Why landscapes of the past are important for the future

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Abstract

Landscapes change because they are the expression of the dynamic interaction between natural and cultural forces in the environment. Cultural landscapes are the result of consecutive reorganization of the land in order to adapt its use and spatial structure better to the changing societal demands. Particularly in Europe, history has recorded many successive and even devastating landscape changes, which have left barely any relics today. Today, the changes are seen as a menace, as a negative evolution because they cause a loss of diversity, coherence and identity, which were characteristic for the traditional cultural landscapes that are rapidly vanishing. This growing concern is also expressed in the European Landscape Convention, which will be used as a start for the analysis in this article. Three periods of landscape dynamics are considered: the traditional landscapes before the important changes that started in the 18th century, the landscapes of the revolutions age of the 19th to 20th century, and the post-modern new landscapes. The combined effect of the driving forces such as accessibility, urbanization, globalization and the impact of calamities have been different in each of the periods and affected the nature and pace of the changes as well as the perception people have had about the landscape. Values change accordingly and so does the way of using and shaping the landscape. It is argued that this changing perception also influences what kind and aspects of landscapes are studied, protected and managed. Diversity and identity of cultural landscapes are central in the discussion. It is shown that coherence between small composing elements in a broader spatial context is important for the legibility of the landscape and that the ability to tell the (his)story of a place strongly enhances the identity and the overall value. This offers criteria for inventorying and assessing landscapes, which is needed to define future management and development. Although the general trends of future development of the European landscapes are rather well known, planning and managing future landscape remains difficult and extremely uncertain. The processes and management in past traditional landscapes and the manifold relations people have towards the perceivable environment and the symbolic meaning it generates, offer valuable knowledge for more sustainable planning and management for future landscapes.
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1. Introduction: landscapes change, naturally!

This article analyzes the unique character of changes in today's landscapes, the reasons why these are felt by many as a menace and why the gradually disappearing traditional landscapes are still valuable for the future. The focus is upon the European situation. First the nature of landscape changes during different periods in history is discussed and the driving forces of these changes are examined. Secondly, values of the past landscapes are discussed, considering the different ways we actually protect, study and use them. How can these values become integrated with the future demands and needs of society? This is discussed in relation to planning objectives and practice in a society characterized by an ongoing urbanization and globalization. Finally, some possibilities

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of the lessons past cultural landscapes can teach us are examined, as guidelines for the building of future landscapes.

The concern about the vanishing traditional cultural landscapes and new emerging landscapes has become a recurring topic in most of recent international scientific conferences and workshops. Landscape changes are seen as a threat, a negative evolution, because the current changes are characterized by the loss of diversity, coherence and identity of the existing landscapes. New elements and structures are introduced which look alike everywhere. Landscapes always change because they are the expression of the dynamic interaction between natural and cultural forces in the environment. Cultural landscapes are the result of consecutive reorganizations of the land in order to adapt its use and spatial structure better to changing societal demands.

History has recorded many successive and even devastating landscape changes, which have left barely any relics today. All the important periods of landscape change also showed proper initiatives for adapted policy and rules for landscape management and protection. Many important land reclamations and deforestation initiatives during the Middle Ages were systematically planned (Muir, 2000; Verhulst, 1995; Butlin, 1992) and many were subject to specific laws and regulations (Van Hoorick, 2000). The sustainable control of natural resources was often an important concern as shown for example by the management of water resources and forests. Measures were taken, mainly by the great landlords, to maintain and protect certain qualities and values. For example, hunting was an important factor, which lead to protection of forests and the creation of deer and landscape parks in many countries in Western Europe (Muir, 2000; Verhulst, 1995). Also, the enclosure movement which spread from England over the north-western part of Europe between the 18th and 19th century (Nitz, 1992) was mainly a regulated process. The main goals were to conserve certain land qualities and natural resources, including wildlife, not to maintain the natural or cultural characteristics of landscape (Van Hoorick, 2000). Since the Renaissance, 'cultural' landscapes were designed and build around wealthy and powerful villas, palaces and castles and little concern was given to the 'ordinary' landscapes (Preece, 1991). From the 16th to the 19th century, garden architecture evolved in landscape architecture and landscaping (Enge and Schröer, 1990; Jellicoe, 1975) and in general a rational, geometrical order in urban planning and land organization emerged.

It was only at the end of the 18th and beginning of the 19th century that the transformations induced by the Industrial revolution were considered as devastating and threatening for the environment and the landscape. It was also during the Romantic period, that naturalist scientists offered new revolutionary views upon nature and landscape and their evolution. Then the first legislation on nature and landscape conservation emerged. Besides the protection of sites and natural 'monuments', the visual and functional aspects for visitors were always considered. Only since the second half of the 20th century a more ecological approach towards integrated landscape management has developed. With the revival of landscape ecology since the 1980s, a holistic approach to the landscape has been slowly emerging as well, as a more integrated approach that ultimately aims at transdisciplinarity: the integration of fundamental and applied research and policy implementation. It was only at the turn of the 20th to 21st century that the concern for landscapes as a cultural heritage has been emerging again. Awareness about the threat of globalization forces on local identity and regional diversity has been arising as well. Several initiatives have been taken to reorient research and policy concerning the landscape, such as during the 25th anniversary of the Dutch association for Landscape Ecology held by WLO in Wageningen, 1997 (Vos and Klijn, 2000), the Dornach conference "The Culture of the European Landscape as a Task" (Pedroli, 2000) and certainly with the European Landscape Convention (Council of Europe, 2000).

Internationally the landscape was put on the agenda since the Dobříš Assessment on Europe's environment by the European Environmental Agency in 1991 (Stanners and Bourdeau, 1995). Policy makers became aware of the growing challenge when trying to preserve any value of traditional landscape and researchers increased the number of publications in this domain (Holdaway and Smart, 2001; Nohl, 2001; Austad, 2000; Green, 2000; Pedroli, 2000; Wascher, 2000; Wascher and Jongman, 2000; Antrop, 1997; Meeus et al., 1990). In parallel, since 1994, the Council of Europe had worked on the formulation of a European Landscape Convention that was finally opened for signature on 20 October 2000, in Firenze. The

important difference with older regulations regarding landscape protection was that all landscapes were involved and not just very special valuable sites, such as natural protection sites. The definition of landscape in the Convention is clear and broad: "Landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" (Council of Europe, 2000). This brings all 'ordinary landscapes' back into the attention, as well as the 'cultural landscape' as stated in art. 2, defining the scope of the Convention, which "covers natural, rural, urban and peri-urban areas. It includes land, inland water and marine areas. It concerns landscapes that might be considered outstanding as well as everyday or degraded landscapes" (Council of Europe, 2000). The importance of aesthetics, of scenery and not just economic and ecological functions and utility are also implied. Landscapes are seen as "part of Europe's common heritage, which deserve protection and management" (art. 30). The aims of the landscape Convention are "to promote landscape protection, management and planning, and to organize European co-operation on landscape issues" (art. 3). The European Landscape Convention essentially aims to bridge the past with future landscapes, but it is not very specific how to proceed.

