



Trends in European landscapes and their challenges to landscape policies

Landscape policies of European countries have often focused on preserving arcadic cultural landscapes, resulting in a network of protected areas. This asset needs to be managed wisely but complemented by dynamic landscapes capable of accommodating the needs of a mobile society, adapting to climate change and serving the energy transition. Consequently, landscape policies ought to be a mainstreaming effort of many more policy sectors than is the case today, so that the landscape can be significantly shaped for the better.

The aim of this paper is to identify challenges for landscape policies in Europe based on selected landscape development trends. The topics highlighted here are not the frequently mentioned, well-known challenges in those policy fields traditionally concerned with landscape, such as agriculture, nature protection, heritage, tourism and forestry. Instead, some less prominent but not less important cross-cutting challenges are presented where landscapes play a crucial role for people's well-being in our modern societies. Well-recognised major trends, such as the intensification of agriculture or food security, are definitely not downplayed, as these constitute critical problems, especially for soils and groundwater. Yet for these problems, the approaches to solving them are absolutely clear and already recognised in European environmental policy, while the challenges outlined here are often recognised as central landscape-related problems, but – as they touch on several policy areas – are often procrastinated.

Four challenges

As a globally unique entity, the European Landscape Convention (ELC) could reduce this procrastination and work across policies to solve the four challenges highlighted in the article:

1. Provision of sufficiently low-intensity-use habitats and rewilding areas to allow safe transition of biota to new climate conditions.

2. Replacement of fossil fuels with renewable energy sources with a good landscape-technology fit.
3. Provision of landscapes that enable an increasingly mobile society to establish bonding with new places.
4. Provision of sufficiently dynamic landscapes to accommodate the increasingly individualistic lifestyles of the European population.

1. Provision of sufficiently low-intensity-use habitats and rewilding areas to allow safe transition of biota to new climate conditions
For a long time, landscape segregation (i.e. on the one hand, reduction of land use intensity or abandonment on marginal or upland areas and on the other hand, development of high-intensity use of prime sites) has been viewed as problematic for landscape development (Price *et al.*, 2015; Plieninger *et al.*, 2016). Indeed, the one pole of this development – abandonment – has shown many adverse effects, e.g. higher biomass accumulation, favouring extreme events such as a fire but also debris flows (Perpina *et al.*, 2018). Abandoned land is also a reason for many geomorphic disturbances, as terracing gets abandoned or soil protection measures are no longer in effect (Khanal & Watanabe, 2006). Abandoned land also changes the visual landscape considerably, as bushes or trees and – where climatically possible – secondary forests alter the landscape's character

ELC
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rewilding
lifestyle

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(Hunziker *et al.*, 2008). While solutions for combating the adverse effects of intensification have been actively developed, such as sustainable farming techniques, ecological compensation areas or ecological pest control, there is hardly any European concept that proactively integrates abandoned areas into a spatial pan-European biodiversity concept. This gap is all the more serious as climate change increases the need for transition areas and stepping stones to facilitate species migration (Navarro & Pereira, 2012). Natura 2000 sites could constitute some of these transition areas. However, 15-30% of protected terrestrial Natura2000 sites outside the alpine and boreal zone are located in the vicinity of bigger urban complexes, as indicated by higher levels of light pollution (Hügli, 2021). These Natura2000 sites are likely to be strongly influenced or degraded by growing cities, light and terrestrial pollution and – at least in the case of wetlands – water scarcity. Thus, alternative sites, preferably in marginal areas with less human pressure, are urgently needed to allow for the safe transition of biota in the context of climate change (Navarro & Pereira, 2012; Ceaușu *et al.*, 2015; Pedrolí *et al.*, 2020). EEA (2010, p. 199) has modelled such sites with the aid of a geographic information system (GIS) and comes to the conclusion that – on a pan-European scale - not only pristine high-elevation areas but also marginal farmland areas all across Europe would contribute considerably to a network of low-intensity-use habitats and rewilding areas. It is estimated that in the EU and UK, roughly a quarter of current arable land is at a moderate to high risk of being abandoned, resulting in a projected abandonment rate of 0.373 Mha/year (Perpiña Castillo *et al.*, 2018, 2021). This land, well distributed

