*, *biological cultural heritage* and *cultural landscape* respectively, between these it should be possible to some extent to determine the meaning of a given word by observing how it is linked to other words within the discourse. A citation analysis would render networks that are more stable than the networks produced by a co-word analysis (Åström 2002:186) and is employed on the concept of *cultural landscapes*.

### Co-citation

Co-citation analysis is explored by amongst others Small and Griffith (1974), White and Griffith (1981) and McCain (1986). I have included a co-citation analysis of the concept of cultural landscape with the hope that this will contribute towards a better understanding of the cognitive structure of the discourse. The co-citation analysis furthermore contributes towards visualizing clusters of meaning production within the discourse as well as the (lack of) communication between these clusters. The co-citation analysis is not document based, but refers to the entire workings of the authors. It produces a map in which authors whose works are generally seen to be related cluster together on the map and authors who are rarely or never cited together are relatively far apart. (White & Griffith 1981:163) The concept of *cultural landscapes* is complex and involves several different stakeholders. I am familiar with some of the authors represented in the co-citation map, but due to time-constraints I was unable to enquire deeper into the work of the unfamiliar names. This is a weakness as the analysis would have benefitted from a more thorough prior knowledge of the different authors and (some) of their work.

### Comments

In the case of the different concepts of this particular study the application of the co-word analysis is complicated by the introduction of complex (i.e. *cultural landscapes*) as opposed to singular (i.e. cultural) terms. The search in ISI is carried out on the complex terms and the obtained information (abstracts, authors, title, key words etc) is imported into Bibexcel. The words are extracted from the abstracts, but the co-occurrence analysis is carried out on single terms only; i.e. in the case of cultural landscape the search in ISI is carried out on the term cultural landscape, the words are extracted from the abstracts based on this file, but the co-occurrence analysis is

carried out on a list of words that excludes landscape. This is done in order to avoid an artificial separation of the complex terms in the maps which are based on the co-occurrence analysis.

The co-word method is a relational indicator (Courtial & Law 1989:301), it is a method for “mapping shifting links between scientific concepts, methods and problems”. (Courtial & Law 1989:301) The links between the words, the concepts they help shape and the problems and methods they involve can be seen in the visualizations. The visualizations also give an idea of the shifting links between similar words and different scientific concepts. As for a mapping of the shifting links between concepts, methods and problems over time, I have included a limited analysis of the development of the concept of *cultural landscapes*. This has been done by analyzing articles from the years 1995, 2000, 2005 and 2010 respectively. The emphasis on shifting links between concepts, methods and problems corresponds to the theoretical point of departures emphasis on the dynamic quality of scientific discourse.

### Bibexcel tool-box and Pajek

In order to carry out the bibliometric analyses I am using Bibexcel, a tool-box for bibliometric analysis developed by professor Olle Persson. Bibexcel is designed to assist a user in analyzing bibliographic data and generates data files that can be imported to other programs for further processing. (Persson, Danell & Schneider 2009)<sup>10</sup> The files are converted for further analysis and visualization with Pajek. (de Nooy, Mrvar & Batagelj 2005)<sup>11</sup> Pajek aims to provide tools for analysis and visualization of large networks in machine readable form). For the automatic lay-out generation I have used the Kamada – Kawai algorithm, which is an algorithm for drawing general undirected graphs. (Kamada & Kawai 1989) This algorithm draws a graph in which the geometrical distance between vertices in the drawing relates to the theoretical distance between vertices in the graph. (Kamada & Kawai 1989:15)

### Delimitations and interpretations

It is important to note that both the process of choosing articles and words as well as the process of interpreting the maps are processes based on a number of (individual) choices. My aim has been to be as objective in my approach as possible, but the process implies active involvement from me as a subject. Law and Whittaker (1992) discuss this aspect in relation to the interpretation of representations and depictions and they emphasize that these are not transparent; they are read and the process of representation takes the form of an interaction between a depiction and a reader. (Law & Whittaker 1992:457) A co-word map thus does not present a context free overview of a field (Law & Whittaker 1992:457); rather its interpretation rest in part on local knowledge. (Law & Whittaker 1992:458) It is dependent on the prior knowledge of the reader and interpreter.

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<sup>10</sup> See also <http://www8.umu.se/inforsk/Bibexcel>

<sup>11</sup> See also (<http://vlado.fmf.uni-lj.si/pub/networks/pajek/doc/pajekman.pdf>)

The field of *cultural landscapes* studies encompasses subject areas within the natural and the social sciences respectively. There is a difference between these sciences when it comes to the ways of publishing results. Books play a larger role within the social sciences and the humanities than within the natural sciences and therefore an analysis focusing on the research published in journals may not give an accurate representation of the actual research output within the social sciences and arts and humanities. This may go some way towards explaining the relative strength, observed through the frequency distributions, of research within the natural sciences related to *cultural landscapes*. Thus it is with some caution that I present the results, especially as I am carrying out a transdisciplinary, at times comparative analysis of the structures of the discourse within and between the natural and the social sciences. In order to meet some of the possible criticism I have sought to combine the bibliometric analyses with fairly extensive reading of books related to the topic. These books are listed at the back and are more often than not representing the social sciences in a broad sense. Through the discussion of the terms which follows the bibliometric analyses I furthermore hope to give equal justice to the different disciplines.

Language is another factor which contributes to a bias in the results. I have included articles from journals published in English only, thus excluding i.e. journals published in Spanish or Swedish. When it comes to the Sweden I have sought to overcome this by including Swedish literature in the discussion of the terms. This has seemed appropriate as Sweden has a lot to offer in terms of a discussion of *cultural landscapes* related issues, from Sjöbeck and Campbell onwards to the Swedish ecologist Urban Emanuelsson.

## Results and discussion

### Definitions

My main focus throughout this study is on the concept of *cultural landscapes* as well as the concepts of *natural heritage*, *cultural heritage*, *biological cultural heritage* and *environmental heritage*. The concepts of *natural-* and *cultural heritage* are important to consider as they have long been the concepts to describe the different aspects of our common heritage. When it comes to UNESCO, the sites on the World Heritage List are still divided into natural, cultural or mixed sites respectively and these divisions have consequences for the ways in which one understand and assess a site. Of the two concepts, *cultural heritage* seems to be the most frequently used as well as the most encompassing. Wikipedia's definition of *cultural heritage* goes so far as to include *natural heritage* within a wider concept of *cultural heritage*.

*Cultural heritage* ("national heritage" or just "heritage") is the legacy of physical artifacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations. *Cultural heritage* includes tangible culture (such as buildings, monuments, landscapes, books, works of art, and artifacts), intangible culture (such as folklore, traditions, language, and knowledge), and *natural heritage* (including culturally-significant landscapes, and biodiversity).

([http://en.wikipedia.org/wiki/Cultural\\_heritage](http://en.wikipedia.org/wiki/Cultural_heritage))

Despite this they also offer a rather short, but distinct definition of *natural heritage*.

*Natural heritage* is the legacy of natural objects and intangible attributes encompassing the countryside and natural environment, including flora and fauna, scientifically known as biodiversity, and geology and landforms (geodiversity).

([http://en.wikipedia.org/wiki/Natural\\_heritage](http://en.wikipedia.org/wiki/Natural_heritage))

The concept of *biological cultural heritage* is rather new and it is not possible to find any online definition. It is however a concept in use amongst scholars and in a Swedish context relevant as it is a concept promoted by the Center for Biological Diversity (see e.g. Biodiverse no.3:2009). Professor Urban Emanuelsson argues in his book *The rural landscapes of Europe- How man has shaped European nature* (2009) for the necessity of including the whole landscape in our way of perceiving landscape and working with landscape. He draws attention to the fact that "a distinction is still often made between conserving the natural and cultural environments" (Emanuelsson 2009:9).and emphasizes that



this is an artificial dichotomy that is unfortunately perpetuated by both public authorities and non-profit organizations. Those wishing to preserve the environment should include the whole landscape. A key concept would then be ‘the biological cultural heritage.’

(Emanuelsson 2009:9)

The concept of *biological cultural heritage* is meant to capture the reciprocal relationship between *biological* and *cultural heritage* as well as emphasizing the need for an interaction between natural and cultural scientists alike. In this way it resembles the intentions of the introduction of the concept of *cultural landscapes*, a concept which explicitly seeks to acknowledge the interactive relationship between nature and man and through this to reconnect nature and culture and to reconcile ".one of the most pervasive dualisms in Western thought - that of nature and culture." ([http://en.wikipedia.org/wiki/cultural\\_landscape](http://en.wikipedia.org/wiki/cultural_landscape))

As discussed above it is arguable to which extent the increased focus on the interdependent relationship between man and nature through the introduction of the concept of *cultural landscapes* as well as through and increased focus on the environment succeeds in overcoming the dichotomy. Perhaps the introduction of the concept of *biological cultural heritage* is an attempt at making the dual, yet interdependent relation even more transparent.

***Environmental heritage*** is another concept which is frequently encountered in articles, but which it is impossible to find an online definition for. Environment may be taken to refer to our material surroundings, especially those we regard as natural (Lowenthal 2007:197). *Environmental heritage* would thus seem to encompass both the *natural* as well as the *cultural heritage* with an emphasis on the *natural heritage*. *Environmental heritage* may also be seen as, as discussed by Lowenthal in “Environment as Heritage” (2006), as closely related to environmentalism and thus directly linked to a wider discussion concerning the man/nature dualism.<sup>12</sup>

In their definition of *cultural landscapes* Wikipedia refers to the definition of the World Heritage committee in which *cultural landscapes* are distinct geographical areas or properties uniquely “representing the combined work of nature and man”. ([http://en.wikipedia.org/wiki/cultural\\_landscape](http://en.wikipedia.org/wiki/cultural_landscape)). The *cultural landscapes* foundation on the other hand defines *cultural landscapes* as providing a sense of place and identity and of mapping our relationship with the land over time. They are “part of our national heritage and each of our lives.” (<http://tclf.org/landscapes/what-are-cultural-landscapes>). Natural England defines *cultural landscapes* as

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<sup>12</sup> The discourse of environmentalism is another discourse, closely linked to that of our understanding of cultural landscapes, that is changing. In 1995 William Cronon suggested in his influential essay “The trouble with wilderness” that both “wilderness” and “nature” are socially constructed concepts. In an article from 2008 Denis Cosgrove discussed Adam Werbach’s speech from 2004 “Is environmentalism dead?”, in which Werbach argued that environmentalism never sought to transcend binary thinking rather it inverted or flattened the modernist category of humans over nature. Cosgrove however argued that this is questionable when it comes to pictorial images. (Cosgrove 2008)

areas that include cultural and natural resources associated with an historic event, activity, person or group of people. They range from thousands of acres of rural land to homesteads with small front yards.