2. The ending of the past and the beginning of the future

In Europe, several breaks have occurred in the development of the cultural landscapes. Some breaks have even resulted in wiping away the existing landscape as for example with the transition of the Roman era towards the Dark Ages (Yorke, 2001; Verhulst, 1995). Many completely new landscapes were created during the population explosion in the Middle Ages, causing important land reclamation activities and forest a proper identity. New forms of land organization and management were still ecologically clearings. Nevertheless, the newly created landscapes were then integrated and developed rapidly sustainable and mostly inspired by utilitarian and economical motives of the local or regional society. Little is known about aesthetic aspects involved, although symbolic values were important, as can be seen by the preservation and care of old landmarks. It is only

with the Renaissance that aesthetical concerns and deliberate landscape planning and designing emerged (Kolen and Lemaire, 1999).

The pace and magnitude of landscape changes depended upon increasingly faster technological innovations and societal changes (Antrop, 2000a). An increase of speed and magnitude of changes could be observed for many features since the 18th century (Fig. 1). Most were associated with the increase of population and the growth of urbanization. The balance between city and countryside was broken and increasing mobility allowed a faster diffusion of innovations over long distances. Most of these changes showed an exponential growth but were not smooth and continuous. Successive revolutionary breaks could be noticed. To understand the actual landscapes, three periods have to be recognized:

(1) Pre-18th century landscapes, which have still preserved many remnants and structures going back to a remote past. They will be referred to as traditional landscapes.
(2) Landscapes of expanding industrialization and cities from the 19th century to the Second World War. Irreversible breaks with the past happened in many domains of society and culture, thus changing life-styles and mentality towards the land and environment. Totally new landscapes were superimposed upon the traditional ones, which were often wiped away completely. These are the landscapes of the revolution age.
(3) Post-World war landscapes characterized by increasing globalization and urbanization. These will be called the post-modern new landscapes.

2.1. Traditional landscapes

For many centuries the changes were local and gradual and seldom were existing landscape structures wiped away completely. In the past, landscapes were experienced as rather stable and having a distinct character or identity. They formed a basis for the homeland of those who created it during centuries of work. This meaning is well contained in '*paysage*', the French term for landscape, which is closely associated with the specific appearance of a region, the land of ... ('*pays de ...*') (Claval, 2002; Antrop, 2000b). A similar meaning is found in the Dutch term 'landschap' which denotes both landscape as scenery
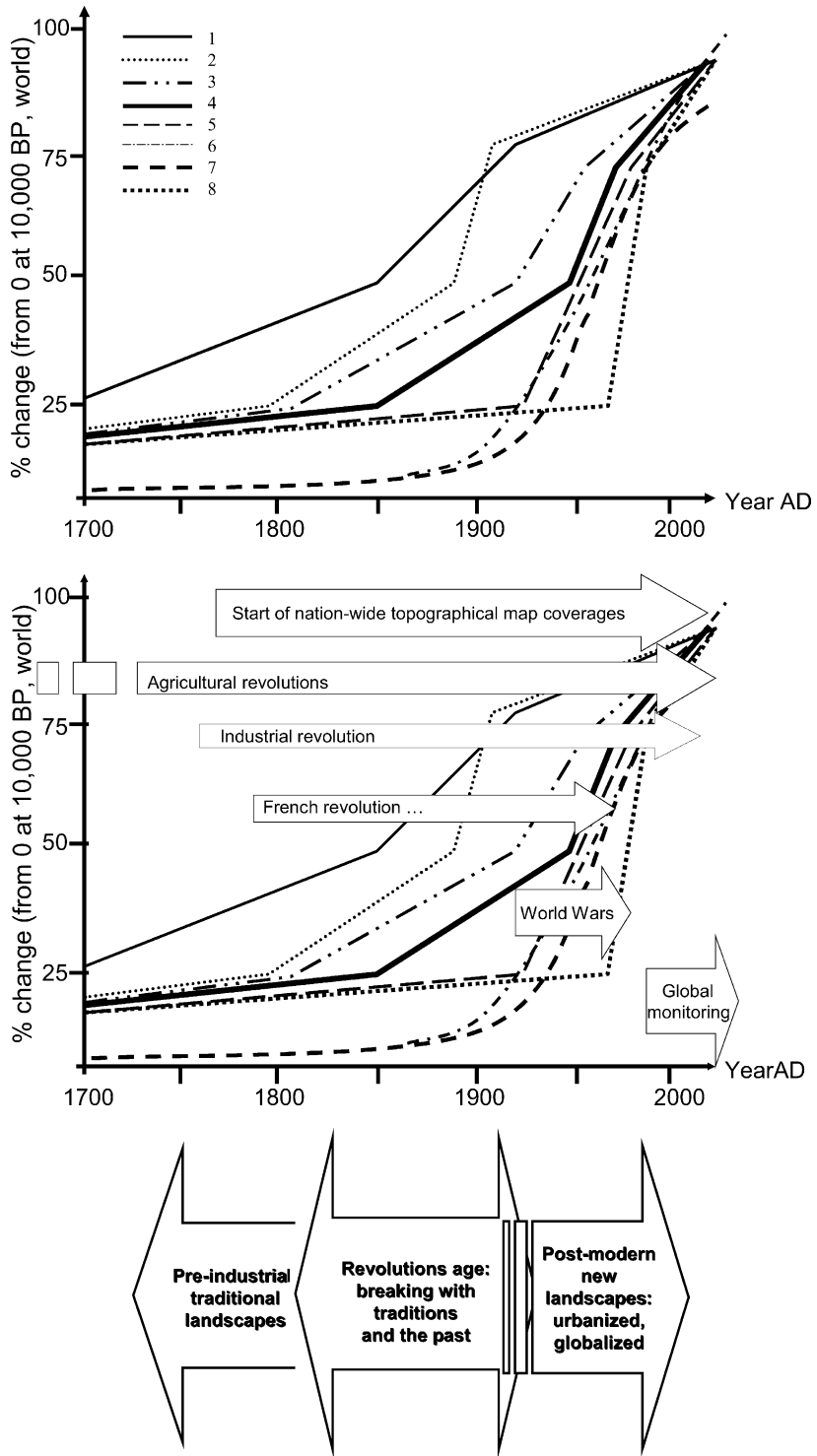
Fig. 1. Three periods of landscape change.

and as the area under a particular regime of administration (Lorzing, 2001; Muir, 1999; Zonneveld, 1995).