throughout Europe's biogeographical zones, may potentially be used as biodiversity refuges. But that is not all. Thanks to digitalisation, these areas might become attractive pilot regions where decentralised living could be explored (see Challenge 4 of this article). Admittedly, this view is characteristic of an urban elite, as shown in a Swiss study by Hunziker *et al.* (2008) that assessed abandonment in mountainous regions. Clear group-specific preference patterns were found: while tourists and the indirectly affected – primarily urban and peri-urban – population interpret abandonment as a welcome step towards a wilder landscape and embrace this development, local populations have a more negative attitude, especially because they see food production and the basis of livelihoods being endangered. Therefore, the process of designating areas as a refuge or reserve is a delicate political matter, as many referendums or petitions in Europe have shown. In many cases, emotional drivers, lack of participation, differing perceptions and a lack of trust between local populations and regional governments over securing payments for ecosystem services have caused projects to fail (e.g. Stoll-Kleemann, 2001; Gerber, 2018; Stern, 2008), despite a good chance of generating income in emerging niches (e.g. in ecotourism, alternative product markets and biodiversity conservation). Thus multiple EU policies, such as CAP, environment or tourism, should develop a common vision to establish a pan-European network of ecological migration zones for plant and bird species that is ecologically sound and - at the same time - improves the economic living conditions of the local population.

2. Replacement of fossil energies with renewable energy sources with a good landscape-technology fit

Energy transition and decarbonisation are big challenges for landscape policies. While the good intention, i.e. sustainable energy, is very welcome, large recurring wind farms and photovoltaic (PV) panels on open fields bear the risk of homogenising European landscapes (Wiehe *et al.*, 2021; Kienast *et al.*, 2017). This risk can be reduced if land use management succeeds in developing energy landscapes that have a good place-technology fit (Salak *et al.*, 2021; De Jong & Stremke, 2020; Spielhofer *et al.*, 2021). Such “energy landscapes” are not an entirely new phenomenon and existed in the precursors of today's cultural landscapes. Charcoal burners, windmills, small hydroelectric power plants and small dams were characteristic elements with clear symbolic content (Jones, 2009). But in the last 50 to 100 years, most of these symbols of energy production have disappeared and, along with them, their values. As our dependence on traditional energy sources has changed, some typical landscape elements of energy production (wind, small hydropower and wood) have been making their way back into the landscape – bigger, on a larger scale and less regionally adapted. Some of the meanings attached to these energy systems might still be around and be the same, while others have yet to be created (De Jong & Stremke, 2020).

Photovoltaics (PV) on roofs are not as critical for the visual landscape as wind farms, except if applied in badly designed mass constructions. PV on buildings with heritage value and open-field installations are more problematic from the point of view of aesthetics, flora, fauna, (soil) ecology and food production

(Kienast *et al.*, 2017). As far as food production is concerned, systems will soon appear on the market that do not exclude agricultural use but instead seek synergy with a number of agricultural products, resulting in greater overall land use efficiency (Touil *et al.*, 2021; Trommsdorff *et al.*, 2021).

As we have seen over the last 10 years, the successful introduction of renewable energy – at least in countries where the population traditionally makes its opinions known in local referendums – is not so much a question of technical possibilities as a question of assigning positive meanings to newly emerging energy landscape types (Devine-Wright & Wiersma, 2020). There is some research on this topic, particularly from studies focusing on the siting of major energy facilities, such as wind farms or large high-voltage transmission lines. Research shows that the significance and connotations of these facilities (e.g., as highly visible signs of sustainable resource use) largely determine whether they are accepted and welcomed or rejected by residents (Devine-Wright & Wiersma, 2020; Salak *et al.*, 2022; Stober *et al.*, 2021). Despite a good landscape-technology fit, energy landscapes might become highly functional as traditional elements are removed, historic legibility is reduced and small-scale structural landscape features are eliminated for the sake of cost-effectiveness (Le Dû-Blayo, 2011). Although surveys of such functional everyday landscapes demonstrate that, despite their ordinariness, they can be meaningful places for local people to enjoy, it is essential to improve their quality, both ecologically and for recreation (De Valck *et al.*, 2017; Komossa *et al.*, 2020). Conversion of these landscapes into energy landscapes requires legally binding agreements between energy sector

companies, developers and local or regional governments to ensure compensatory measures to improve the landscape quality of these areas. This is not a demand of fundamentalists in landscape protection but a must for culturally and ecologically vital European landscapes. As convincingly demonstrated by the attention restoration theory of Kaplan & Kaplan (1989), landscapes which offer a restorative environment, e.g. give people a feeling of fascination and being away, are the best to fight “mental fatigue”. It has been empirically proven that most people find water, vistas, highly textured landscapes and forests appealing and experiential (Kienast *et al.*, 2012; Komossa *et al.*, 2020). Thus, enriching functional landscapes with these elements would improve their quality considerably. It is important to clarify that we are not striving for perfection but rather for small improvements that can be significant to residents and hotspots for recreational use. Studies have shown that small enhancement measures in functional landscapes can have a proportionally greater effect in terms of perceived attractiveness than expensive restoration measures in high-quality landscapes (Santoleri *et al.*, 2021).