(<http://www.naturalengland.org.uk/ourwork/landscape/protection/historiccultural/default.aspx>)

The definition furthermore emphasizes that *cultural landscapes* are works of art, texts and narratives of cultures, and expressions of regional identity; existing in close relationship to their ecological contexts. As can be seen from the three different definitions they cover a broad field of interrelated topics, but have in common a focus on the relationship between man and nature, cultural and *natural heritage*, as well as on the importance of *cultural landscapes* for a feeling of place and identity in historical and contemporary terms.

## An overview of frequency distributions

With the help of data from the ISI Web of Knowledge database (accessed on the 23rd of March 2011) the diagrams below aim at giving an idea of the areas covered by the different concepts as well as giving an idea of the number of articles written focusing on one or more of the different concepts. The overview is meant to provide a better understanding of the diversity of concepts and of their boundaries, thus proving a starting point for the co-occurrence analysis. It is worth noticing that the publishing procedures differs between the disciplines, this may be part of the explanation for the relative low number of articles belonging to the subject areas of arts and humanities. Some articles are placed within more than one subject area. This accounts for the inaccuracy of the pie charts. I chose however to keep these charts in order to visualize the number of articles concerned with *cultural landscapes*. The categorization into subject areas is of course not given; it is rather a result of how we perceive boundaries and structures, thus in some ways it serves to maintain these same boundaries and structures.

### *Cultural heritage*

The 23<sup>rd</sup> of march the total number of articles with *cultural heritage* as its main topic was 13788. Diagram one show the number of articles within the different subject areas. It is evident that the social sciences as well as the humanities have a keen interest in *cultural heritage*, while the relevance of *cultural heritage* for the natural sciences is less evident. The number of articles within the subject area of business and economy probably indicates the importance of the heritage industry.

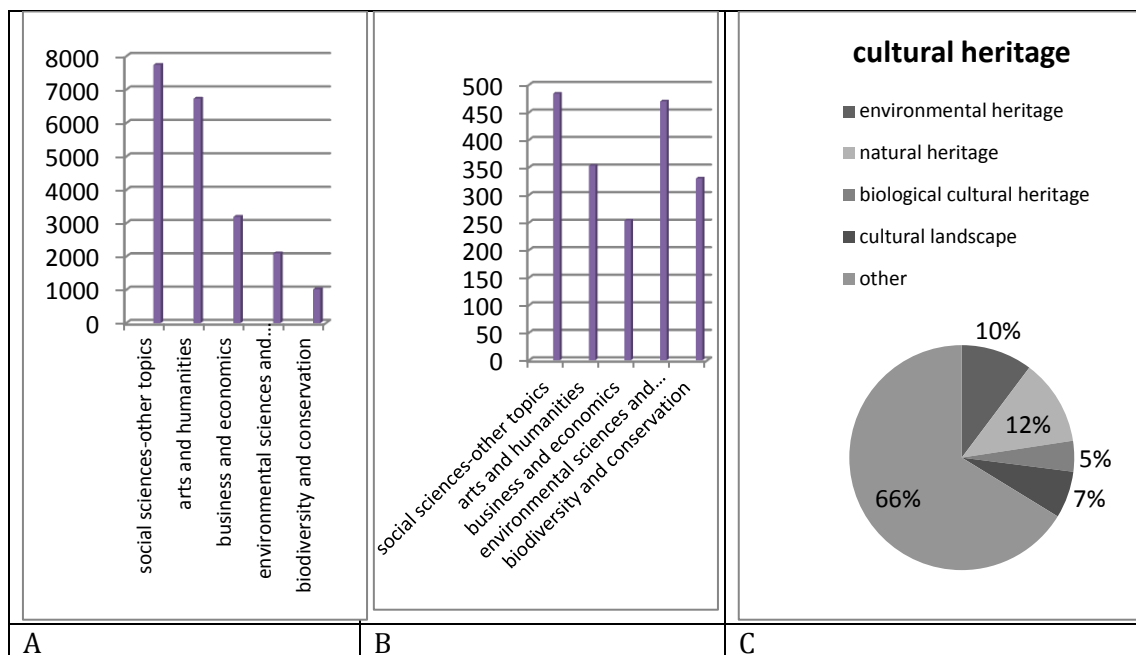


Diagram 1 Cultural heritage: The distribution between subject areas of articles with cultural heritage as their main topic (=A to the left) as well as of articles with both cultural heritage and cultural landscapes as their main topic (=B). Part C of the diagram (to the right) shows the relative frequency of articles with cultural heritage combined with natural heritage, environmental heritage, biological cultural heritage and cultural landscapes respectively as their main topic.

The numbers of articles which are concerned with *cultural heritage* as well as with *cultural landscapes* are fairly small; 930 out of 13788 (see diagram 1A). The diagram 1B shows the distribution between the subject areas of the category of articles having both *cultural heritage* as well as *cultural landscapes* as its main topics. The interest of the natural sciences in the concept of *cultural landscapes* is evident from the results. Diagram 1C shows the total number of articles concerned with *cultural heritage* as well as *natural heritage*, *environmental heritage*, *biological cultural heritage* and *cultural landscapes* as main topics.

As can be seen the main emphasis in articles concerned with *cultural heritage* seems to be on topics other than those concerned directly with the natural world and the relationship between natural and *cultural heritage*. The total number of articles concerned with *cultural heritage* is also much greater than the number of articles concerned with any of the other concepts. It is thus fair to assume that the concept of *cultural heritage* is much more developed and researched than the other concepts or that there exists confusion regarding the concepts concerned with the *natural heritage* in such a way that there exist many alternative concepts that are partly overlapping.

### Natural heritage

The 23<sup>rd</sup> of March 2011 the total number of articles concerned with *natural heritage* as its main topic was 3892. These articles were distributed across the subject areas according to diagram four below. Not surprisingly the main subject areas with an interest in *natural heritage* belong to the natural sciences, but it is interesting to note the relative high interest for the concept from within the subject areas of social

sciences as well as of business and economics (see Diagram 2A). Diagram 2B shows the distribution between the subject areas for articles with *natural heritage* and *cultural landscapes* as its main topics. The total numbers of articles that matched these criteria were 376, a number which must be considered fairly small taking into account that the concept of *cultural landscapes* arguably are of importance for discussion of aspects of *natural heritage*. The number of articles within the subject areas of arts and humanities are here seen to be higher than for the group of articles with *natural heritage* as its sole main topic. Otherwise the distribution is fairly equal between the groups. Diagram 2C shows the total number of articles concerned with *natural heritage* and *cultural heritage*, *environmental heritage*, *biological cultural heritage* and *cultural landscapes* respectively as main topics. As can be seen the link between natural and *cultural heritage* is strong, the same applies to the link between *natural heritage* and *environmental heritage*, indicating perhaps that these two concepts are seen as distinct, i.e. as not overlapping. On the other hand it might also indicate that the concepts are seen as mutually interchangeable.

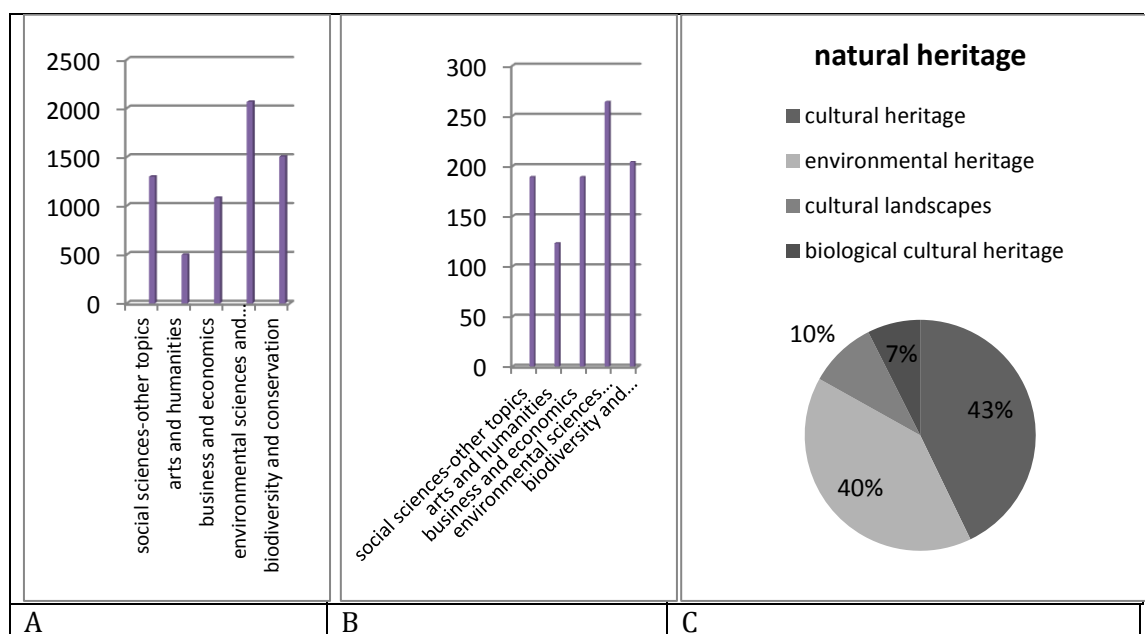


Diagram 2 Biological cultural heritage: The distribution between subject areas of articles with natural heritage as their main topic (=A to the left) as well as of articles with natural heritage and cultural landscapes as their main topics (=B). Part C of the diagram (to the right) shows the relative frequency of articles with natural heritage and cultural heritage, environmental heritage, biological cultural heritage and cultural landscapes respectively as their main topics.

### Biological cultural heritage

The 23<sup>rd</sup> of March the number of articles with *biological cultural heritage* as its main topic was 609. Diagram 3A shows the distribution of the articles between the different subject areas. It is worth noting that the number of articles within the field of business and economics are small; perhaps indicating a primary interest in values other than the commercial/economical. Given the relative low number of articles the

contributions from within the subject areas of arts and humanities are relatively high. This may be an indication of the successful transdisciplinarity of the concept.

