

# Future Landscapes

## Introduction

By common consent, we are nearing the point of no return in relation to the climate emergency and biodiversity crisis. However, multiple agencies and organisations, whether these be central and local government, the development industry or professional bodies, are siloed with each seeking its own solutions and potentially limiting meaningful and urgently needed progress.

The landscape is the canvas on which all change happens. It provides the habitats and resources upon which nature depends and is the repository of the natural capital that underpins our economy, livelihoods, health and well-being. It is also a record of our culture over millennia and defines our sense of place and identity.

It is the landscape which will deliver the solutions to the problems we face. Therefore, to be effective, and acceptable, design and decision-making around all forms of change and development must be rooted in an understanding of the landscape; how it evolved, how it functions, and how it is perceived and valued by people. Furthermore, understanding how it can be predicted to change in the future will ensure that change is sustainable and the landscapes we create are resilient and adaptable.

It is now more than twenty years since 'Landscape Character Assessment Guidance for England and Scotland' (2002) was published, and approaching a decade since Natural England published the 'An Approach to Landscape Character Assessment'<sup>1</sup>, which was intended, at least in part, to "...generate discussion and encourage methods, techniques and skills relating to Landscape Character Assessment evolve." The LCA Approach document was successful in its endeavour to capture the most important and relevant information for practitioners – including the 'landscape wheel', assessment hierarchy, five key principles for assessment, and the fundamentals of the assessment process. However, when compared to the 2002 Approach document and companion Topic Papers, the slimmed-down version lacked information on evaluation and application which was considered by many to be of benefit to the landscape practitioner, as well as other professionals working in the landscape and land management sector.

Since 2014 there have been significant technical advances in how environmental data is assembled and interrogated. There is also an increased focus on environmental outcomes, growing pressure on the landscape arising from a range of forces for change, and new and emerging attitudes to how landscape is valued. People also now consume and apply information very differently.

It is therefore timely for LCA guidance to be reviewed to make it fit for the future and the challenges we face.<sup>2</sup> This provides the opportunity to promote and embed the use of LCA evidence in decision-making and provides the impetus for a renewed focus on 'landscape' as an integrating approach, and as a spatial framework for managing change and assisting in tackling the challenges we face.

Natural England is taking a collaborative approach to the update, engaging with all those with an interest in landscapes and the changes happening as a consequence of the pressures on

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<sup>1</sup> An approach to landscape character assessment, 2014 Natural England, Ref NE579

<sup>2</sup> Introduction prepared by Ian Houlston, LDA

this finite resource. To stimulate interest among stakeholders contributing to the update, Natural England commissioned LUC to write a scene-setting document to provoke debate about our future landscapes. The paper draws together work by Ian Houlston, Director at LDA Design and Mel Croll, Landscape Officer at Devon County Council who were invited by Natural England to contribute their thoughts to widen the topic. It also draws on the experience of other members of the Project Advisory Group, specifically comments by Carys Swanwick and Lyndis Cole.

## Our core challenge

“Our landscapes have evolved over time, and they will continue to evolve – change is a constant, but outcomes vary. The management of change is essential to ensure that we achieve sustainable outcomes – social, environmental and economic... The process of Landscape Character Assessment has an important role to play in managing and guiding change.” **[An Approach to Landscape Character Assessment 2014]**.

The global climate and biodiversity crises are having and will continue to have a fundamental impact on the future character of the landscape of the UK and its characteristic natural and cultural features. These impacts are often devastating, with extensive flooding across our lowland landscapes resulting in the erosion of riverbanks and destruction of riverine habitats, or extreme weather and disease resulting in the loss of our native woodlands. For instance, ash dieback is likely to kill up to 80% of the UK's ash trees, and in 2021 storms destroyed 12,000 hectares of forest in Britain<sup>3</sup>.

The landscape is changing as a result of our attempts to slow and adapt to climate change and reverse the biodiversity crisis. Many of these changes have the potential to significantly enhance the landscape if provided in the right place and at the right scale, such as the expansion of woodland in attempts to increase carbon storage, or the restoration of hedgerows to reverse species decline, slow overland water flows, prevent soil erosion and sequester and store carbon. Other responses such as the development of renewable technologies for wind, wave, and solar energy and the associated need for battery storage and grid infrastructure introduce development into our landscapes that requires careful planning and integration within the landscape context with appropriate mitigation responses.