Consecutive generations lived and worked in the same landscape and tried to improve and preserve it. Valuing the land and sustainable development were inherent to this kind of development, which is also referred to as involution (Klijn and Vos, 2000). Many places or elements in the landscape received a symbolic value. Also the concept of *genius loci* is closely associated with the identity of each landscape and emphasizes its uniqueness. I call this type of landscape a traditional one (Antrop, 1997). It contains the complex history of a place or region, which still can be read from its composition and structure. In Europe, with its long and complex history and great cultural diversity, a rich variety of traditional landscapes emerged, which form an integral part of our cultural heritage. Here, landscape and soil are important and unique sources of essential knowledge. The main threats for these are land development and intensive agriculture. Valuable maps and archives do exist for these landscapes but are still insufficiently exploited and poorly preserved. Most knowledge is based upon case studies and local data.

2.2. Landscapes of the revolutions age

Since the 16th century, and continuing in the 18th, 19th and early 20th century, successive breaks with the past could be observed that had a broad geographical impact upon the landscape. The main driving forces were demographic changes, changing economy by overseas trade and the introduction of new crops, intensification of land use by innovative techniques in agriculture and related land reforms (Overton, 2002; Butlin, 1992). Most nation states in Europe were formed and central political authority and a broadening economy imposed changes over vast areas. During the Age of Enlightenment, landscape design evolved into landscape architecture and many of its principles were used in the planning of booming cities. Simultaneously, successive technological innovations and dramatic political and social changes abruptly changed the tools and will for profound, irreversible changes. The whole environment could change in one generation's life-time (Robinson, 2001). A whole succession of technological and social revolutions, and the increasingly devastating wars

from the end of the 18th century to the mid-20th century, completed the definite break with the past. New landscapes created during that period very often had disappeared again. Systematic and comprehensive surveys and inventories of that period are rare and most information is site-specific, such as the archives of a company that created an industrial site. Illustrations and photographs are important sources for that period. Oral history, however, came to a definite end.

2.3. Post-modern new landscapes

After the Second World War, the dynamics changed again. It was the acceleration of global dependency and the decrease of local autonomy. Today's fast changing society and environment has resulted in the creation of completely new landscapes and in the rapid deterioration of all previous ones, both natural and cultural. Again, new landscapes have been superimposed rather than being integrated. A visible break in the continuity with the past is created. However, all these changes are made with the same concern of improving the living environment to the new needs of a growing population, which is mainly urban. People become increasingly mobile and the ecological footprint of the urbanites now stretches far beyond their city.

The main difference between traditional and new landscapes resides in their dynamics, both in speed, and scale, as well as the changing perceptions, values and behavior of their users. There are too many changes everywhere and they are faster than can be recorded and studied; although never before in history has such an amount of data recording has existed as today. The main question has become: what information is significant in this data deluge? Recording oral history proved to be a valuable tool, in particular to reveal hidden agendas that can explain some of the apparent illogic or chaotic changes.

3. The driving forces of landscape change

The analysis of the nature and causes of landscape changes in the past centuries show three main driving forces that act simultaneously in varying mutual importance. These are: accessibility, urbanization and globalization. An additional and unpredictable factor should be added: calamity.

3.1. Accessibility

The accessibility of a place is an important factor in the site selection by humans. Controlled access is an important quality when creating a settlement (Roberts, 1987). The functional specialization of a place, such as a market place, harbor or defensive place, demanded different accessibility qualities. The growth of a place and the development of its economical or political power depended in a large extent on its geographical situation and its accessibility (Taaffe et al., 1996). The modern process of urban sprawl is highly determined by the transportation pattern and accessibility (Lucy and Philips, 1997; Lewis and Maund, 1976). New city models, such as the 'lobe-city', have been considered to be based on accessibility (Rombaut, 2001). Also, the transportation network has specific ecological properties (Forman, 1998) and can be used as a frame for the creation of greenways (Viles and Rosier, 2001). The impact of transportation infrastructure upon the landscape is very diverse (Stanners and Bourdeau, 1995).

Areas that are not easy accessible by people are often characterized as stable natural landscapes. When disclosed by a new transportation infrastructure, these areas start changing rapidly. Transportation nodes such as road crossings, stations and halting places initiate and attract modern developments of different kinds (Antrop, 1999). The early development of railways is a typical example. Besides connecting cities, harbors and industrial areas, early 20th century railway connections also disclosed resort sites (beaches, spa's) and natural monuments (caves, waterfalls) to stimulate tourist development, mainly for wealthy urban dwellers (Carpenter, 1994).

3.2. Urbanization

Most of European landscapes were created by villagers in the effort to organize their land for a better and guaranteed subsistence. This is the basis of the historical land zoning around villages based upon various land use forms of different intensity. Also medieval towns had particular effects upon their rural hinterland that could be vast for important trade and production centers. Not only was food found in the surrounding countryside, but also cheap labor and space for the production of special goods, such as wool or plants for dyeing cloths (Verhulst, 1995; Butlin, 1992). The exponential growth of cities since the Industrial revolution, and again after the Second World War, when automobiles changed the mobility of the masses drastically, has been referred to in many ways: urban sprawl, urbanization, suburbanization and counter-urbanization, and by such concepts as urban fringe, edge cities and exurbs all reflect the complexity of the process (Champion, 2001; Pacione, 2001; Antrop, 2000c; Geyer and Kontuly, 1993; Bryant et al., 1982). Cities form extended networks that affect large areas that contain a multitude of different functions. The concept of Functional Urban Areas (SPESP, 2000; Cheshire, 1995) describes this complexity well. The management of the countryside becomes complex and interdisciplinary (Brandt et al., 2001). Urbanization is basically a change in life-style and can affect even remote villages in the countryside (Van Eetvelde and Antrop, 2001).