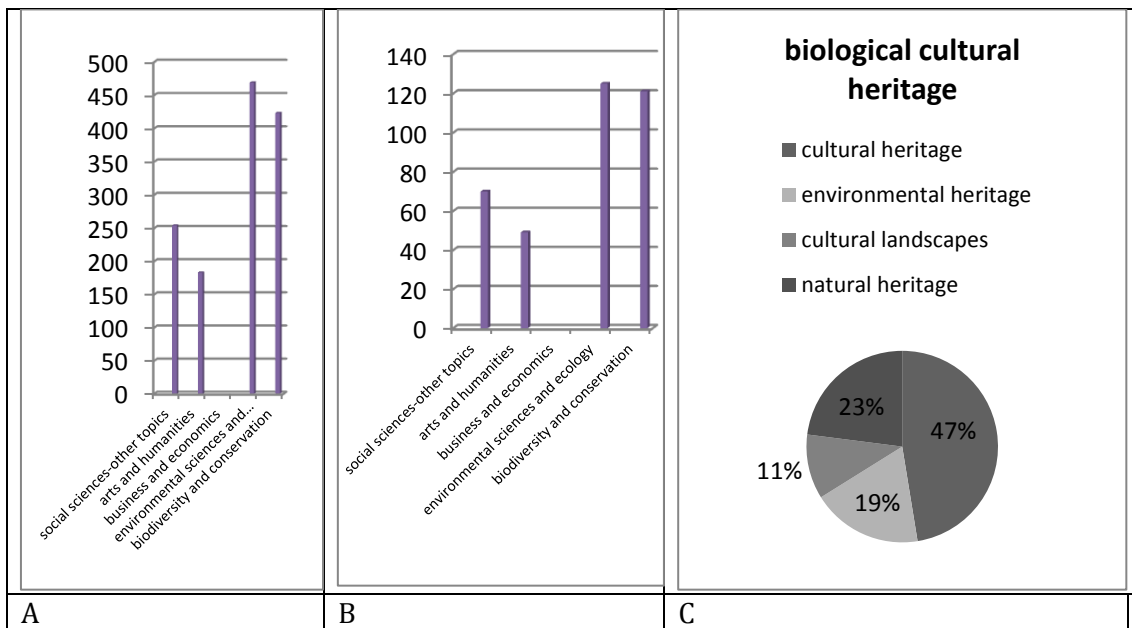


Diagram 3 Biological cultural heritage: The distribution between subject areas of articles with biological cultural heritage as their main topic (=A to the left) as well as of articles with biological cultural heritage and cultural landscapes as their main topics (=B). Part C of the diagram (to the right) shows the relative frequency of articles with biological cultural heritage and cultural heritage, environmental heritage, natural heritage and cultural landscapes respectively as their main topics.

Diagram 3B shows the distribution between the subject areas of articles with biological cultural heritage and cultural landscapes as main topics. There were 140 such articles; indicating that the link between cultural landscapes and biological cultural heritage are discussed, but to a somewhat limited extent or that the two concepts are seen as interchangeable. Overall, the distribution can be seen as fairly equal to the one presented for the articles with biological cultural heritage only as its main topic; indicating a balance within the field. Diagram 3C shows the total number of articles with biological cultural heritage and natural heritage, cultural heritage, environmental heritage and cultural landscapes respectively as main topics. It is worth noticing that cultural heritage seems to be included in biological cultural heritage<sup>13</sup>, furthermore that environmental heritage and natural heritage respectively appears to be rather closely linked to the concept of biological cultural heritage.

<sup>13</sup> Biological heritage does not often appear as a concept in its own right, but there are 1712 articles with the concept as its main topic, out of which 609 are concerned with biological cultural heritage. 748 have biological heritage and environmental heritage as its main topic, while 782 have biological heritage and natural heritage.

### Environmental heritage

The 23<sup>rd</sup> of March there were 3689 articles with *environmental heritage* as its main topic. This is interesting seen to the fact that it is hard to come about any definition as to what *environmental heritage* is. One approach would be to think of *environmental heritage* as encompassing the environment in a broad sense, including both natural as well as cultural aspects. Diagram 4A below shows that if one looks to the distribution of the articles between subject areas this interpretation is not evident. The largest number of articles concerned with *environmental heritage* is found within the subject areas of the natural sciences; indicating that *environmental heritage* is seen as (mainly) concerned with *natural heritage*.

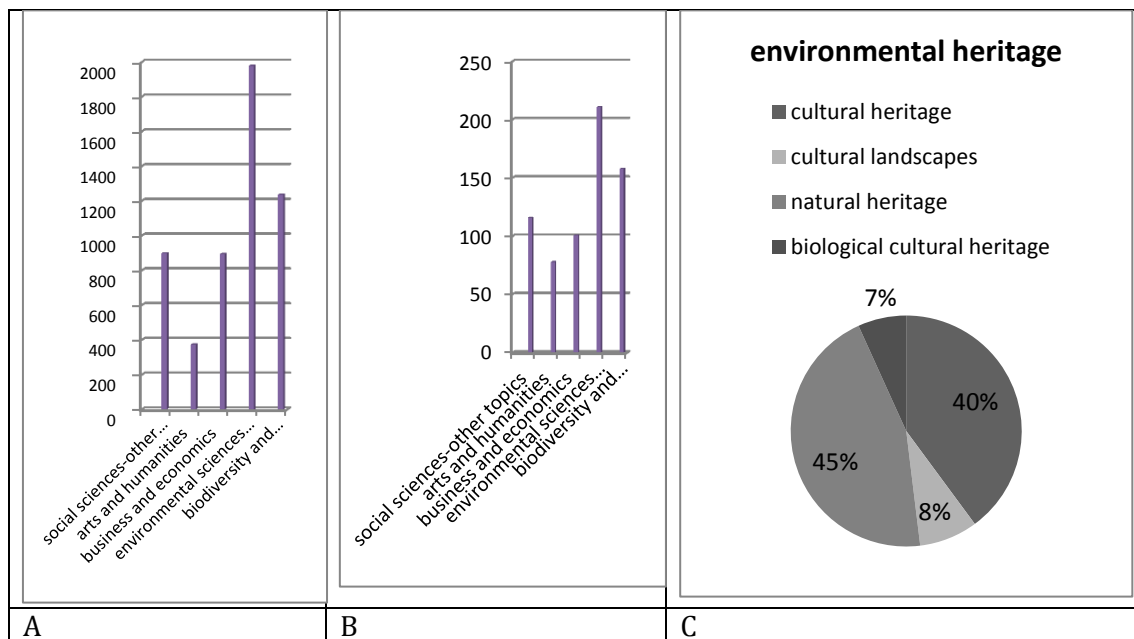


Diagram 4 Environmental heritage: The distribution between subject areas of articles with *environmental heritage* as their main topic (=A to the left) as well as of articles with *environmental heritage* and *cultural landscapes* as their main topics (=B). Part C of the diagram (to the right) shows the relative frequency of articles with *environmental heritage* and *cultural heritage*, *cultural landscapes*, *natural heritage* and *biological cultural heritage* respectively as their main topics.

The number of articles containing both *environmental heritage* as well as *cultural landscapes* as its main topic are 290; the number must be regarded as fairly low and as either supporting the interpretation that *environmental heritage* first and foremost consider *natural heritage*. It could also be hypothesized that the concept of *cultural landscapes* and of *environmental heritage* are seen to be overlapping. Diagram 4C shows the number of articles with *environmental heritage* and *natural heritage*, *cultural heritage*, *biological cultural heritage* and *cultural landscapes* respectively as its main topics. It is worth noticing the relatively high number of articles with *environmental heritage* and *cultural heritage* as its main topic, pointing to a closer connection between these two concepts than earlier indicated. It is also worth noticing

the relatively high number of co-occurrence of *environmental* and *natural heritage* respectively. This is however to be expected based on the distribution between subject areas.

### *Cultural landscapes*

Finally, on the 23<sup>rd</sup> of March there were 5702 articles with *cultural landscapes* as its main topic. Diagram 5A shows the distribution of the articles between the different subject areas. The main weight is seen to be on subject areas within the natural sciences. Surprisingly the number of articles within the subject areas of arts and humanities are low. The number of articles within the subject areas of business and economy suggests a link to tourism, but also to politics in the form of economic incentives to landscape planning.

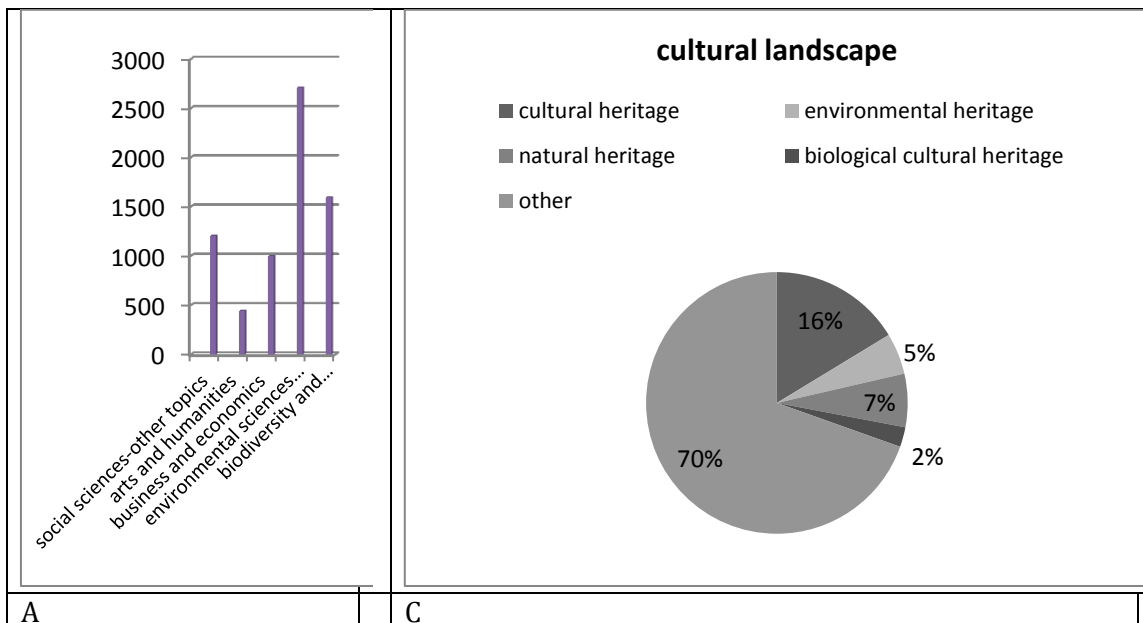


Diagram 5 Cultural landscapes: The distribution between subject areas of articles with cultural landscapes as their main topic (=A to the left). Part C of the diagram (to the right) shows the relative frequency of articles with cultural landscapes and cultural heritage, natural heritage, biological cultural heritage and environmental heritage respectively as their main topics.