3. Provision of landscapes that enable an increasingly mobile society to establish bonding with new places

Landscapes are key determinants for place attachment and identity building. Megatrends such as global decoupling of capital (land) from people, global accessibility to places and global communication technology generate mobile societies with very specific landscape needs (Gustafson, 2009; Kienast *et al.*, 2007). In addition to voluntary migrants, increasing

numbers of forced migrants (due to war, poverty and climate change) are expected to permanently settle in landscapes that they have not selected voluntarily (Peters *et al.*, 2016). The literature shows that leaving traces in a landscape and the duration of presence at a specific location are undisputed and well-known drivers of place attachment (Buchecker, 2009; Manzo & Perkins, 2006; Rishbeth & Powell, 2013; Stedman, 2003). For highly mobile societies, we may therefore assume that attachment to such places is small, as mobile people do not live at a specific location for very long and live primarily in urban and suburban landscapes where there are fewer opportunities to actively shape the landscape. But is this really the case, or do such population groups use alternative forms of linking to a place? Recently published work in the field of place attachment and mobility (Di Masso *et al.*, 2019; Bazrafshan *et al.*, 2021) convincingly illustrates that these two major drivers (leaving traces and duration of presence) are indeed important in the process of developing place attachment for one place. However, the authors emphasise that bonding to many places – even geographically disconnected ones – can exist and be mutually reinforcing in mobile societies. In their fixity-flow concept, Di Masso *et al.* (2019) propose two extreme poles in between which highly mobile groups establish place attachment: (a) the “fixity” pole, where place attachment is exclusively oriented towards a few fixed locations, and moving is experienced as a complete disruption with a “root shock” (Fullilove, 2001); and (b) the “flow” pole, which describes a maximum degree of territorial disconnection, such as is experienced in virtual environments. A salient mode along the gradient from “fixity” to “flow” is the mode in which multiple – physically unconnected – places be-



Figure 1 Physical landscape structures can stimulate childhood memories that connect places and help migrants to find normality in a new place (Bazrafshan *et al.*, 2021; DiMasso *et al.*, 2019; Rishbeth & Powell, 2013). Left: Persian Garden in Iran; right: public park with mansion in Switzerland.

come interconnected and contribute to self-continuity when the physical and social characteristics of two or more places fit the value systems of a person or group. This mode is important, for example, for refugees who have limited ability to return to their place of origin. This case was empirically studied by Bazrafshan *et al.* (2021) in a study in Iran. Refugee migrants (Afghans) in Iran were taken to historic parks (Persian Gardens) with abundant traditional and historical elements and were interviewed about their ability to establish a bond with these urban green areas. Although the migrants were unfamiliar with the meanings and shared values of the Persian Gardens, visiting these parks (i.e. seeing specific landscape elements) triggered memories enabling them to view the place of origin and the place of relocation as interconnected places that offered different, yet compatible, experiences. Such an approach, confirming the place-referent continuity theory (Twigger-Ross & Uzzell, 1996), could help reduce the disruption caused by moving to a new place (figure 1).

To sum up, the ongoing mobility in Europe and globally raises unsolved questions for both theory and the practice of landscape stewardship (Penker *et al.*, 2013). Will there be active discourse on landscape meanings between increasingly mobile landscape users and (long-stay) providers? Who will assign meanings to landscapes in a highly mobile society? Will there be active participation and self-organisation, and are planning agencies aware of the needs of migrants?

4. Provision of sufficiently dynamic landscapes to accommodate the increasingly individualistic lifestyles of the European population

Landscape management in Europe has long sought to protect particularly authentic, beautiful cultural landscapes. The result is clear to see: many European countries have established a network of nature protection areas, landscape parks or regional cultural landscapes (EEA, 2012). These networks of protected areas must be preserved and defended against mostly neoliberal

deregulatory tendencies. However, this exceptional and unique asset in Europe can only be defended if it is not disconnected from the dynamically changing lifestyles of the population, i.e. if it does not become a network of museum landscapes but represents the everyday activities of inhabitants (Pedroli *et al.*, 2006; Barbanente & Grassini, 2022). Of course, one can argue that cultural landscapes have always developed slowly, lagging behind changing lifestyles and accommodating only the dominant influences. But this image of the slowly evolving traditional cultural landscape comes from a time when there was much less mobility and less dynamically changing lifestyles and product demands. The timing is opportune given the growing debate (and, ultimately, growing number of sensitised customers!) about trends such as vegan diets vs. meat consumption, air travel vs. lower-carbon travel, and local and regional vs. global products (Loy *et al.*, 2021; Van den Berg & Wintjes, 2000; Risku-Norja *et al.*, 2008). Landscape management should take advantage of this dynamic by the following means:

- Providing sufficient unregulated, unprotected landscapes to allow for experimental spaces and broad discourses about new lifestyles and associated products. This should facilitate entrepreneurship in businesses that promote sustainable products and sustainable use of the landscape. It is important to note that Europe needs to foster this type of entrepreneurship to stay ahead of emerging experimental spaces elsewhere.
- Leveraging the increasing digitalisation and encouraging sustainable lifestyles among the younger generation to fight museum-like protected areas. For example, thanks to today's level of digitalisation, mobility and futuristic

robotics technology, it is easier to live a modern life in decentralised places, with side jobs in, for example, speciality agriculture or a technical field, and thus contribute to an economically viable region with cultural landscapes that are oriented towards people's needs and therefore do not become museums.

Calls for landscape policies

Based on the four challenges previously mentioned, we can formulate a number of demands for modern landscape policy. A rather obvious claim is mainstreaming of the landscape notion, i.e. that landscape must play an important role as a cross-cutting issue in all policy areas that deal – even marginally – with the landscape (Kienast *et al.*, 2021). The latter is important as many policy sectors are not even aware of how much they are involved in landscape issues (e.g. the construction industry) or how much they benefit from the landscape (e.g. healthcare). Thus, the landscape is no longer just an exclusive issue for a few policy sectors that traditionally deal with landscapes, such as agriculture, nature protection, heritage, forestry, urban planning, tourism and education. A major challenge is to bring the following policy areas on board:

- Public health because of the known benefits of landscapes for humans.
- Water management (both drainage and irrigation), because this is a basic driver of safe and productive land use and landscape development.
- Public transportation because this governs, to a large extent, whether landscapes are fragmented, disconnected, accessible, etc.
- Energy planning because the landscape issue is by far the most prominent factor in the acceptance of

or objections to new energy installations.

- Construction companies because the impact of buildings and infrastructures is tremendously important for contemporary landscapes in urban and peri-urban areas.
- Real estate companies because they drive landscape development with the prices they set and the investment choices they make.

In relation to the four main trends described in this paper, we see the following challenges for landscape policy:

- Creation of the most resilient landscapes possible, capable of mitigating climate change and providing highly heterogeneous areas with low human influence (both in terms of infrastructure and land use).
- Implementation of the “payment for ecosystem services” approach in low human influence areas and creation of space for experimentation (in these areas), where both new conservation approaches and new lifestyles can be explored and tested for sustainability.
- Creation of energy landscapes as new landscape character areas, which carry the meaning of sustainability and geopolitical independence for the population.
- Negotiation of a good place-technology fit and compensation agreements with major power plant

operators and developers so that functional energy landscapes can be enhanced ecologically and for recreation.

- Establishment of guidelines on how to enhance the integrative potential of landscapes through planning and economic incentives, as well as through the principles of participation and self-organisation.
- Preservation and development of authentic landscapes that are rich in history but avoid becoming museum landscapes; landscapes that do not exclude people from other cultures; landscapes where there is room for emerging lifestyles.

In conclusion, to be successful, future landscape development must create experimental spaces in people's minds where trying out creative ideas and creating authentic spaces is central. Citizen initiatives are needed as well as, for example, collaboration with the arts or with landscape photography and (landscape) architecture. This is not a departure from the traditional fulfilment of conservation concepts but an additional innovative task. With visionary foresight, the ELC addressed this task early on by propagating Landscape Observatories, appropriate tools for a vivid landscape design. In parallel to its quasi-parliamentary work, the ELC would do well to further strengthen the idea of the observatories.

Summary

This paper identifies four challenges for European landscape policy. They are deliberately not mainstream trends as found in classical landscape conservation po-

licy, but cross-cutting issues requiring concerted action by many policy areas. The first challenge is to create habitats with sufficiently low-intensity use and rewil-

ding areas to allow biota to safely adapt to the new climate conditions. Abandoned areas could well fit this role as they cover all biogeographic zones. The second challenge for European landscapes is the replacement of fossil fuels with new renewables that fit well into the landscape. It is argued that the energy transition will succeed if the population perceives the energy facilities as sustainability symbols that create landscapes with valuable landscape characters. The third and

fourth challenges are to create landscapes that reflect sustainable lifestyles and are able to accommodate an increasingly mobile society. Landscapes should provide places that allow a multi-ethnic society, including forced migrants, to form bonds easily and thoroughly. Based on the four challenges, it is suggested that the mainstreaming of the concept “landscape” is decisive, as it involves many more policies than today, even policies that deal with landscape only marginally.

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