3.3. Globalization

As a driving force in landscape changes, globalization refers to all general processes and initiatives that affect decisions and actions at the local level. Economic globalization emphasizes hypermobility, global communications and the neutralization of place and distance (Sassen, 2000). New global and regional hierarchies of cities emerge and vast areas become increasingly peripheral. Very often, these processes break the intimate relationship a local society has with its land. In the EU the impact of the CAP upon the landscape is a striking example.

3.4. Calamities

In densely populated regions and intensively used land, the hazard for calamities increases and the number of people affected as well. Each time a disaster occurs, massive means are invented to reduce the impact and to restore the feeling of security that 'it will never happen again'. In crisis situations there is rarely time for careful planning and detailed impact assessment. Only in the phase after the disaster, new options for landscape restoration are considered. Often interesting new opportunities might emerge that would never be thought of or difficult to realize otherwise (Fig. 2).

Fig. 2. Versailles before and after the disaster of 1999. The storm destroyed most of the park, but its restoration can follow other principles than the ones used for managing until now and a more authentic landscape can be recreated.

4. The values of the past

4.1. What do we perceive and value?

Because conceptually landscapes have a holistic and complex character, which bridges natural and cultural aspects, they are valued in many different ways. Most people experience landscapes also in a holistic way and integrate what they perceive immediately with what they know and remember (Tuan, 1990; Meinig, 1979). They interpret or 'read' the landscape within their own cultural context (Muir, 1999; Lowenthal, 1997; Cosgrove, 1989). Each traditional landscape expresses a unique sense or spirit of place (*genius loci*) that helps to define its identity (Antrop, 2000b). Special places and monuments receive a symbolic value and act as landmarks that allow orientation in space and time (Coeterier, 2002; Holtorf, 1998; Lynch, 1973). The perceived landscapes contribute to local or national identity (Sooväli et al., 2003) and at the same time landscapes are shaped by ideology and politics (Olwig, 2002).

4.2. What do we study?

In the natural sciences, basic research in landscapes prefers particular landscapes that fit well the objectives of the investigator (Antrop, 2001). For example, landscape ecologists focus upon specific natural landscapes, such as wetlands, forests and riparian landscapes. Applied landscape research deals with other landscape types that are in the scope of policy makers. Many belong to 'ordinary' landscapes that are under heavy human pressure and demand adapted management and design (Nassauer, 1997).

4.3. Coherence: the key to identity

The coherence of particular properties defines identity (Fig. 3). Changing the characteristics and coherence leads to loss of identity or its change into a new one. What changes and how many are needed to transform a landscape so that it becomes alienated? The metaphor of an aging person is (to some extent) appropriate to describe the meaning of identity, as well as the continuity and change of landscapes. During a lifetime one's physical appearance changes a lot. However, it is still easy to recognize the identity and character of a person one once knew, even after a long time and many physical changes. This illustrates the holistic coherence of a person and the continuity of his personality. Sometimes changes, physical or mental, can be so great that recognition becomes difficult, or even that one's personality is lost. What magnitude of change could cause a landscape to loose identity and to become unrecognizable? What processes can break down irreversibly its coherence and continuity? The changes in a living person are an expression of the continuous adaptation needed to function and survive. If not, his life ends. When life ends in landscapes, they become deserts where only physical and chemical forces cause any change. So, what processes, changes

Fig. 3. Identity appears only when the elements of a landscape are coherent and become legible.

and functions are necessary for cultural landscapes to survive?

Similarly, landscape research and management can be compared with two medical approaches towards health. One is the medical science that studies diseases of humanity, the other is the general practitioner helping a patient. Most scientific research in landscape is dealing with the characteristics of a large population. Average, normal 'health' and 'illness' conditions of landscape and nature are searched for, trends of 'epidemic' diffusion of disturbances and change have to be identified, groups and types are defined and classified. This kind of knowledge becomes only useful when it can be applied by a general practitioner to help and cure one particular patient having very specific needs. Here the scientific community of landscape re-searchers lacks interest or even competence to answer adequately specific questions in particular cases. How should a particular piece of land be organized and shaped? What functions can be allowed? How severe will be the impact of a particular factor on the cultural values of landscape?

4.4. What do we protect?

A way to preserve values of the past is to protect them legally. In most countries, special institutions and an adapted legislation have been developed for different categories of natural and cultural heritage. The first initiatives to conserve nature and landscape came about the second half of the 19th century and were initiated by upper class urbanites (Van Hoorick,

2000). Private societies were formed for the protection of wildlife, natural sites and nice scenery. The names of these societies are significant: the "Société Nationale de Protection de la Nature" (France 1854), the "Selborne Society for the Protection of Birds, Plants and Pleasant Places" (England 1885), the "National Trust for Places of Historic Interest or Natural Beauty" (England 1895), the "Société Nationale pour la Protection des Sites et Monuments" (Belgium 1892), the "Société de Protection des Paysages de France" (France 1901), the "Deutsche Bund Heimatschutz" (Germany 1904), "Vereniging tot Behoud van Natuurmonumenten" (The Netherlands 1905) (Van Hoorick, 2000). In 1872 the first national park (Yellowstone in the USA) was established to protect natural beauty, flora and wildlife "for the benefit and enjoyment of the people" (Van Hoorick, 2000) and started a movement that reached Europe in the beginning of the 20th century. The focus was mainly upon elements, places or landscapes that are outstanding, rather unique and often spectacular. A similar idea can be found in the World Heritage Convention of 1972, where in the beginning mainly cultural artefacts were selected to be put on the World Heritage List. Since the Santa Fé Conference in 1992, this was extended to 'Cultural Landscapes of Outstanding Universal Value', which could be designed (parks, gardens), organically evolved landscapes (relict and continuing landscapes, traditional rural landscapes) or associative landscapes (landscapes with religious, artistic or spiritual values).