Diagram 5C shows the number of articles with *cultural landscapes* and *cultural heritage*, *natural heritage*, *environmental heritage* as well as *biological cultural heritage* respectively as their main topics. It is worth noticing the relatively low number of articles that combine these concepts (only 30 % out of the total of 5702 articles).



## Comments

The frequency distributions show but few clear trends. It would seem that apart from the concept of *cultural heritage* with a strong interest from the subject areas of the social sciences and arts and humanities respectively, the concepts are closely linked to the natural sciences. It is however worth noticing that subject areas such as ecology are transdisciplinary to their nature and that the different subject areas as such have no clear boundaries. The use of the different concepts within one article is at times surprisingly small and suggests perhaps that the concepts are seen as exhaustive in their own right. Given the uncertainty about the exact definitions of the different concepts, this would not seem to be the case. The main difficulty in approaching these different concepts stem from the way in which they concern our understanding of nature, culture and landscape; these are three (fundamental) concepts that are complex and dynamic to their nature and thus notoriously hard to define at any given time.

## The co-occurrence analyses

The co-occurrence analyses are carried out on a number of records from the ISI Web of Knowledge database. The search words have been the five main concepts; i.e. *cultural landscapes*, *natural heritage*, *cultural heritage*, *environmental heritage* and *biological cultural heritage*. The searches have been carried out on the basis of an analysis done by the database. The journals included in the search are those journals that had the most frequent occurrences of any of the given search terms. The threshold for inclusion varies between the different concepts dependent on the total number of articles and will be given separately. The journals included in the different searches can be found in the appendices.

A co-word analysis has been carried out on each of the separate key concepts. In the case of *cultural landscapes* a co-word analysis has furthermore been carried out for separate years; 1995, 2000, 2005 and 2010 in order to trace potential changes in the discourse. Furthermore a co-citation analysis has been carried out on the concept of *cultural landscapes* in order to trace the main theoretical structures of the discourse. The co-citation analysis is based on records from ISI Web of Science (with cited reference).

### *Cultural heritage*

There were a total number of 13788 articles with *cultural heritage* as their main topic. The threshold was set to a minimum of 75 references per journal. The list of journals can be found in appendix 1. There were a total of 918 articles with 75 or more references to *cultural heritage* as their main topic. The analysis was carried out on these articles. The threshold in Bibexcel was set to 50; i.e. words with a lower frequency of occurrence than 50 were not included in the co-word analysis.





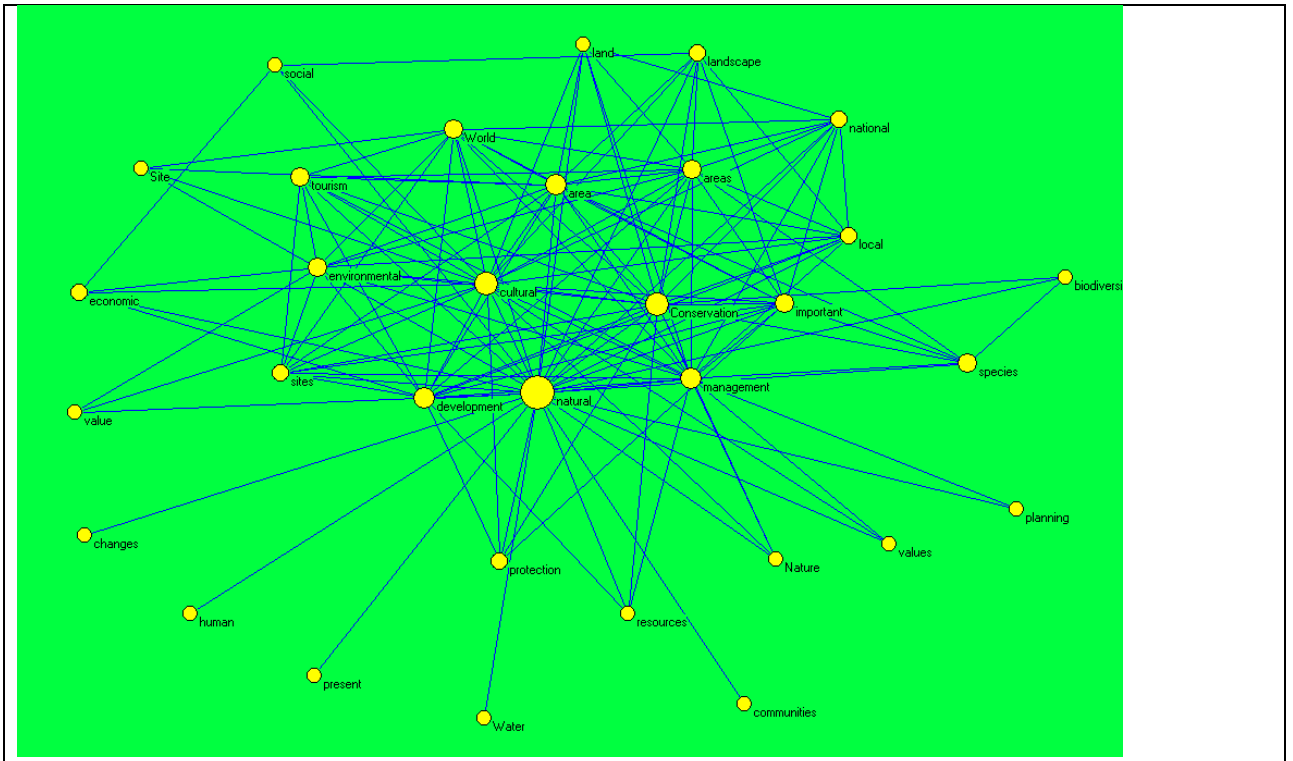
Both maps show the frequency of the words (indicated by the size of the circle).

The left part of map 1 shows a clustering of words with several interconnections. These words are also, according to the co-word analysis, the most frequent words of the discourse. Cultural, tourism and development are the most frequent words; in map 2 these words form the center of three separate, yet interconnected webs. In map 1 tourism is seen to be linked, not surprisingly, to tourists and visitors as well as to development, management and economic, emphasizing the commercial aspect of the discourse. This is further emphasized in map 2 where the web of tourism includes words such as industry and marketing. The link between tourism and science, observed in both maps, can perhaps be seen as an expression of the increased focus of *cultural heritage* sites and museums on linking to contemporary science as well as on providing hands on experience of scientific knowledge to the visitors.

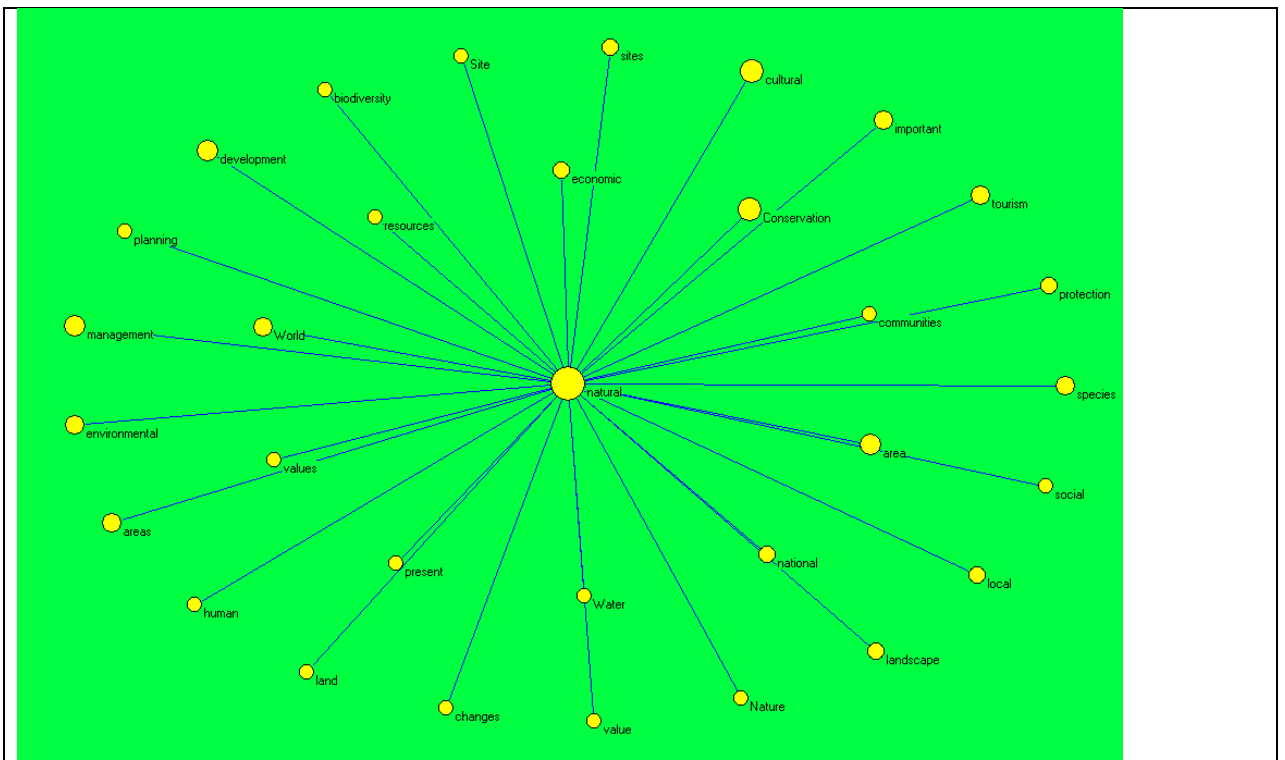
Tourism links to local, emphasizing the potential importance of *cultural heritage* for the local community. In the cluster of words most tightly related to economic is the word policy. It is a frequent word. In map 2 a word related to policy in meaning; political, is seen to be central in the interconnection between the web of cultural and the web of tourism. What is interesting to note in map 1 is the lack of interconnections between the word museum/s and other words. Museum/s is seen to be in the outskirts of the discourse. This is furthermore emphasized in map 2 where museum/s is seen to form a separate cluster, outside of the main structure. The words that co-occur less than 20 times are listed outside of the main structure. Surprisingly this list includes words such as identity. Nature is part of the discourse, but does not co-occur sufficiently to be included in the main structure. Map 2 confirms that nature is on the outskirts of the discourse, while identity is seen to be in the inner circle surrounding the word cultural. Other words in this inner circle are value and past, government and national, this indicates a value-centered focus which is not immediately recognizable from map 1; *cultural heritage* as part of a process of nation-building.

