Landscape research in Belgium

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La recherche sur les paysages en Belgique

Marc Antrop, Veerle Van Eetvelde, Dimitry Belayew, Emilie Droeven, Magali Kummert and Claude Feltz

Fields of landscape research
From basic science towards applications

1 In Belgium, the study of the landscape started with regional monographs by geographers and historians who followed the French tradition of Vidal de la Blache. In fact, the French geographer Blanchard, published in 1906 dealing with Flanders, made the first leading monograph. This resulted in many regional studies where landscape was an important topic (Tulippe, 1942; Christians, 1960, 1961; Snacken, 1961; Brulard, 1962; Daels and Verhoeve, 1979; Knaepen, 1995), as well as local case studies in historical geography (Verhulst, 1965; Verhoeve and Larnoe, 1988). Characteristic was the intimate integration between history, landscape genesis and physical geography, including soil science and geology (Snacken et al., 1975). Some more specific research followed also the general West-European tradition of the study of rural landscapes (Christians, 1982) and focusing upon specific themes in the landscape such as field patterns and hedgerows (Petit, 1942; Dussart, 1961), settlement patterns (Van der Haegen et al., 1982; Lefèvre, 1964; Dussart, 1957) or land use (Van der Haegen, 1982). Air photo-interpretation became also an important tool, not only for mapping (Wilmet, 1970), but also for landscape analysis (Larnoe et al., 1988; Daels, Verhoeve and Antrop, 1989) and archaeological prospecting (Daels et al., 1982; Ampe et al., 1996). The historical approach to landscape evolution is given by Verhulst (1965, 1990, 1995).

2 With the new orientation in geography in the 1970s and 1980s landscape research became marginal. Whereas few geographers joined the revived landscape ecology (Zonneveld, 2000), landscape became an interesting subject for many disciplines. A lot of interesting research emerged in ecology, agronomy, forestry and planning (Gulinck and Wagendorp,
Gulinck, 2001; Froment, 1999; Hermy & De Blust, 1997; Tack et al., 1993; Gysels et al., 1993; Froment et al., 1992; Oncklincx et al., 1987; Neuray, 1982; Van Hecke et al., 1981). This interest was closely related to the early concerns for nature conservation (Massart, 1912).

Last, the interest for the new urbanized landscapes is recent (Antrop, 1994, 2004).

Recent projects and studies dealing with landscape are more focussed upon applied research and policy supporting. This shift from basic scientific research to applications is strongly stimulated by funding possibilities.

**Geography and landscape science in a federal state**

Gradually, Belgium became a federal state with three regions (Flanders, Wallonia and Brussels-Capital) and three communities (Flemish, French and German-speaking). Policy in different aspects was decentralised accordingly. Spatial and urban planning, environmental planning, agriculture, nature conservation, protection of monuments, sites and landscapes became the responsibilities of the regions and communities.

The consequences for a comprehensive study of the Belgian landscapes are important. First, the natural landscape gradients (soils, geology, and relief) in Belgium are almost all west-east oriented zones varying from the north to the south. The hydrological system is completely oriented from south to north. The political borders divide the whole of this natural pattern. The results are differences in policy, legislation, data collection and monitoring. Second, most research is nowadays funded on an international (European) or regional basis, not on a federal or interregional one.

The gradual process of federalization of the Belgian State stimulated this split and led to different approaches in the Flemish and Walloon region (Daels and Verhoeve, 1979; Antrop et al., 1985; Schreurs, 1986; Christians, 1987). Publications dealing with the landscapes of Belgium as a whole are becoming rare. The synthesis about Belgian geography made by Christians and Daels (1988) describes landscapes as one characteristic of the geographical regions, although a separate chapter in the bibliography is devoted to landscapes. In the major work about the geography of Belgium (Denis, 1992) no chapter is devoted to landscape; reference to landscapes are only found indirectly in the chapter of the rural areas or regions (Christians et al., 1992). The bibliographic inventories made for I.G.U. congresses (Denis, 1996) do not have a chapter or index entry to landscape research at all. References about landscape studies should be looked for in the chapter of agriculture and rural development. This clearly shows the reduction of the broad meaning of landscape in the thinking of many Belgian geographers at the end of the 20th century.