Within the UK, in addition to climate change, our increasing population and the consequent demand for homes and infrastructure, or agricultural change due to the need for future food security, will also have a fundamental impact on the future character of our landscapes.

At the same time what we value about our landscapes evolves and will continue to change over the coming years. For example, society is moving towards valuing landscapes for what they provide in terms of the ecosystem goods and services that flow from natural capital assets.

Now is the time to think strategically about the future of our landscape and what we want it to provide. The holistic understanding of time depth, existing character, important attributes and features and the effects of change offered by the Landscape Character Assessment (LCA) process means that it has a key role in helping to manage and guide that change<sup>4</sup>.

### What our future landscapes need to achieve

There are 24 million hectares in the UK (13 million ha in England), but as a nation, we do not have enough land to meet all the challenges we face now and in the future. Land is a finite and precious resource that is under huge pressure from the complex and interacting demands we make of it. Examples are shown below:

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<sup>3</sup> Forestry: An International Journal of Forest Research (2023) A horizon scan of issues affecting UK forest management within 50 years

<sup>4</sup> Note that in this document the term LCA process also includes all the applications of LCA involved in making of judgements for decision making.



**Guaranteed food security** by ensuring 75% of our foods can be grown in the UK<sup>1</sup>



**Increased atmospheric carbon sequestration** by bringing at least 60% of agricultural soils into sustainable management by 2030 and restoring, 280,000 hectares of peatland in England by 2050<sup>2</sup>. 5-8% of English land will need to be released from agriculture entirely to meet climate and biodiversity targets<sup>3</sup>



**Protection of land for nature:** The protection of 30% of the UK's land by 2030, by extending existing and creating new National Landscapes, National Parks and Forests<sup>4</sup>



**Protection of land for tree planting:** Increasing tree canopy and woodland cover to 16.5% of total land area in England by 2050, planting with 34,000 ha of new woodland by 2028<sup>5</sup>



**The reversal of overall species decline** by creating and restoring more than 500,000 hectares of wildlife-rich habitat by 2042 and 45,000 miles of hedgerow by 2050<sup>6</sup>



**The harnessing of renewable energy sources** and deployment of low-carbon energy infrastructure to support the decarbonisation of the UK's electricity systems by 2035<sup>7</sup>



**Plans for housing and infrastructure:** e.g., the building of 300,000 new homes per year<sup>8</sup>



**Increased green cover** in towns and cities (through urban woodlands and rooftop gardens) and guaranteed minimum public access standards for greenspaces to achieve at least 40% average green cover in urban residential neighbourhoods<sup>9</sup>



<sup>1</sup> UK Food Security report, December 2021

<sup>2</sup> Environmental Improvement Plan 2023 (1st revision of the 25YEP), February 2023

<sup>3</sup> National Food Strategy independent review, July 2023

<sup>4</sup> In 2022 the UK formally made a commitment at the UN Biodiversity Conference, to protect and conserve a minimum of 30% of land and sea for biodiversity by 2030, known as 30x30. This target is a key driver in reversing the decline of nature in the UK, by expanding and improving our protected areas and creating new areas for wildlife, as part of the wider landscape.

<sup>5</sup> Environmental Improvement Plan 2023 (1st revision of the 25YEP), February 2023

<sup>6</sup> Environmental Improvement Plan 2023 (1st revision of the 25YEP), February 2023

<sup>7</sup> The government's intention is for the electricity system to be fully decarbonised by 2035, as part of the commitment to reach net zero greenhouse gas emissions by 2050. The National Grid sets out Future Energy Scenarios (FES) which includes 89 GW of wind and solar connected in 2030 (FES 2023).

<sup>8</sup> The Conservative Manifesto 2019 set a target of 300,000 homes a year by the mid-2020s, or at least a million more over the period of the Parliament.

<sup>9</sup> Natural England, Green Infrastructure Standards for England – Summary (January 2023)

If existing land-based policy commitments are added together, the UK's land already risks being 'over-promised'. The Royal Society estimates that by 2050 the UK would need additional land twice the size of Wales, or 18% of total UK land area, to meet the sum of all the targets set by governments over the last few years. Their arguments are the latest in a number of studies which reference similar statistics, including The Government Foresight Land Use Futures project report, which was widely referenced in the recent House of Lords Committee report on Land Use in England (Making the most out of England's land), published in 2022.