### *Natural heritage*

There were a total number of 3892 articles with *natural heritage* as their main topic. The threshold was set to a minimum of 10 references per journal. The list of journals can be found in appendix 2. There were a total of 379 articles with 10 or more references to *natural heritage* as their main topic. The analysis was carried out on these articles. The threshold in Bibexcel was set to 45; i.e. words with a lower frequency of occurrence than 45 were not included in the co-occurrence analysis.



Map 3 Co-word analysis of the concept of natural heritage. The map shows the co-occurrence of the key words within the discourse of natural heritage according to the sampled articles. The threshold in Pajek is set to show relations with 20 or more co-occurrences



Map 4 Natural heritage- strongest links; the analysis in Bibexcel is carried out to show the strongest link between the words.

Both maps show the frequency of the words (indicated by the size of the circle).

The central part of map 3 shows several words that are closely interconnected; these are also, according to the co-word analysis, the most frequent words of the discourse. Landscape is seen as part of the discourse; it is seen as important and links to local, social as well as conservation, yet it is seen to be in the outskirts of the discourse (map 3 and also map 4). Cultural is seen to be an important part of natural (heritage). In map 3 it is part of the central group of words; natural, development, management, conservation, yet in map 4 it is part of the outer circle of words. The commercial aspect and tourism is seen to be more peripheral to the discourse of *natural heritage*: yet economic is interconnected with development, cultural and natural as well as local. National and values is seen to be part of the inner circle of map 4, yet the emphasis on values within the discourse seem to be more closely linked to development, management and conservation than to identity, a word which is absent from this part of the discourse<sup>14</sup>. Species and biodiversity are frequent words and link to management and conservation, yet they are not part of the central group of interconnected words.

### *Environmental heritage*

There were a total number of 3689 articles with *environmental heritage* as their main topic. The threshold was set to a minimum of 10 references per journal. The list of journals can be found in appendix 3. There were a total of 496 articles with 10 or more references to *environmental heritage* as their main topic. The analysis was carried out on these articles. The threshold in Bibexcel was set to 50; i.e. words with a lower frequency of occurrence than 50 were not included in the co-occurrence analysis.

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<sup>14</sup> If words with a lower frequency than 45 were included in the analysis, identity might have been seen as part of the discourse.



Both maps show the frequency of the words (indicated by the size of the circle).

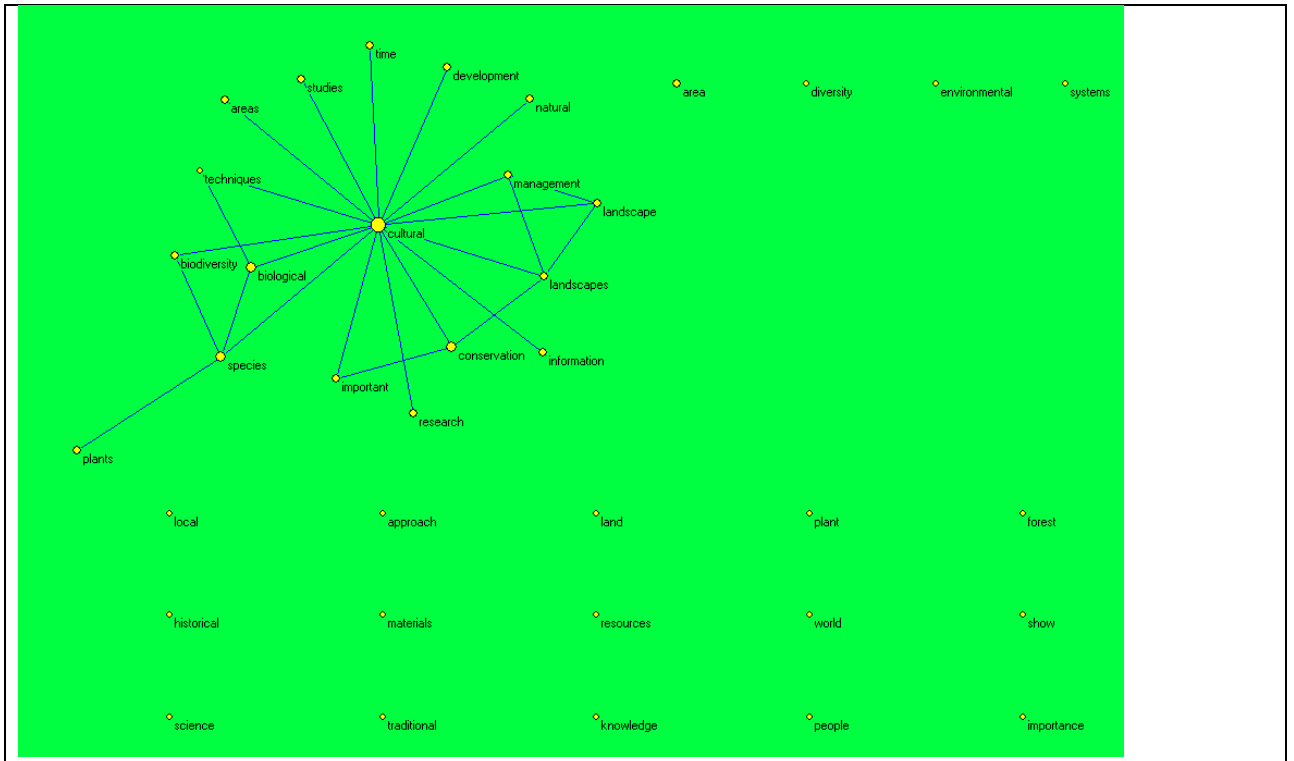
Map 5 shows a central group of interconnected words. These words are also the most frequent words of the discourse. Natural and cultural are seen to be a frequent word, almost as frequent as environmental. Within the discourse of *natural heritage*, environmental was part of the main group of words, but it was not as frequent, while cultural was not part of the words that were analyzed<sup>15</sup>. The frequency of cultural and natural within the discourse of *environmental heritage* may suggest that *environmental heritage* is a broader and more complex term than *natural-* and *cultural heritage* respectively. As was the case within the discourse of *natural heritage*, conservation and management are seen to be frequent and central words. Local yet again links to development, also in terms of economic development. Tourism is relatively frequent, yet it does not seem to be part of an integrated discourse. In map 6 tourism links to environmental, which again links to cultural and landscape, emphasizing the strong links between *cultural heritage* in different forms and tourism. In map 6 there are four separate webs; environmental, natural, species and conservation. Cultural (landscapes) are seen to be part of the cultural web, while protection, conservation and management are more closely linked to natural web. Biodiversity is closely linked to conservation. Values are not as present as was the case within the discourse of *cultural-* and also *natural heritage*. In map 5 it is placed to the side, with less than 20 co-occurrences. In map 6 it is seen as close to environmental and also to ecological. This may indicate that ecological is a value laden word within the discourse. National is included in the discourse in the form of National Park and links to natural. Another geographical term which is introduced is region. It is seen to relate to species.

### *Biological cultural heritage*

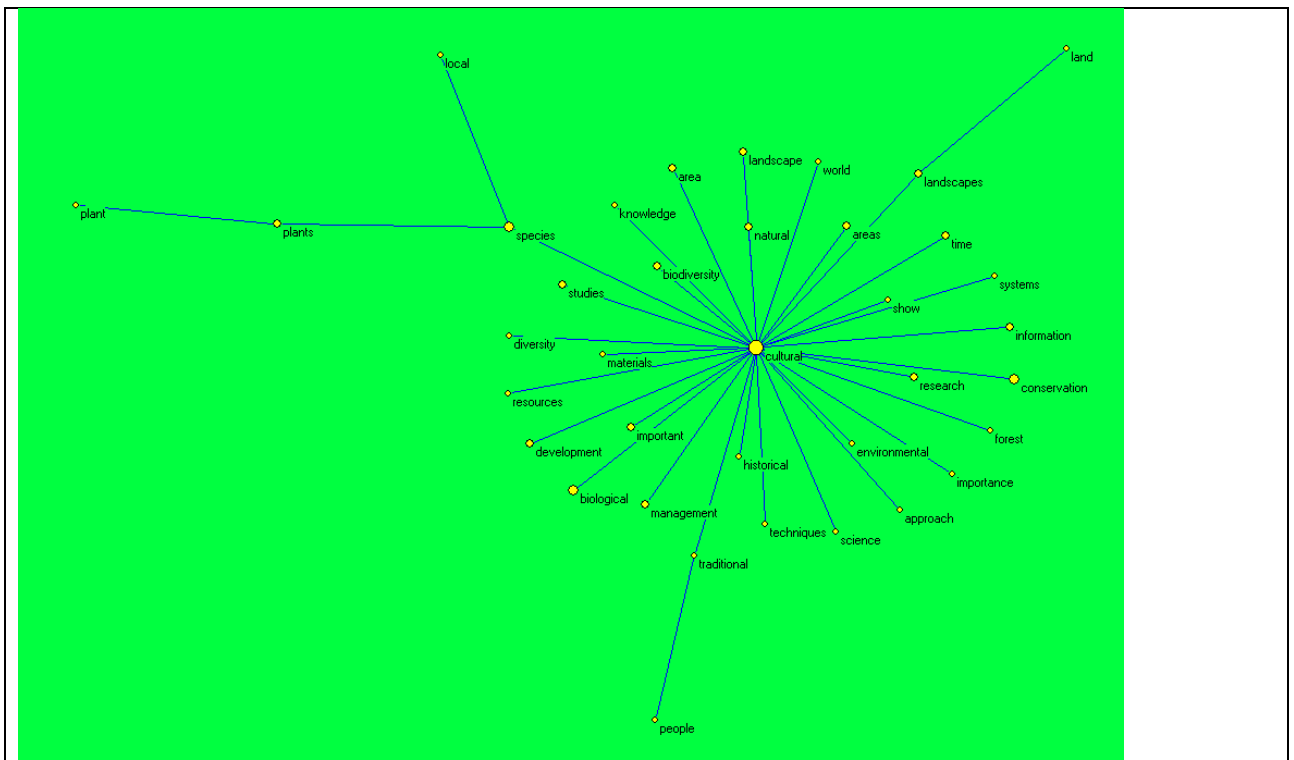
There were a total number of 609 articles with *biological cultural heritage* as their main topic. The threshold was set to a minimum of 4 references per journal. The list of journals can be found in appendix 4. There were a total of 68 articles with 4 or more references to *biological cultural heritage* as their main topic. The analysis was carried out on these articles. The threshold in Bibexcel was set to 10; i.e. words with a lower frequency of occurrence than 10 were not included in the co-occurrence analysis.