Only at the University of Ghent a core of landscape researchers remained. Their work is characterised by a regional synthetic approach on an interdisciplinary basis (Snacken, 1981). Much of the work is interdisciplinary, joining (regional) geographers, archaeologists, historians, soil scientists and (landscape) ecologists in common projects.

In the Walloon Region, landscape research focused upon the rural landscape through agrarian structure and settlement forms (Christians, 1964, 1987) as well as through architecture (Genicot, 1984-1992; Demeuldre, nd). In the 1990s, the interest for environmental issues concerning the landscape component increased, also through the publication of a compendium of the actions and knowledge about landscape in the
Walloon Region in the *Etat de l'environnement wallon* (Ministère de la Région Wallonne, 1997). This synthesis tackled the question of urban landscape.

**Disciplines involved**

Table 1 gives an overview of institutions and organisations in Belgium dealing with several fields of landscape research.

**Table 1. Institutions in landscape research and study fields.**

<table>
<thead>
<tr>
<th>Institution/organisation</th>
<th>Fields of landscape research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory for forest, nature and landscape research, department of landscape management, belgian forestry and rural development agency</td>
<td>Landscape science, landscape genetics, landscape ecology, biodiversity conservation, and environmental planning and impact assessment</td>
</tr>
<tr>
<td>Department of Geography, University of Liège, section for 'Land use and planning' / Department of biogeography, section for soil and economic geography</td>
<td>Geomorphology and regional geography, global change and landscape evolution, IUCN for environmental modeling, agricultural biodiversity and land development</td>
</tr>
<tr>
<td>Department of Geography, University of Liège</td>
<td>Commercial and rural assessment, Human ecology</td>
</tr>
<tr>
<td>National institute for agricultural research</td>
<td>Military of Agriculture and Food</td>
</tr>
<tr>
<td>Department of Environment and landscape, Belgian government</td>
<td>Monitoring and protection of monuments, sites and landscapes</td>
</tr>
<tr>
<td>Laboratory for natural resources (LBNR)</td>
<td>Land development, Land consolidation</td>
</tr>
<tr>
<td>Institute for nature conservation</td>
<td>Nature, natural development and ecology, Hydrology, natural infrastructure and ecological engineering, landscape ecology</td>
</tr>
<tr>
<td>Institute for nature and game management</td>
<td>Forestry and forest conservation and control, Forest ecology, management and protection, Game management, sustainable use of nature</td>
</tr>
<tr>
<td>Department of environment, national park agency</td>
<td>Archaeological survey and surveying</td>
</tr>
<tr>
<td>National forest and landscape agency</td>
<td>Environmental quality, planning and coastal management</td>
</tr>
<tr>
<td>National institute for Environment Management</td>
<td>Green areas, garrigue and pastures, Hydroeclimatic and hydrological risk management, forest fire management, natural resources, soil erosion</td>
</tr>
</tbody>
</table>
Landscape types and regions

A small country but a high diversity of landscapes supporting a wide variety of changes