Landscape is by its nature multifunctional, encompassing environmental, socio-economic and cultural factors. But land use today is too often presented as a binary choice. Either we have new affordable housing or improve people's access to healthy green space. Either we preserve ancient woodland, or we introduce greener transport. This approach was encouraged by 20th-century land policy, dominated by single-objective planning, for example for housing, economic development, nature conservation, leisure, and natural resource management with further segregation as a result of specialisation and the intensification of agricultural production. This functional separation has been one contributor to many of the environmental problems faced by the UK, with consequent impacts on the character of landscapes. However, there is currently no mechanism to achieve multifunctional landscapes or land use. We recognise that there is more work to be done before the LCA process can be fully effective in delivering these outcomes, but it should be considered as one of the tools which can assist in rising to the challenge.

"Multifunctional land use is the most effective route to meeting the many demands on limited land, ensuring land is used optimally to meet national targets in a way that benefits people and planet" **[Food Farming & Countryside Commission, Land Matters, Briefing October 2023]**

"Deciding what to do with land is complex, contested and can involve significant opportunity costs and difficult trade-offs." **[House of Lords Land Use in England Committee (December 2022) Making the most of England's land]**

The many, often conflicting, demands on our landscape need to be considered together when we make decisions about landscape change in future and a multi-functional approach is key to making better decisions. This thinking needs to be reintroduced to the LCA Approach document and in the application of LCA to help ensure that there is not a constant battle between landscape change and 'landscape character' which is often perceived as static, needing to be 'preserved' and preventing change.

The process and application of LCA should have a key role in promoting integrated multi-functional approaches to landscape change in the future. Evidence of what people value locally and why, combined with an understanding of landscape features and characteristics can be used to help address the challenges we face. It is through the combination of multi-functional landscape features that the wider objectives of multi-functional land use will be realised, enabled by a growing understanding of how landscapes function at scale. Guided by the LCA process, and a sound understanding of how landscapes function including river systems, soils and drainage characteristics, will help ensure that these features and characteristics work together to strengthen landscape character and sense of place.

## LCA as a means of guiding positive landscape change

"Now is a significant moment for land use policy globally but especially in the UK. Confluence of environmental and geopolitical drivers necessitates a strategic rethink of the way decisions are made about how landscapes and the services they provide are managed..." [The Royal Society, Multifunctional Landscapes 2023]

The LCA process can provide an understanding of the existing landscape, how it evolved over time and how it is perceived and valued by local people; its 'sense of place'. It also offers the opportunity to inform an understanding of how the landscape may evolve in future and respond positively to the increasingly complex drivers of change that now impact our landscapes. We need to use this understanding to guide the creation of future landscapes that are sustainable, resilient and adaptable.

Examples of approaches to managing future change informed by an understanding of landscape through the LCA process and its application are set out below. These are some of the areas where an updated LCA Approach document has the potential to provide more detail and guidance for practitioners and users, including those involved more widely in land management.

### Addressing the climate change and biodiversity crisis

The impacts of climate change, including floods and droughts, wildfires and susceptibility of our native plants to pests and disease is already changing our landscape and presents an overwhelming challenge for the future of our landscape. In parallel, we are witnessing overwhelming biodiversity loss. The fourth State of Nature (SON), 2023, shows that nature is still seriously declining across the UK, a country that is already one of the most nature-depleted in the world. Since 1970 UK species have declined by 19% on average and nearly 1 in 6 species are threatened with extinction.

There is an opportunity for the LCA process and its application to be more ambitious, aiming to optimise environmental outcomes and deliver resilient and adaptable landscapes that help sequester carbon, are net carbon stores, alleviate the impacts of climate change and address the biodiversity crisis while working with the grain of the landscape to strengthen character or create new character.

The profound effects that climate change will have on our landscapes over time, means that it should permeate all aspects of an LCA rather than being confined as a self-contained topic within LCAs. Examples of approaches showing how the LCA process could help include:

- **Increasing climate resilience and adaptability through landscape conservation.** Landscape features, such as hedgerows and permanent pasture, play a vital role in mitigating the impacts of climate change and biodiversity loss by making landscapes function better. They prevent soil erosion through the action of their roots, reduce water runoff and the severity of flooding. They sequester and store carbon, provide linear habitats and support pollinating insects. The identification, conservation or restoration of these landscape features can be implemented through the LCA process, ensuring, for example, that hedgerow restoration considers the intrinsic pattern and scale of the landscape and responds to its unique identity, or creates a new identity.
- **Increase carbon sequestration through landscape change.** Woodlands, permanent pasture, organic soils, bogs, peatlands and bodies of water, make a vital contribution to

climate change mitigation. Their ability to capture and store carbon in the landscape is currently the only negative emissions technology (active carbon sequestration and storage) possible at scale. The National Food Strategy (July, 2021) recommends that 5-8% of English land will need to be released from agriculture entirely and repurposed to meet climate and biodiversity targets. Such landscape change can be guided positively through the LCA process, for example by ensuring woodland creation or restoring peatlands of the right kind in the right place, thereby delivering multifunctional benefits.

- **Increasing climate adaptability through landscape restoration, such as floodplains.** The re-creation of river floodplains can form part of a strategic approach to flood alleviation. Increasing the 'meanders' of river channels, providing backwaters and bankside habitats, and ensuring rivers are in continuity with their floodplain results in greater attenuation of water flows. Flood risk can also be reduced through the planting of tree belts and buffer strips to slow water passage to the main water channels across the catchment, which is especially important in upper catchments. The LCA process can guide floodplain restoration in the right locations and appropriate to context and help ensure a strategic, catchment-wide, approach to landscape change.
- **Responding to renewable energy development.** Demand for renewable energy generation, distribution and storage, and the increased emphasis on energy security in the UK, can be seen as a negative force for change, with a real issue for the future being the extent of new infrastructure required in short timescales. Renewable energy can be guided positively by the application of the LCA process, helping to determine the types of landscape in which developments might be best located, and how they can be mitigated.
- **Reversing the decline in habitat and species diversity.** Through alignment with Local Nature Recovery Strategies (LNRS) and applying Lawton's principles of creating large interlinking swathes of semi-natural habitat at a landscape scale, LCA can offer a landscape-led approach, guiding the right types of habitat creation to the right landscape. This can help ensure that measures to address the biodiversity crisis also consider 'sense of place' and local distinctiveness (what is important to local people) with the potential for new or strengthened landscape character. There are opportunities to further align LCA processes so that they can positively influence Biodiversity Net Gain and future Environmental Net Gain.
- **Measuring outcomes.** The updated online Natural England 'National Character Area' profiles show the potential of an 'enhanced' LCA process, with links to data as well as details on landscape opportunities, which can be used to measure environmental outcomes. In the future LCAs could be more closely aligned with and integrated within proposals to create biodiversity networks and LNRS, Green Infrastructure plans and strategies, woodland creation schemes and Environmental Land Management Schemes, to optimise and measure environmental outcomes. The application of LCA offers the means to evaluate and monitor landscape change by setting out the baseline and desired outcomes and direction of change.

### **Addressing the well-being crisis**

The pandemic lockdowns highlighted the need for equality of access to green space in the UK. The application of the LCA process can help highlight the role that these places can play while working within the framework of the wider spatial planning of the natural environment.

- **Access to open space.** The LCA process can highlight the role of landscape in providing contact with nature, and access to beautiful and tranquil places by aligning with Green

Infrastructure planning and the provision of accessible green space, contributing to tranquillity mapping data, and identifying tranquil places. Application of LCA processes at the local level can help to identify areas in need of accessible green space and ensure new green spaces are appropriate to their context contributing to local character or creating new character.

### **Addressing agricultural and land use change**

The replacement of the EU common agricultural policy with Environmental Land Management contracts (paying farmers for environmental services and goods) is a key component of future land use policy. Application of the LCA process, at the right scale, offers the opportunity to help reverse the detrimental effects of past agricultural incentives that were aimed solely at agricultural production, while improving environmental outcomes and enriching landscape character, as shown in the examples below.

- **Changing trends in agriculture and influencing sustainable farming.** The switch to more sustainable farming methods may change the current character of farmed landscapes, potentially for the better. For example, in arable areas, planting of wide grass and wildflower buffer strips, tree belts and woodland, will help inhibit soil erosion, encourage water infiltration and storage (increasingly needed in the dry east of England) and support pollinators while also increasing wildlife networks. LCA can help ensure that these networks are implemented in ways that enhance character and sense of place. Furthermore, in arable areas there is likely to be an increasing use of cover crops (that provide a continuous soil cover between the drills of the main crop) and a shift towards direct drilling, all aimed at building and protecting soil carbon. The LCA process needs to adapt to be supportive of such approaches, which are changing the character of our agricultural landscapes.
- **Changing land use e.g. influencing woodland planting and offsetting programmes.** The purchase of land by large corporations as part of offsetting programmes could potentially result in trees in the wrong place, both for the landscape and in locations where the benefits they could provide are not maximised. The application of LCA, for example in informing Tree and Woodland Strategies, can encourage tree planting in appropriate types of landscape in a way that strengthens landscape character, and improves people's connection with nature, while contributing to climate change mitigation and adaptation.