Common categories to protect are monuments, sites, landscapes and natural habitats. Monuments often combine a historical, an architectonic and aesthetical value. Sites are special places where an ensemble of elements of different nature, age and origin are clustered and form a whole. They are not always visibly spectacular, as for example archaeological sites, where the main value resides in the scientific information contained in the area. There is no clear definition of landscapes that are potentially subject to protection. Most often different qualities that exist in a rather extended area are combined. In some cases this can lead to situations that are difficult to manage and where visions of future preservation can result in conflicts. This happens for example when natural and heritage landscapes overlap. Although the common aim would be to protect an area against any kind of development that may deteriorate its value, objectives for the future might be contradictory and different management schemes can lead to the destruction of certain values. This can be the case when (re)creation of new nature or restoration of past landscapes are aimed that destroy more recent historical or cultural values that exist in the same area. The International Union of the Conservation of Nature (IUCN) has established following categories:

I. Strict nature reserve/wilderness area.
II. National park.
III. Natural monument.
IV. Habitat/species management area.
V. Protected landscape/seascape.
VI. Managed resource protected area.

It is clear that these can include areas of great cultural importance as well, demanding an appropriated management.

At international level, the confusion is even greater as the definitions for similar categories can differ between countries. Also, there are special categories that can overlap spatially, so that the same area receives multiple designations. Legally the category 'protected landscape' in Flanders can overlap with 'nature reserve', as is also the case in the United Kingdom with the 'sites of special scientific interest' (sssi) (Van Hoorick, 2000). However, in England and Wales, landscapes can be designated also as 'Areas of Outstanding Natural Beauty' (AONB). Due to differences in definitions and criteria used, the numerical assessment of the situation in different countries gives results that are hardly interpretable. In Flanders 2.7% of the area is 'protected landscape', in The Netherlands protected 'nature monuments' are similar areas and cover 2.9% of the country. Similarly, these cover 2.4% in Germany, while the corresponding sssi's in the UK occupy 8.7% of the country. In the definition of protected landscape in the concept of the AONBs, 14.0% of England and Wales have this kind of protection, and in Germany 24.5% of the area profits of a similar regulation, while in the smaller Netherlands and Flanders such categories do not yet exist (Van Hoorick, 2000).

According to the European Landscape Convention, landscape protection implies all 'actions to conserve and maintain the significant or characteristic features of a landscape' and landscape planning is a 'strong forward-looking action to enhance, restore or create

landscapes'. This is much broader than the protection of small and well-defined landscapes in most of the existing laws. Initially, it implied also cross-border and international co-operation and integration in the protection and maintenance of vast areas.

4.5. Landscape classification and inventorying

The European Landscape Convention (2000) stimulates the creation of landscape inventories for assessing their condition and setting up monitoring systems to follow and manage the changes. Several countries in Europe had already a long tradition in this field, but mainly focused upon the effects of land cover change in relation to biodiversity (Dramstad et al., 2001; Haines-Young et al., 2000; Holdaway and Smart, 2001; Aalen et al., 1997; Wrbka et al., 1997; Ihse, 1996). In many countries new landscape classifications are developed and mapping of character areas of landscapes is considered as a basis for landscape assessment (Antrop, 2002; Pinto-Correia et al., 2002; Somper, 2002). Monitoring systems can use these as a framework for a stratified sampling scheme (Banko et al., 2002; Brandt et al., 2002).

5. What are the future demands and needs?

5.1. Well-known ongoing trends

The main trend of actual landscape changes is the one of polarization between more intensive and more extensive use of land. There is a continuing concentration of people and activities in rather small, highly intensive and densely crowded areas, while vast areas of land become disaffected or even abandoned. Vos and Klijn (2000) recognize the following trends of the transformation in European landscapes:

- Intensification and scalar increase in agricultural production transforms wetlands and natural areas into agricultural land; this is likely to occur in densely inhabited areas in particular.
- Urban sprawl, the growth of infrastructures and functional urbanization.
- Specific tourist and recreational forms of land use that still develop at an accelerating speed in coastal and mountainous regions.

- The extensification of land use and land abandonment that is likely to continue to affect remote rural areas with less favorable and declining social and economical conditions and poor accessibility.

The driving forces behind all these are urbanization, accessibility and globalization. All three interact simultaneously and differently according to the geographical situation of a place or area. In many European countries more than 80% of the population have become urbanites living in urban places of various sizes (United Nations Centre for Human Settlement, 1996, 2001).

5.2. The needs

In Europe most of the population in concentrated on only one percent of the land (Stanners and Bourdeau, 1995). The direct result is a fundamental change in the evaluation of rural and natural landscapes. The urban perspective is expressed in the definitions used to describe the Functional Urban Regions (SPESP, 2000). Rural areas are considered according their potential for satisfying urban needs and are defined as a series of urban–rural partnerships (Table 1). However, these are planners' views. Empirical evidence of this changing mentality towards the rural landscape has been formulated mainly by cultural geographers and philosophers, such as Lowenthal (1997, 1985), Meinig (1979) and Kolen and Lemaire (1999). Important statements made by Lowenthal (1997) are: "The countryside is becoming a place for living, not for making a living"; and "landscape and rural life are becoming ominously disjoined." These reflect the fundamental break of the link between landscape structure and

Table 1
Types of relations or partnership between urban and rural formulated in the SPESP (2000)

Home-work relationships
Central place relationships
Relationships between metropolitan areas and urban centers in rural and intermediate areas (in fact: urban hierarchy)
Relationship between rural and urban enterprises
Rural areas as consumption areas for urban dwellers
Rural areas as open spaces for urban areas
Rural areas as carriers of urban infrastructure
Rural areas as suppliers of natural resources for urban areas (ex. water)

processes that shaped the landscape. Lowenthal (1997) considers the actual countryside as a 'rural residue'.

5.3. Controlling the changes

Landscape is a difficult thing to manage as it consists of numerous pieces of land owned by many people who all have particular interests. In our civilization, land is private property and the usufruct is an important right for the landowner, which implies a free of use of the land and determines also its value. However, landscape is considered as a common heritage and transgresses property boundaries. Landscape is not there for the benefit of the landowners only, but also for temporary visitors, such as recreants and tourists. Landscapes are the perceivable result of complex forms of multifunctional land use.

Management of landscapes begins with land use planning. Land use changes are made by numerous users acting in a non-concerted manner each on their own plot of land. The result is a rather chaotic autonomous development of the landscape (Fig. 4). Planning aims to steer, control and guide this process. Interference with the autonomous development starts at the moment the intention of a planned action is announced. Different reactions initiate developments, which are opposed, even illegal, parallel and sequential and use new opportunities the new plan offers, although these effects were not intentioned. It is rare that the planned developed is realized fully. Consequently, several effects initiated by the announced plan

will become visible in the landscape at the same time. Even the real development will be affected by minor chaotic autonomous changes and new steering by new planning will become necessary. Planning evolves as sub-sequential redirections of the autonomous development, and chaotic changes always will follow the temporal main trends. Strictly planned landscapes with controlled management only occur in completely artificial landscapes such as gardens, parks and urban sites, although even then the development is far from completely determined. Preserving historical-cultural landscapes implies controlling their functionality in the changing spatial context of society.