The regional and landscape diversity is very large in the small geographic territory of Belgium (Christians & Daels, 1988; Antrop, 1994, 1996). This is explained by its physical structure, which is very varied and which is amplified by very diverse cultural influences during a long history (table 2). Belgium, which is sometimes described as the battlefield of Europe, was created as a buffer state in 1830. The physical structure gives the basis for the classification of geographical regions and of the traditional landscapes (Antrop, 1997; Christians and Daels, 1988).
In a densely populated and highly industrialised country, the pressures upon the geographical space are high and the changes are rapid. Actually, the landscapes in Belgium show a wide variety of changes due to urbanisation and fragmentation by transport infrastructures. In fact, the development of railway, that already started in 1835 (Van der Haegen, 1992), meant the opening of the countryside and initiated the first important transformations of the rural landscapes, in particular near the disclosed places. The Belgian situation illustrates very well the difficulty to distinguish urban and rural landscapes. The Global Report on Human Settlements (United Nations Centre for Human Settlement (HABITAT), 1996) gives for Belgium the misleading number of 97% of urban population in 1995. In the most urbanised part, i.e. the region of Flanders, the average population density was about 431 inhabitants per square kilometre in 1993, while the uplands of the Ardennes in southern Belgium face average densities of 40 inhabitants per square kilometre (Van Hecke & Dickens, 1994; Ministère de la Région Wallonne, 1998). The urban fringes occupy vast areas. The urbanisation of the countryside occurs in many different forms and is the most important factor in the transformation of the landscapes of Belgium (Antrop, 1994, 1998).

**Taking care of the landscape**

In the 19th century the new state of Belgium followed the international trend of protecting areas for their natural and esthetical quality (Van Hoorick, 1999). This resulted in laws concerning the protection and listing of monuments and landscapes. Landscapes could be protected for their “scientific, cultural-historical and esthetical value of national importance”. After the federalisation of the Belgian State, protection of the landscape became the responsibility of the Regions. Today, the three regions of Belgium have their
own legislation. Gradually, objectives, interests and legislation about nature conservation and landscape protection diverged, not only between the federal regions but also within each one.

14 In Flanders for example, visions about the landscape are found in the legislation for landscape protection, but also in the ones concerning nature conservation and spatial planning. Although the different policies focus upon different aspects of the landscape, they are not always concerted and make an integrated holistic approach of the landscape management difficult.

15 In Wallonia, no specific legislation exists but several landscape management tools are available, such as the Plan de secteur and the Schéma de structure communal for the regional and local land management. Since 1985, building in rural areas is regulated by the Règlement général sur les Bâtisses en Site rural.

16 However, in Belgium, there is a growing interest in grouping and organising the many local thematic initiatives for the protection of the cultural heritage in the landscape.

17 In 1996, a survey started to map the relics of the traditional landscapes in Flanders, based upon the orthophotomaps of 1990 (Antrop & Van Nuffel, 1997; Antrop, 2001). For each province, an atlas was created with maps at a scale of 1/50,000. These indicated the cultural and esthetical relics that were complementary to the natural ones already mapped in the Biological Valuation map (De Blust et al., 1985). Relics are not classified according to their age or nature, but to their spatial properties. Thus, relic zones, anchor places, lines, points and views are distinguished and mapped in a GIS linked to a relational database. The finalisation of this atlas was achieved in 2000. For the first time it gives a complete coverage of remaining landscape values in the highly urbanised and fragmented Flemish landscape (see Hofkens & Roosens, 2001). The atlases will be used intensively for further landscape protection, spatial and environmental planning and environmental impact assessment.

18 In the Wallonia, Neuray’s work (1982) was fundamental for an integrated and multidisciplinary approach in landscape evaluation. His work introduced the evaluation of sites prior to land reallocation. It also formed the basis for the guidelines for the architecture of new agricultural buildings (Ministère de la Région Wallonne, 2001). To promote active protection of sites and heritage values in the countryside several associations were created, such as Qualité Village Wallonie and Fondation rurale de Wallonie.

19 In 2000, the government of the Walloon Region installed the Conférence Permanente du Développement Territorial, which was given the task to make the inventory of Walloon landscapes according to the European Landscape Convention (Council of Europe, 2000). This resulted in the map of the Territoires Paysagers, mainly based on physical structures and land cover and aims to characterise the different landscapes at a scale of 1/50,000. This work was finalised in 2003 and gives a basis for further work on identification of heritage landscapes (Feltz et al., 2004).

**Landscapes of Flanders and Wallonia**

20 In Flanders and Wallonia a different typology and classification of the landscapes is used. In Flanders the traditional landscapes form the main framework (Figure 1). They represent the landscapes based upon natural conditions and cultural-historical aspects before the great changes that started in the 18th century. In Wallonia, landscape
territories (*territoires paysagers*) are used, which are based upon ensembles defined by physical-geographical properties and the actual land use forming scenic units (Figure 2).