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<sup>15</sup>I.e. it had a lower frequency than 45.



Map 7 Co-word analysis of the concept of biological cultural heritage. The map shows the co-occurrence of the key words within the discourse of environmental heritage according to the sampled articles. The threshold in Pajek is set to show relations with 10 or more co-occurrences.



Map 8 Biological cultural heritage- strongest links. The analysis in Bibexcel is carried out to show the strongest link between words.

Both maps show the frequency of the words (indicated by the size of the circle).

Map 7 and map 8 both show cultural to be a central word within the discourse of *biological cultural heritage*. It is the most frequent word within the discourse and in map 7 it is seen to be at the intersection of two groups of interconnected words; cultural, biological, biodiversity, species, techniques and cultural, important, conservation, landscapes, landscape, management respectively. It would thus seem that cultural within this discourse is given a broad and complex meaning encompassing several aspects of heritage; in which ways these aspects relate to value/s in some way, i.e. on which ground they are seen to be important are difficult to determine. Value is absent from the discourse<sup>16</sup>. *Biological cultural heritage* is furthermore seen to be less commercial, in spite of its focus on cultural; words such as tourism, tourist and also economic are not part of the discourse at this level, nor is political, policies or similar words. Geographical terms, local, national and regional do not seem to be central to the discourse and are not included in the map. There is a focus on cultural landscape/s, these are not central to the discourse, but seem to be one of the main themes. In map 8 cultural landscape/s are seen as linked to natural as well as cultural.

### *Cultural landscapes*

There were a total number of 3213 articles with *cultural landscapes* as their main topic<sup>17</sup>. The threshold was set to a minimum of 10 references per journal. The list of journals can be found in appendix 5. There were a total of 1109 articles with 10 or more references to *cultural landscapes* as their main topic. The analysis was carried out on these articles. The threshold in Bibexcel was set to 100; i.e. words with a lower frequency of occurrence than 100 were not included in the co-occurrence analysis.

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<sup>16</sup> i.e. with a lower frequency than 10

<sup>17</sup> This number is different to the one in the overview of the frequency distributions. The reason for this is that the numbers are from ISI Web of Knowledge and ISI Web of Science with cited reference respectively





Both maps show the frequency of the words (indicated by the size of the circle).

Map 9 shows a central group of frequent words with several interconnections. Cultural, land, environmental, management, research, local, natural form a tight group and are also tightly connected to important, regional, change/s, human and ecological. Development, region, area, important and research are also part of the inner circle of map 10. Sustainable is in the inner circle of map 10, it is a relatively frequent word which links to development, management, regional and changes in map 9. Economic is frequent and interconnect with several words; e.g. environmental and development. Political is relatively frequent, but have relatively few links (only two). It is worth noticing that region and regional are (at least in the European context) highly politicized words. There is a focus on conservation at the same time as there is a focus on agriculture; an active use of the cultural landscape/s. Agriculture is seen as linked to ecological; a word which was also present in the discourse of *environmental heritage*. Tourism is not included in this map<sup>18</sup>, nor is related words such as tourists and visitors, indicating perhaps that the purpose of cultural landscapes/s is seen to differ from that of other heritage sites, this despite the fact that these sites often overlap. Values are included in the map and links to several words; management and changes. Change/s is a frequent word and links to several words such as regional, sustainable, ecological indicating that we are in a period in which it is important with new approaches and new modes of thinking. Both rural and urban are included, as well as forest, a word which links to several others. The same is true of diversity, which links to ecological, but also to management and development, emphasizing the role of diversity within different approaches to sustainable development. The more specific term biodiversity is not included in the map.

Certain words such as sustainable and also agricultural are specific to the discourse of *cultural landscapes*, this is not surprising as the cultural landscapes/s are often part of our everyday landscape, it is a landscape in use. Sustainable as linked to areas of use, production and conservation would thus seem to be a key term when it comes to understanding the concept of *cultural landscapes*.

According to Sergio Lira (2010) the four dimensions of sustainable development are environment, economics, society and culture. These four dimensions are, to different degrees, represented in the maps. It would seem that sustainable encompasses the complex problem areas of the discourse of *cultural landscapes*. The issue of sustainability in relation to landscape management is discussed by amongst others Marc Antrop (2005).

## Comments

The maps have in common relatively few links between the different words, this highlight the heterogeneous character of the discourses and concepts. The heterogeneity contributes to making the field of *cultural landscapes* studies hard to define and it makes the task of creating an ontology even harder.

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<sup>18</sup> i.e. lower frequency than 100

Based on the above maps it should however be possible to draw some conclusions regarding the distinction between the concepts of *cultural landscapes* and natural, cultural, environmental and biological *cultural heritage* respectively. These conclusions can be seen to build on the information already gained from the statistical overview.

It would seem that the discourse of *cultural heritage* is the most developed and also the one most closely linked to tourism and to the market. The other discourses, apart from the one of biological *cultural heritage* as well as the one of *cultural landscapes*, include tourism in their main discourse but the emphasis is seen to be on other aspects of the discourse. The centrality of tourism in the discourse of *cultural heritage* is furthermore evident from map 2, where tourism creates its own separate web. As was evident from the statistical overview there is but little focus on *cultural landscapes* within the discourse of *cultural heritage*. The discourses of *cultural heritage* and *natural heritage* are furthermore seen to be less geared towards regional thinking; the maps show a focus on the national and local, as well as a more specific focus on values in the form of identity and cultural and environmental values. This sets these discourses apart from the other discourses. Value/s is absent from the map of *biological cultural heritage*, while it is present in the maps of *environmental heritage* and *cultural landscapes* respectively. Within these discourses it is seen to link to management and development as well as to cultural and natural values. *Biological cultural heritage* seems to be the most specific, least commercialized concept. At the same time it is complex in its many layered approach to *cultural-* and *natural heritage*. *Natural heritage* and *environmental heritage* share many words and the groups of words with several interconnections are relatively similar. *Cultural landscapes* are included in the main discourse of both concepts. *Natural heritage* is seen to be somewhat more linked to tourism. Within both discourses there is a focus on species and on biodiversity. The concept of *cultural landscapes* is seen to be close to both the concept of *natural-* and *environmental heritage* respectively.

#### *Authenticity, integrity and identity*

Apart from the presence of identity within the discourse of *cultural heritage* there is not much focus on authenticity, integrity and identity within the different discourses. Identity was seen as central in two of the definitions of *cultural landscapes*, but is not part of the represented discourse. This is surprising. There seem to be a general focus on identity, authenticity and to some extent on integrity within the museums, as well as within politics, planning and conservation at large.

The diagram below shows the number of articles (within the main concepts) which are concerned with authenticity or integrity. Integrity<sup>19</sup> and authenticity are key words in UNESCO's approach to *natural-* and *cultural heritage* respectively. As early as in the 1972 World Heritage Convention both terms were integrated into the Operational Guidelines as "conditions of integrity" for *natural heritage* and the "test of authenticity" for *cultural heritage*. (Rössler 2008:47) Over the last two decades there has been several workshops and conferences dedicated to the issue of authenticity and integrity. Given the centrality of these issues to UNESCO'S work, the lack of focus on these terms within the different discourses is surprising. This could perhaps be

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<sup>19</sup> Used to define the authenticity of landscapes.

explained away by a distinction between theory and praxis, but UNESCO does have a theoretical point of departure, their conferences produce theoretical texts which are published either in the form of books, such as *Cultural Landscapes of Universal Value* (Droste et al 1995), or in the form of articles (e.g. Rössler 2008). The theoretical texts provide a framework for decisions regarding the status of different sites as well as guidance for the practical focus<sup>20</sup> on these sites. It would therefore seem to be imperative to discuss these terms on a broader basis.

One way of explaining the absence from the different discourses of authenticity and integrity are to see them as perceived as fundamental categories and thus removed from discourses now concerned with dynamic structures and change. On this interpretation discourses which faces the complexity of structures involving economic, political, pedagogical as well as cultural considerations seek to move away from the inclusion of absolutes and. Papayannis and Howard (2007) argue that authenticity is neither immutable nor intrinsic and they emphasize that authenticities vary between disciplines. The complexity of authenticity is furthermore highlighted in Roland Gustavsson’s and Anna Peterson’s “Autencitet i förvaltning och bevarande” (2004). Authenticity is not only linked to the perceived essential characteristics of the place, it is similarly linked to immaterial characteristics as well as to economic and political considerations. It is an authenticity in construction.