6. Lessons from the past help to build the future landscapes

Traditional rural landscapes resulted in a great diversity of sustainable landscapes. Those have a better legibility and give a clear character and identity to place and region. Landmarks and symbols are necessary ancestral roots. Also, they contain many forgotten lessons and landscape structure is crucial for the maintenance of diversity, both biodiversity and cultural diversity. These landscapes are a source of essential (barely studied) knowledge about sustainable management techniques. They possess unexplored wisdom and inspiration for making better future landscapes and offer a base for restoration.

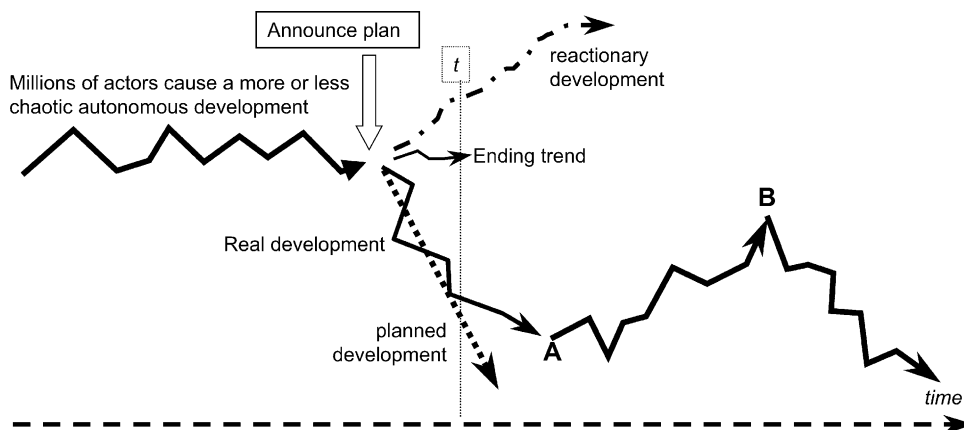Lowenthal (1997) stresses three attributes when considering landscape as patrimony:

Fig. 4. Autonomous development and the process of planning.

- Materiality: landscapes are perceived with all our senses, which makes them tangible.
- Landscape is used as container for a large variety of artifacts and gives them a broader context and hence enhances their singular values.
- Stability: landscape is the most fixed, immovable phenomenon in our environment. This quality makes landscape feeling like secure and reliable.

Austad (2000) formulated six strategies for agriculture to maintain cultural landscape values. First, in the best-maintained and most 'authentic' cultural landscapes, semi-natural vegetation types should be protected and preserved as traditional agricultural systems are valuable because they had been sustainable for centuries and can be models for the future. Second, revitalization and intensification of the outfields and low-intensity farming systems should be stimulated. Third, more incentives and substantial financial support are needed for farming that maintains biological-historical values. Fourth, organic farming and agro-forestry should be encouraged. Fifth, local knowledge and traditions should be combined with concepts of landscape ecology to develop 'new' cultural landscapes and agro-systems. Sixth, more research is needed on traditional sustainable agriculture as well as more applications of its results. These strategies all focus upon adapted use and functionality of the landscape based upon knowledge of its historical development and past functioning.

7. Conclusion: nothing is new under the sun, but the atmosphere changed

Landscapes are dynamic and change is one of their properties. Humans have always adapted their environment to better fit the changing societal needs and thus reshaped the landscape. All the important driving forces are related to the population growth and the life-style becoming increasingly more urban and more mobile. Since the 18th century, however, the pace and magnitude of the changes increased greatly, causing definite breaks with the past. Only in the beginning of the 20th century was there a first concern regarding the loss of natural and cultural values. A second period of concern emerged gradually at the end of the 20th century, stimulated by the growing awareness of en-

vironmental deterioration and loss of ancestral roots. Modern developments are found to be not very sustainable when compared to traditional land management practices that lasted for centuries. More attention is given to the scattered remnants of the past traditional landscapes. Their importance is manifold. They are the tangible witnesses of ancestral values everyone can perceive and experience directly in the landscape. Symbolic and cognitive values pass through esthetically felt scenery. They contain a lot of information concerning the still poorly known history of ordinary people and land management traditions. Much wisdom and inspiration for sustainable management can be found here, which is useful when decisions have to be taken for the future management of landscapes, their restoration and even for creating new ones. Landscapes of the past can not be brought back, but ways how valuable elements and areas can be preserved and become embedded functionally in the modern urbanized and globalized society must be studied.

References

Aalen, F.H.A., Whelan, K., Stout, M. (Eds.), 1997. Atlas of the Irish Rural Landscape. Cork University Press, Cork.

Antrop, M., 2002. Results from the recent landscape inventories for building landscape indicators in Belgium. NIJOS/OECD Expert Meeting on Agricultural Landscape. Oslo, Norway, 7–9 October.

Antrop, M., 2001. The language of landscape ecologists and planners. A comparative content analysis of concepts used in landscape ecology. Lands. Urban Plan. 55, 163–173.

Antrop, M., 2000a. Background concepts for integrated landscape analysis. Agric. Ecosyst. Environ. 77, 17–28.

Antrop, M., 2000b. Where are the Genii Loci? In: Pedroli, B. (Ed.), Landscape—our Home, Lebensraum Landschaft. Essays on the Culture of the European Landscape as a Task. Indigo, Zeist, Freies Geistesleben, Stuttgart, pp. 29–34.

Antrop, M., 2000c. Changing patterns in the urbanized countryside of Western Europe. Lands. Ecol. 15 (3), 257–270.

Antrop, M., 1999. Transport routes in the landscape: about connectors, dividers, initiators, attractors and views. In: Kristensen, L., Petersen, E.H. (Eds.), Transport og Landskab. Landskabsøkologiske skrifter nr. 13, Center for Landskabsforskning, pp. 21–39.

Antrop, M., 1997. The concept of traditional landscapes as a base for landscape evaluation and planning. The example of Flanders Region. Lands. Urban Plan. 38, 105–117.