Figure 1. Traditional landscapes of the Flanders Region.

![Figure 1](image)


Figure 2. *Territoires paysagers* of Wallonia.
Issues of environmental and spatial planning and monitoring

22 Care for the landscape is explicitly mentioned in the spatial and environmental planning policies of the different regions of Belgium. Because of the different geographical conditions and because of differences in policy and legislation, the approach to landscape management is different too (Van den Bergh, 1999).

23 In Flanders, policy rules related to the landscape are found in both spatial (Ruimtelijk Structuurplan Vlaanderen – RSV) and environmental (Mina-plan2) planning. Both plans explicitly refer to landscape in different aspects. The "quality of space", which implies environmental quality as well as spatial organisation and physical planning, is considered insufficient and should be improved. It is believed that a structural change will improve many functional aspects. Considering the landscape, spatial planning focuses on the conservation of the remnants of undisturbed traditional landscapes and on the intensification of recognisable and legible structural relief forms and transitions between different landscape types and regions. Also, the perceptive meaning of visual landmarks in structuring space is considered important as well as the making of buffer corridors of open space between urban zones. The main problems are defined by the important suburbanisation and the high-density transportation infrastructure, both causing severe fragmentation of the countryside with important losses or degradation of both natural and cultural values of the landscape. The rapid homogenisation of the landscapes is recognised, as well as the loss of identity and diversity of natural, ecological and cultural values. Therefore, surveys and inventories of landscapes and environmental qualities are considered of high importance. Also, the setting up of integrated monitoring systems is considered.
In the Walloon region, the spatial planning policy is based upon the Code Wallon de l’Aménagement du Territoire, de l’Urbanisme et du Patrimoine (CWATUP) and realised by a spatial master plan called Schéma de Développement de l’Espace Régional (SDER). Development means the improvement of the quality of living. The Walloon territory is seen as “a collective heritage for its inhabitants”. Urban and rural landscapes are both considered and valued for having a great diversity, which is important for the environmental quality and for cultural and territorial identity. Degraded landscapes are considered as negative for the image of the Walloon region. Urbanisation processes also affect towns and village fringes and the continuing development of transportation infrastructures causes fragmentation of the countryside.

Future landscapes and landscape research

The change of the Belgian landscapes in the future is likely to be conditioned mostly by changing mobility patterns and accessibility of places. It is likely that edge cities will continue to develop in the highly urbanized areas and at the best time-accessible places. In the countryside functional changes will be more likely than important morphological changes in housing and land use. Uncertain is the effect of the changing EU CAP, in particular in the intensive agricultural areas. Non-ground bound agriculture is likely to develop further.

Landscape research will be more policy-oriented. The sources of funding indicate that less fundamental than applied research will develop in close relationship to spatial and urban planning. Also, a synthesis of Belgium is needed in the international context. A landscape character typology for the whole of the country will be published in the new National atlas.

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ABSTRACTS

In the federal state Belgium, landscape research evolved from regional geographical monographs to more applied research that focuses upon the specific problems in each of the regions. In the highly urbanized Flanders region in the north, aspects of suburbanization and fragmentation are the most important. Landscape research involves geographers, historians, archaeologists, agronomists, foresters, ecologists and nature conservationists all dealing with specific goals and tasks. The integration is mainly achieved in spatial planning. In the Walloon region large areas are still rural and have a large forest cover, while urbanized zones are rather concentrated. Landscape research focuses here mainly upon the rural involving geographers, agronomists and planners. The natural and scenic aspects of the landscape dominate and the study of the historical development of the landscape is less pronounced. In Brussels Capital region little attention is given to landscape aspects, as social and typical urban problems dominate. Consequently, different landscape typologies are used in Belgium.

INDEX

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**Mots-clés**: Belgique, Région flamande, Région wallonne, paysage
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