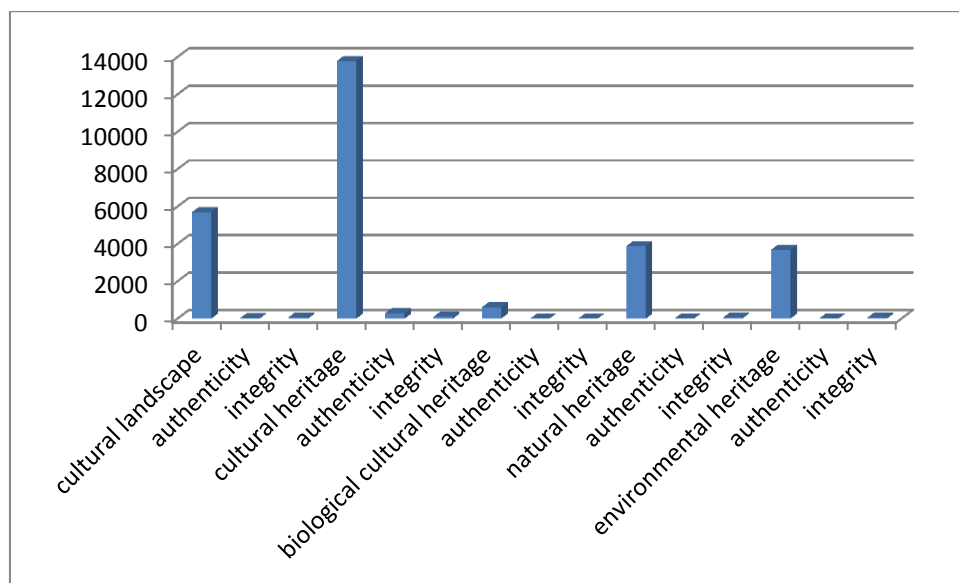


Diagram.6 The number of articles within the different concepts, with the main concept and integrity and authenticity respectively as their main topics.

Identity and place are seen to be of importance only within the discourse of *cultural heritage*. This is surprising as identity is seen as central in relation not only to *cultural heritage*, but also to *cultural landscapes* and *natural heritage*<sup>21</sup> respectively, as becomes clear from the diverse articles in *The Ashgate Companion to Heritage and*

<sup>20</sup> In terms of reconstruction and conservation of the sites.

<sup>21</sup> e.g. in Kenneth Olwig’s essay “‘Natural’ Landscapes in the Representation of National Identity” or in Werner Krauss’s “European Landscapes: Heritage, Participation and Local Communities”.

*Identity* (Graham & Howard 2008). Peter Davis's contribution to the book discusses the issues of heritage and identity in relation to ecomuseums. Ecomuseums are seen as diverse institutions that seek to capture the distinctiveness of place through a focus on landscape, sites, territory, memories, nature, traditions, heritage and community (the "necklace" model for the ecomuseum). It can be argued that the concept of ecomuseums equally well captures central characteristics of the concept of *cultural landscapes*.<sup>22</sup> Community is not included in the discourse of *cultural landscapes* (at this level), but it is included in the structures of the concepts of *cultural*, *natural*- and *environmental heritage* respectively and links to economic, to local, to heritage, to species and diversity. The value of heritage to the community can thus be expressed through the establishment of ecomuseums.

#### *Delimitations of the concepts*

It is difficult, even based on the analyses, to reach any conclusion about the delimitations of the concepts of *environmental*- and *natural heritage* as well as *cultural landscapes*. To some extent the concepts do seem to overlap and to be seen as interchangeable. *Environmental heritage* though seems to be the concept which is closest in meaning to the concept of *cultural landscapes*, through its integrated focus on a diversity of terms related to *cultural*, *environmental*- and *natural heritage*. The concept of *biological cultural landscapes* on the other hand seems to be focused more on culture directly related to the biological as well as to the management of biological resources. It seems to be the least commercially orientated concept, with a main focus on conservation and on biological diversity as such. It would seem that the vision of those promoting *biological cultural heritage* is broader than what is expressed through the articles and that the concept is meant to counter what is by some perceived as an exclusive focus on *natural*- or *cultural heritage* respectively. This vision is however expressed also by those promoting the concept of *cultural landscapes*<sup>23</sup>. Given the centrality of UNESCO in formulating definitions and promoting areas of world cultural heritage status it is surprising to not the absence of UNESCO and UNESCO's concerns from the discourses. As seen above neither "authenticity" nor "integrity" are discussed (as main topics) neither does UNESCO turn up as a frequent word. This is surprising as they to some extent through the definition of the concept of *cultural landscapes* provide a starting point for evaluation and praxis.

The discourses concerning the concepts of *natural*, *environmental*- and *biological cultural heritage* as well as of *cultural landscapes* are furthermore complicated by an issue but to a small extent reflected in the analyses, yet of importance to the field as such namely the one concerning the relationship between man and nature. This aspect deeply influences the way we perceive, present, conserve, use and reconstruct natural and *environmental heritage* and *cultural landscapes*.

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<sup>22</sup> See e.g. Aplin (2007)

<sup>23</sup> UNESCO's definition as developed in Cultural Landscapes of Universal Value

## Development over time

This part is concerned with the development over time in the content of the published articles within the field of *cultural landscapes* studies. Focus is on the years from 1990 up until 2010, with a five year interval.

Before 1990 the number of articles were insignificant and even in 1990 the number of articles were so low (14) that the co-occurrence analysis gave no real indication of the content of the articles. This map is therefore not included in the following. The results presented are obtained by carrying out an analysis on the strongest link between terms for the years 1995, 2000, 2005 and 2010 respectively. Table 1 shows the total number of articles per year (1990, 1995, 2000, 2005 and 2010). I have included 1988 in the table to emphasize the gradual increase in articles during the late 80s and 90s. The first registered article with *cultural landscapes* as its main topic was F.J. Simoons "The influence of cultural attitudes on the Ethiopian landscape" in "Annals of the Association of American Geographers". (Simoons 1957).

*Table 1 The number of articles with "cultural landscapes" as its main topic in the years 1988, 1990, 1995, 2000, 2005 and 2010 respectively.*

<b>Year</b>	<b>Number of articles</b>
1988	4
1990	14
1995	64
2000	138
2005	178
2010	354







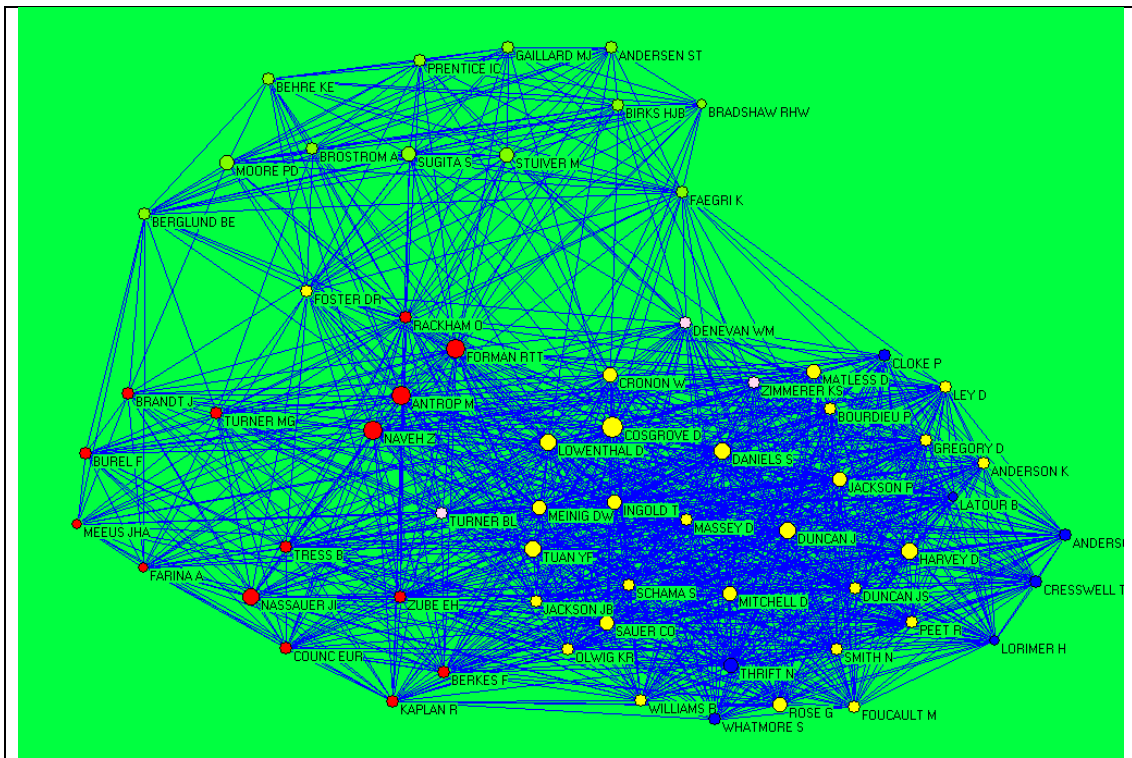




discuss the impact this has on our conception of heritage and identity. The move “beyond nationalism”, the emphasis on the complexity of identity as well as the increased focus on the communal and participatory is captured in the maps and is part of the complex structure of contemporary discourse concerning *cultural landscapes* preservation and management in particular as well as heritage preservation and management in general.

## Co-citation analysis

A co-citation analysis was carried out in order to visualize the theoretical structure of the articles concerned with *cultural landscapes*. The analysis was carried out on articles from the ISI Web of Science with co-reference. The map shows the interconnections between authors with 30 or more co-citations each. The focus is on the entire writings of the author, not on the author himself or on any particular work.



Map 15 Co-citation analyses on the articles with *cultural landscapes* as their main topic. The number of articles corresponds to the one in map 9 and 10 respectively. The threshold in Bibexcel was set to 30. The frequency of the citations of the authors work is indicated by the size of the circle. The color of the circle indicates the authors that most frequently co-cite on another and that can be seen to form a group.

As can be seen from the map there are five clusters that make up the central discourse. The group of authors in the left corner forms a distinct cluster and is concerned with a paleoecological and a paleoenvironmental understanding of *cultural*

*landscapes*<sup>24</sup>. Authors in this cluster relate to authors in the other clusters, but rather sparsely. Certain authors such as Berglund are more peripheral, while others such as Sugita and Stuver are more central. Stuver links significantly to the cluster of authors concerned with landscape and restoration ecology as well as landscape architecture. Central authors are Forman, Antrop and Naveh. The relations between authors of this group are moderate. The clusters in the right corner of the map are the most tightly related clusters. The clusters include Lowenthal, Olwig and Cosgrove; geographers and landscape theorists and central names within the field of *cultural landscapes* studies as well as the human geographer Sauer<sup>25</sup>, who was influential in developing the ideas of *cultural landscapes* and the environmental historian Cronon who questioned the conceptions of nature and wilderness. This cluster also includes central theoreticians within philosophy and the social sciences such as Latour, Foucault and Bourdieu. The brief overview of authorships in these clusters shows the complexity of the discourse expressed as relations between very different stakeholders.