Austad, I., 2000. The future of traditional agriculture landscapes: retaining desirable qualities. In: Klijn, J., Vos, W. (Eds.), From Landscape Ecology to Landscape Science. Kluwer Academic Publishers, WLO, Wageningen, pp. 43–56.

Banko G., Zethner G., Wrbka T., Schmitzberger I., 2002. Landscape types as the optimal spatial domain for developing landscape indicators. NIJOS/OECD Expert Meeting on Agricultural Landscape. Oslo, Norway, 7–9 October.

Brandt, J.J.E., Bunce, R.G.H., Howard, D.C., Petit, S., 2002. General principles of monitoring land cover change based on two case studies in Britain and Denmark. Lands. Urban Plan. 62, 37–51.

Brandt, J., Holmes, E., Skriver, P., 2001. Urbanisation of the countryside-problems of interdisciplinarity in the study of rural development. In: Conference on the Open SPACE Functions under URBAN Pressure. Ghent, 19–21 September.

Bryant, C., Russwurm, L., McLellan, A., 1982. The City's Countryside: Land and its Management in the Rural Urban Fringe. Longman, London.

Butlin, R.A., 1992. De Mens en het platteland. In: Blockmans, W. (Ed.), De mens en het landschap. De wording van Europa. Hilversum, HD Communications Consultants and Weert, M&P, Uitgeverij, pp. 9–32.

Carpenter, T.J., 1994. The Environmental Impact of Railways. Wiley, London.

Champion, T., 2001. Urbanisation, suburbanisation, counterurbanisation and reurbanisation. In: Paddison, R. (Ed.), Handbook of Urban Studies. Sage Publications, London, pp. 143–161.

Cheshire, P., 1995. A new phase of urban development in Western Europe? The evidence for the 1980s. Urban Stud. 32 (7), 1045–1063.

Coeterier, J.F., 2002. Lay people's evaluation of historic sites. Lands. Urban Plan. 59 (2), 125–127.

Cosgrove, D., 1989. Geography is everywhere: culture and symbolism in human landscapes. In: Gregory, D., Walford, R. (Eds.), Horizons in Human Geography. Macmillan, Basingstoke, pp. 118–135.

Council of Europe, 2000. The European Landscape Convention. Strasbourg.

Dramstad, W.E., Fry, G., Fjellstad, W.J., Skar, B., Helliksen, W., Sollund, M.-L.B., Tveit, M.S., Geelmuyden, A.K., Framstad, E., 2001. Integrating landscape-based values—Norwegian monitoring of agricultural landscapes. Lands. Urban Plan. 57 (3–4), 257–268.

Enge, T.O., Schröer, C.F., 1990. Garden Architecture in Europe 1450–1800. Benedikt Taschen, Köln.

Forman, R.T.T., 1998. Road ecology: a solution for a giant embracing us. Lands. Ecol. 13, iii–v.

Geyer, H.S., Kontuly, T.M., 1993. A theoretical foundation for the concept of differential urbanization. Int. Region. Sci. Rev. 15 (12), 157–177.

Green, B.H., 2000. Policy, planning and management initiatives in European cultural landscape conservation. In: Klijn, J., Vos, W. (Eds.), From Landscape Ecology to Landscape Science. Kluwer Academic Publishers, WLO, Wageningen, pp. 57–72.

Haines-Young, R.H., Barr, C.J., Black, H.I.J., Briggs, D.J., Bunce, R.G.H., Clarke, R.T., Cooper, A., Dawson, H.F., Firbank, L.G., Fuller, R.M., Furse, M.T., Gillespie, M.K., Hill, R., Hornung, M., Howard, D.C., McCann, T., Morecroft, M.D., Petit, S., Sier, A.R.J., Smart, S.M., Smith, G.M., Stott, A.P., Stuart, R.C., Watkins, J.W., 2000. Accounting for Nature: Assessing Habitats in the UK Countryside. DETR, London.

Holdaway, E., Smart, G., 2001. Landscapes at Risk? The Future for Areas of Outstanding Natural Beauty. SPON Press—Taylor & Francis Group, London.

Holtorf, C.J., 1998. Monumental Past. The Life-histories of Megalithic Monuments in Mecklenburg-Vorpommern (Germany). CITD Press, Scarborough. Available: http://citd.scar.utoronto.ca/CITDPress/holtorf/0.1.html.

Ihse, M., 1996. Monitoring cultural landscapes in Sweden—methods and data of landscape change. In: Jongman, R.H.G. (Ed.), Ecological and Landscape Consequences of Land Use Change in Europe. Proceedings of the First ECNC Seminar on Land Use Change and its Ecological Consequences, Tilburg. ECNC Publication Series on Man and Nature 2, Tilburg, pp. 103–129.

Jellicoe, G.S., 1975. The Landscape of Man. Shaping the Environment from Prehistory to the Present Day. Thames & Hudson, London.

Klijn, J., Vos, W., 2000. A new identity for landscape ecology in Europe: a research strategy for next decade. In: Klijn, J., Vos, W. (Eds.), From Landscape Ecology to Landscape Science. Kluwer Academic Publishers, WLO, Wageningen, pp. 149–161.

Kolen, J., Lemaire, T. (Eds.), 1999. Landschap in Meervoud. Perspectieven op het Nederlandse Landschap in de 20ste/21ste eeuw. Uitg. J. van Arkel, Utrecht.

Lewis, G.J., Maund, D.J., 1976. The urbanization of the countryside: a framework for analysis. Geografiska Annaler 58, 17–27.

Lorzing, H., 2001. The Nature of Landscape. A Personal Quest. 010 Publishers, Rotterdam.

Lowenthal, D., 1985. The Past is a Foreign Country. Cambridge University Press, Cambridge.

Lowenthal, D., 1997. European landscape transformations: the rural residue. In: Groth, P., Bressi, T.W. (Eds.), Understanding Ordinary Landscapes. Yale University Press, New Haven, CT, pp. 180–188.

Lucy, W., Philips, D., 1997. The post-suburban era comes to Richmond: city decline, suburban transition and exurban growth. Lands. Urban Plan. 36, 259–275.

Lynch, K., 1973. What Time Is This Place? MIT Press, Cambridge, Massachusetts, London.

Meeus, J.H.A., Wijermans, M.P., Vroom, M.J., 1990. Agricultural landscapes in Europe and their transformation. Lands. Urban Plan. 18, 289–352.