### **Addressing development change – placemaking and good design**

The Design Council's publication 'Beyond Net Zero, A Systemic Design Approach' (April 2021) outlines the need for a different way of working and highlights the central role that design must play in bridging the technical, creative and social dimensions to find better solutions.

The National Planning Policy Framework (DLUHC, 2023), National Design Guide, National Model Design Code and Guidance Notes for Design Codes (MHCLG, 2021) as well as Design Principles for National Infrastructure (National Infrastructure Commission, 2020) all highlight the importance of an understanding of a site and its wider context to placemaking and the planning and design of new development including infrastructure. Natural England's Green Infrastructure Framework, launched in 2023, has 'Responding to Local Character' as one of its guiding principles.

Informing good planning, design, placemaking and land management are some of the most important applications of LCA.



- **Development location and design.** The risk of loss of valued landscapes to development and infrastructure can be influenced by the LCA process and its application, by helping to identify, at an early stage, the right site for the right development. Information about typical settlement forms and local vernacular can inform appropriate responses to settlement type and design while information about natural character can inform an appropriate Green Infrastructure response. This can encourage sustainable settlements and provision of green infrastructure (treed landscapes, pocket parks and interlinking blue and greenways extending across and beyond built-up areas) while ensuring that local landscape character is retained, or new character created.

## Addressing degraded landscapes

Many of our landscapes are degraded and consequently devalued. In line with the European Landscape Convention<sup>5</sup>, the process of LCA analyses the characteristics of all landscapes, not only remarkable or outstanding landscapes but also everyday and degraded or deteriorated. This 'all landscape' approach can help influence landscape restoration and regeneration.

- **Enhancement of degraded/damaged landscapes.** Damaged landscape such as those on the urban fringe, are more than just transitional landscapes but possess their own distinctive characteristics and biodiversity. Landscapes characterised by older mineral workings, for example, offering a refuge for rare species. The application of the LCA process in combination with Nature Recovery Strategies offers the opportunity to work with Green Infrastructure networks to create wildlife corridors, woodland linkages or urban green spaces, in order to provide multi-functional benefits while strengthening the prevailing character and creating new wildlife-rich landscapes.
- **Understanding time depth.** The integrated nature of the LCA process provides an understanding of time depth and the evolution of the landscape. Such evidence can underpin ambitious approaches to restoring and re-creation of landscapes not only as a means of regaining what has been lost but also of responding to environmental change, particularly climate or sea level change. The LCA process provides an integrating framework for future landscape interventions and restoration, such as the creation of large areas of heathland, wetland, and woodland creating a new sense of place.

## Conclusion

This paper points to the important role of the LCA process and its application in establishing baseline evidence and making judgements about future options to inform positive landscape change. There is an important opportunity for the update to the LCA Approach document to focus on the multiple and diverse applications of LCA and embed the use of these processes as evidence in decision-making for a wide range of delivery outcomes. It should position the process and application of LCA so that it is central in identifying tangible environmental outcomes for places and provide a baseline for monitoring change. This will be essential in meeting future policy requirements<sup>6</sup>.

The updated LCA Approach document must ensure that LCA processes are able to address head-on the core challenges our landscapes face in terms of the effects of ongoing climate change and biodiversity decline as well as addressing the evolving changes in our farmed

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<sup>5</sup> Note: the UK is a signatory to the European Landscape Convention through the Council of Europe. This is an international treaty which is unaffected by the UK's withdrawal from the EU.

<sup>6</sup> For example, Environment Improvement Plan (2023) and The Levelling Up and Regeneration Act (2023)

landscapes, restoring degraded landscapes, while meeting the development needs and well-being of our growing population. It should promote and illustrate the process and application of LCA to guide positive landscape change, creating future landscapes that are sustainable, maximise the sequestration and storage of greenhouse gases, are nature-rich, resilient and adaptable, and valued for what they offer people.