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<sup>24</sup> An example is professor Sugita's development of model's for vegetation reconstruction; the models are based on analysis of fossil pollen. See Theory of quantitative reconstruction of vegetation I: pollen from large sites REVEALS regional vegetation composition (2007a) and Theory of quantitative reconstruction of vegetation II:all you need is LOVE (2007b)

<sup>25</sup> One of the most influential papers in developing the ideas on the *cultural landscapes* is Carl O. Sauer's "The Morphology of the Landscape". (1925)

## Concluding remarks

The aim of this study has been to attempt to create an ontology of *cultural landscapes*. In order to achieve this it was seen as important to similarly define the concepts of *natural heritage*, *environmental heritage* and *biological cultural heritage* respectively. These concepts were seen as vague and as partly overlapping, yet fundamental in order to better understand the concept of *cultural landscapes*.

As a method to elucidate central words from the different discourses frequency distributions as well as co-occurrence analyses were presented. The choice of the co-occurrence analysis corresponds well to the theoretical point of departure of the study as the representations in the form of maps enables the reader and interpreter to observe the shifting links between words, concepts and problems over time, within a specific field or between fields.

The heterogeneous character of the concepts as well as of the discourses has made it difficult to create an ontology at all and any prior idea about what an ontology should look like was soon questioned. It was hard to choose the words that were to be included in the co-word analysis as some words were frequent at the same time as they were far from what one would think of as part of an ontology; these were words such as area, forest and to some extent human. Other words were expected, but never turned up, such as authenticity. One can argue that paleoecologists aren't necessarily concerned with authenticity, yet through pollen analyses and modeling they seek to reconstruct vegetation and landscapes. Authenticity, arguably, plays a role in landscape reconstruction as in landscape conservation. As authenticity is not seen as one essential word, it is rather seen as filtered through different prisms with different conceptions of authenticity as a result. One such prism may be the prism of sustainability through which authenticity is interpreted in relation to economic, natural, cultural as well as social concerns.

The discourse of *cultural landscapes* consists of several complex threads; the cultural, the natural, the historical, the economical and the human. Each of these interacts and contributes to the evolving understanding of *cultural landscapes*. As there is an acknowledgement within the field for the need of transdisciplinary approaches, one thing this attempt at creating an ontology may still provide is transparency. Knowing what words and structures that constitutes the discourse may enable better communication between the different stakeholders.

Saltzman, following Deleuze and Guattari, puts an emphasis on the importance of the middle and perhaps there is no need to draw definite boundaries between the different concepts and discourses, maybe it is what happens between them that is of importance; on the one hand the (creative) friction they create through their

overlapping concerns, on the other hand the way they contribute to making the field unnecessarily complicated and common strategies harder to reach.

The changing and transdisciplinary character of the field is recognized within all concepts. It becomes evident in volumes such as *Uncommon ground Toward Reinventing Nature* (Cronon (ed) 1995) and *Cultural Landscapes of Universal value* (Droste et al 1995), where there is an emphasis on the inclusion of scholars from within all disciplines involved in the broad field of *cultural landscapes* studies. It is surprising to note the absence of UNESCO from the discourse. UNESCO have played a major role in defining and applying the concept of *cultural landscapes* and a broad discussion concerning the values that are considered part of the concept and that are used as criterion for the process of election of new landscapes to be included in the World Heritage List would seem to be beneficial. There is furthermore but little focus on the aspect of the UNESCO definition to do with intangible heritage. Intangible heritage would seem to be closely linked to identity, a peripheral word in several discourses, yet one that appears to be of great importance in a rapidly changing world. Community is an emerging word within the discourse of *cultural landscapes* which would seem to express identity, belonging and shared responsibility. Values that are expressed through the concept of ecomuseums and that are furthermore seen as important in a time where we may be at a crossroad when it comes to the future of our planet. As such questions concerning *cultural, natural, environmental- and biological cultural heritage* as well as *cultural landscapes* are of importance and may be at the core of a solution. The transdisciplinarity of these and other fields is at odds with a reductionist approach, it recognizes and values complexity while at the same time it is struggling with the challenges of developing a transdisciplinary science.

The overview of the frequency distributions as well as the co-citation analysis emphasized the participation of several stakeholders. The nuances in the meaning of words were hard to detect from the bibliometric maps, but the maps did visualize the structures and concerns of the field. This emphasizes the extent to which a transdisciplinary approach has succeeded. It furthermore raises the question about the nature of transdisciplinarity both as it is expressed through the co-occurrence analysis of a given field as well as the way it is expressed through language; is transdisciplinarity reflected in the number of co-citations across the field, is it reflected in the existence of one single language of *cultural landscapes* in which every view is in some ways integrated or is it characterized by a multiple of voices and languages each enriching the other? And - if that is the case - how are these voices best heard (and mapped?) to the benefit of all? These are important questions that may provide the starting point for new attempts at creating an ontology of *cultural landscapes*.

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## Appendixes

### Appendix 1 *Cultural heritage*

INTERNATIONAL JOURNAL OF HERITAGE STUDIES

JOURNAL OF CULTURAL ECONOMICS

ANNALS OF TOURISM RESEARCH

INTERNATIONAL JOURNAL OF CULTURAL POLICY

TOURISM MANAGEMENT

JOURNAL OF *CULTURAL HERITAGE*

LEISURE MANAGEMENT

## Appendix 2 *Natural heritage*

LANDSCAPE AND URBAN PLANNING  
INTERNATIONAL JOURNAL OF HERITAGE STUDIES  
TOURISM RECREATION RESEARCH  
LANDSCAPE RESEARCH  
BIOLOGICAL CONSERVATION  
TOURISM MANAGEMENT  
ENVIRONMENTAL GEOLOGY  
INDIAN JOURNAL OF TRADITIONAL KNOWLEDGE  
NATURAL AREAS JOURNAL  
ENVIRONMENTAL MANAGEMENT  
JOURNAL OF *CULTURAL HERITAGE*  
JOURNAL OF ENVIRONMENTAL MANAGEMENT  
CASTANEA  
JOURNAL OF SUSTAINABLE TOURISM  
THE DARWINIAN HERITAGE  
SCIENCE OF THE TOTAL ENVIRONMENT  
ACTA HORTICULTURAE  
AMBIO  
CURRENT ISSUES IN TOURISM  
ECOLOGICAL ECONOMICS  
AUSTRALIAN GEOGRAPHER  
BIODIVERSITY AND CONSERVATION  
CONSERVATION BIOLOGY  
MOUNTAIN RESEARCH AND DEVELOPMENT  
WATER AIR AND SOIL POLLUTION  
MARINE POLLUTION BULLETIN

### Appendix 3 *Environmental heritage*

JOURNAL OF ENVIRONMENTAL MANAGEMENT

LANDSCAPE AND URBAN PLANNING

SCIENCE OF THE TOTAL ENVIRONMENT

BIOLOGICAL CONSERVATION

HORTSCIENCE

MARINE POLLUTION BULLETIN

ENVIRONMENTAL MANAGEMENT

TOURISM MANAGEMENT

FOREST ECOLOGY AND MANAGEMENT

AMBIO

BIODIVERSITY AND CONSERVATION

TOURISM RECREATION RESEARCH

CONSERVATION BIOLOGY

NATURAL AREAS JOURNAL

CASTANEA

INTERNATIONAL BIODETERIORATION & BIODEGRADATION

INTERNATIONAL JOURNAL OF HERITAGE STUDIES

CURRENT SCIENCE

ENVIRONMENTAL GEOLOGY

MOUNTAIN RESEARCH AND DEVELOPMENT

JOURNAL OF *CULTURAL HERITAGE*

JOURNAL OF SUSTAINABLE TOURISM

ENVIRONMENTAL CONSERVATION

ENVIRONMENTAL MONITORING AND ASSESSMENT

JOURNAL OF COASTAL RESEARCH

ECOLOGICAL ECONOMICS

WATER AIR AND SOIL POLLUTION

ECOLOGICAL APPLICATIONS

INDIAN FORESTER

JOURNAL OF ARCHAEOLOGICAL SCIENCE

JOURNAL OF THE AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE

**Appendix 4 *Biological cultural heritage***

INDIAN JOURNAL OF TRADITIONAL KNOWLEDGE

THE CONSERVATION OF *CULTURAL LANDSCAPES*

INTERNATIONAL BIODETERIORATION & BIODEGRADATION

ACTA HORTICULTURAE

FOREST ECOLOGY AND MANAGEMENT

INDIAN FORESTER

AGRICULTURE ECOSYSTEMS & ENVIRONMENT

AMBIO

JOURNAL OF ENVIRONMENTAL MANAGEMENT

LANDSCAPE AND URBAN PLANNING

## Appendix 5 *Cultural landscapes*

LANDSCAPE AND URBAN PLANNING  
ANNALS OF THE ASSOCIATION OF AMERICAN GEOGRAPHERS  
HOLOCENE  
LANDSCAPE RESEARCH  
GEOGRAPHICAL REVIEW  
JOURNAL OF HISTORICAL GEOGRAPHY  
LANDSCAPE ECOLOGY  
VEGETATION HISTORY AND ARCHAEOBOTANY  
WIT TRANSACTIONS ON ECOLOGY AND THE ENVIRONMENT  
ENVIRONMENT AND PLANNING D-SOCIETY & SPACE  
PROFESSIONAL GEOGRAPHER  
ADVANCES IN ECOLOGICAL SCIENCES  
LAND USE POLICY  
LANDSCAPE ARCHITECTURE  
QUATERNARY INTERNATIONAL  
PROGRESS IN HUMAN GEOGRAPHY  
AGRICULTURE ECOSYSTEMS & ENVIRONMENT  
SOCIAL & CULTURAL GEOGRAPHY  
BIODIVERSITY AND CONSERVATION  
GEOFORUM  
JOURNAL OF ARCHAEOLOGICAL SCIENCE  
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