Meinig, D.W., 1979. The beholding eye. Ten versions of the same sense. In: Meinig, D.W. (Ed.), Interpretation of Ordinary Landscapes: Geographical Essays. Oxford University Press, Oxford.

Muir, R., 2000. The NEW Reading the Landscape. Fieldwork in Landscape History. University of Exeter Press, Exeter.

Muir, R., 1999. Approaches to Landscape. MacMillan, London.

Nassauer, J.I., 1997. Placing Nature. Culture and Landscape Ecology. Island Press, Washington, DC.

Nitz, H.J., 1992. The temporal and spatial pattern of field reorganisation in Europe (18th and 19th centuries). A comparative view. In: Verhoeve, A., Vervloet, J. (Eds.), The Transformation of the European Rural Landscape: Methodological Issues and

Agrarian Change 1770–1914. Tijdschrift van de Belg.Ver. voor Aardrijkskundige Studies LXI (1), pp. 146–158.

Nohl, W., 2001. Sustainable landscape use and aesthetic perception—preliminary reflections on future landscape aesthetics. Lands. Urban Plan. 54 (1/4), 223–237.

Olwig, K., 2002. Landscape, Nature and the Body Politic: from Britain's Renaissance to America's New World. University of Wisconsin Press, Madison.

Overton, M., 2002. Agricultural Revolution in England 1500–1850. BBCi History, London. Available: http://www.bbc.co.uk.history/society_culture/industrialisation/agricultural_revolution_01.shtml.

Pacione, M., 2001. Urban Geography: A Global Perspective. Routledge, London.

Pedroli, B. (Ed.), 2000. Landscape—our Home. Lebensraum Landschaft. Essays on the Culture of the European Landscape as a Task. Indigo, Zeist–Freies Geistesleben, Stuttgart.

Pinto-Correia T., Cancela d'Abreu A., Oliveira R., 2002. Landscape areas in Portugal—can they be a support for applying indicators? NIJOS/OECD Expert Meeting on Agricultural Landscape. Oslo, Norway, 7–9 October.

Preece, R.A., 1991. Designs on the Landscape. Belhaven Press, London.

Roberts, B., 1987. The Making of the English Village. Longman, London.

Robinson, B., 2001. All Change. BBCi History, London. Available: http://www.bbc.co.uk/history/society_culture/industrialisation/speed_01.html.

Rombaut, E., 2001. Considerations about the urban fringe of an ecopolis. A plea for a Lobe-City. In: European Symposium Open Space Functions Under Urban Pressure. Ghent, 19–21 September 2001, Administratie Land-en Tuinbouw, Brussel.

Sassen, S., 2000. The Global City. Princeton University Press, New York, London, Tokyo.

Somper, C., 2002. Countryside quality counts: tracking changes in England's landscape. NIJOS/OECD Expert Meeting on Agricultural Landscape. Oslo, Norway, 7–9 October.

Sooväli, H., Palang, H., Külvik, M., 2003. The role of rural landscapes in shaping Estonian national identity. In: Unwin, T. (Ed.), European Landscapes: From Mountain to Sea. Proceedings of the Permanent European Conference for the Study of the Rural Landscape, London and Aberystwyth, pp. 114–121.

SPESP, 2000. Study Programme on European Spatial Planning (SPESP). Final Report 31 March 2000. Available: http://www.nordregio.se.

Stanners, D., Bourdeau, Ph. (Eds.), 1995. Europe's Environment. The Dobříš Assessment. European Environment Agency, EC DG XI and Phare, Copenhagen.

Taaffe, E., Gauthier, H., O'Kelly, M., 1996. Geography of Transportation. Prentice-Hall, Englewood Cliffs, NJ.

Tuan, Y.-F., 1990. Topophilia: A Study of Environmental Perception, Attitudes, and Values. Columbia University Press, Columbia.

United Nations Centre for Human Settlement (HABITAT), 1996. An Urbanizing World. Global Report on Human Settlements 1996. Oxford University Press, Oxford.

United Nations Centre for Human Settlement (HABITAT), 2001. Cities in a Globalizing World. Global Report on Human Settlements 2001. Earthscan Publications, London.

Van Eetvelde, V., Antrop, M., 2001. Comparison of the landscape structure of traditional and new landscapes. Some European examples. In: Mander, Ü., Printsmann, A., Palang, H. (Eds.), Development of European Landscapes. Conference Proceedings IALE European Conference 2001, vol. 2. Publicationes Instituti Geographici Universitatis Tartuensis, Tartu, p. 275.

Van Hoorick, G., 2000. Juridische aspecten van het natuurbehoud en de landschapszorg, Intersentia Rechtswetenschappen. Antwerpen–Groningen.

Verhulst, A., 1995. Landschap en Landbouw in Middeleeuws Vlaanderen. Gemeentekrediet, Brussel.

Viles, R.L., Rosier, D.J., 2001. How to use roads in the creation of greenways: case studies in three New Zealand landscapes. Lands. Urban Plan. 55, 15–27.

Vos, W., Klijn, J., 2000. Trends in European landscape development: prospects for a sustainable future. In: Klijn, J., Vos, W. (Eds.), From Landscape Ecology to Landscape Science. Kluwer Academic Publishers, WLO, Wageningen, pp. 13–30.

Wascher, D., Jongman, R. (Eds.), 2000. European Landscapes. Classification, Assessment and Conservation (Technical report, draft). European Environment Agency.

Wascher, D.M. (Ed), 2000. The Face of Europe. European Centre for NATURE CONSERVAtion (Technical report series), Tilburg.

Wrbka T., Szerencsits, E., Reiter, K., 1997. Classification of Austrian cultural landscapes—implications for nature conservation and sustainable development. In: Miklos, L. (Ed.), Sustainable Cultural Landscapes in the Danube-Carpathian Region. Proceedings of the Second International Conference on Culture and Environment. Banska Stiavnica, Slovakia. UNESCO-Chair for Ecological Awareness and Sustainable Development/European Centre for Nature Conservation, pp. 31–41.

Yorke, T., 2001. Tracing the History of Villages. Countryside Books, Newbury.

Zonneveld, I.S., 1995. Land Ecology. SPB Academic Publishing, Amsterdam.

Further reading

The Dornach Landscape Document, 2000. Get Connected To Your Place! Discussion Document of the International Conference The Culture of the European Landscape as a Task. Dornach, Switzerland.