

Chapter 10: The Natural Capital Strategy: conclusions and recommendations

Conclusions

This report, along with the modelling, mapping, proposed land management actions and financial accounts comprises Derbyshire's Natural Capital Strategy.

The natural capital baseline assessment provides a strong evidence base for Derbyshire County Council, PDNPA, Derby City Council and local stakeholders. It quantifies the extent, condition and monetary value of existing natural capital assets in the county. The strategy proposes appropriate implementation of nature-based solutions to support nature recovery by taking account of biodiversity considerations, natural capital (and the ecosystem services it provides), landscape character, and cultural heritage.

The natural capital accounts identify the natural assets in Derbyshire and the monetary value of the benefits they give to the county. The natural capital baseline account shows that natural capital within Derbyshire is worth £2.6 billion per year. This value is formed of key provisioning services such as agriculture (£96 million), public water supply (£132 million), and minerals (£298 million). Natural Capital also plays a large role in benefits for recreation (£181 million), tourism (£105 million) and physical health (£86 million). Carbon sequestration by habitats in Derbyshire is worth £1.6 billion per year; 62% of the total natural capital of Derbyshire.

Combining this data with quantified future trends, the value of natural capital assets in Derbyshire is estimated at £86bn over the next 60 years. There is insufficient data to represent some expected future changes (such as climate change risks) in the account. Therefore the values may change due to future trends, and will partly depend on the actions taken to mitigate and adapt to climate change.

The account can be used in different ways to help manage natural capital:

- It provides data that can be used to make a business case to central government for support and funding to invest in natural capital.
- It gives a consistent evidence base for different groups and decision-makers to refer to (e.g. Biodiversity Net Gain, ELMS design).
- The accounting structure also allows for comparison of the sub-regions using a consistent approach and data.

A habitat map has been created for the whole of Derbyshire to inform the natural capital baseline accounts and a new dataset of hedgerows has been specifically created to support the natural capital strategy. The coverage and level of detail that these maps provide gives Derbyshire County Council a particularly good start in designing local nature recovery projects.

The ecological networks created for woodland, heathland, wetland and grassland tie in well with the national networks produced by Natural England for the NRN. They provide the evidence to develop Derbyshire's LNRS to expand, improve and connect the NRNs across Derbyshire's cities, towns and countryside.



Understanding the delivery, risks and opportunities associated with the nine key ecosystem services enhances the information available to deliver LNRS and other aspects of Derbyshire's natural capital strategy. It is enhanced further by taking account of landscape character. It improves knowledge of where to focus management action, such as tree planting and peatland restoration, and how to broaden the range of environmental benefits delivered to provide a 'bundle' of environmentally and socially beneficial outcomes.

Grassland, woodland and wetland management action is a priority in most Landscape Character Types (LCTs) in Derbyshire, as is hedgerow planting (outside the White Peak), restoration of ancient woodland sites, riparian/floodplain woodland planting, river restoration and enhancement of the natural continuity of river corridors.

Restoration and enhancement of existing semi-natural grasslands, and floodplain grazing marsh, is a priority for all except the Enclosed Moorland, Open Moors, and Wooded Hills & Valleys LCTs. Wetlands are a priority for many LCTs, with priority actions for grassland focussed on enhancing existing wet meadows and marshes, and restoration of upland and lowland bog habitats. Heath has restricted distribution across Derbyshire and a balance will need to be struck between heath enhancement/expansion and grassland enhancement/expansion to work towards a sustainable habitat matrix.

Cropland priorities focus on improving the ecological value of intensive farmlands, and conserving and enhancing the mixed farm landscape where it is still present. Eight LCTs are identified as being under particular pressure from urban development.

The suite of maps and associated guidance are a key resource for realising the maximum benefit from any actions as they strengthen spatial planning for environmental net gain (including biodiversity net gain) and natural capital enhancement projects.

A dataset on cultural heritage has been collated and analysed and conclusions drawn for purposes of preliminary review and discussion, in order to assist in the longer-term development of a methodology that can be applied to specific heritage assets. It informs the natural capital strategy but does not consider the detailed effect of natural capital projects on specific heritage assets/types of assets, an exercise which would require project specific consideration on a case-by-case basis.

Climate change has the potential to significantly disrupt the natural capital of Derbyshire. The information presented puts Derbyshire in a strong position to address the challenges of climate change and biodiversity decline, and provides baseline evidence for carbon accounting that can be used to monitor progress towards delivering net zero commitments.

Predicted changes in temperature and rainfall patterns in particular will alter the growing conditions, meaning that some places become less suitable for supporting particular species and habitats, while other places become more suitable. Future peat formation on blanket bog is predicted to become less achievable in parts of Kinder Scout. The upland fringes will become more important for arable crops, and drought will affect many of the areas where crops are currently grown.

These and other trends will affect the values provided by Derbyshire's natural capital in future, and actions to adapt to future climate change will be important to maintain natural capital assets.



Monitoring provides a mechanism for judging and quantifying the success of natural capital projects, including to funders, and for identifying unexpected changes to natural capital that affect the materiality of the accounts. A monitoring plan for the Natural Capital Strategy focuses on the need to update information on habitats and associated natural capital values, as a key driver in natural capital assessment. Habitats are likely to show quantifiable change within timeframes of a few years and a process for keeping the habitat map up-to-date is identified.

Funding for the implementation of nature-based solutions is growing rapidly; key funding streams, including government funding specifically to support NRNs, have been identified in readiness for partnership working on nature recovery projects. Central to this is the 'Nature for Climate Fund' for the creation, restoration and management of woodland and peatland habitats and a tripling of afforestation rates across England. There is also the 'Green Recovery Challenge Fund' for nature-based projects. There is an increasing emphasis on private and third sector businesses to invest in the natural environment, including through mandating biodiversity net gain.

The coverage and level of detail provided by the mapping and analysis gives Derbyshire council a particularly good start on designing local nature recovery projects that are in keeping with landscape character. The data and analysis can be revisited and further developed to at a finer scale of detail for site specific projects; it can also be extended to encompass further ecosystem services, and different constraints. When applying for funding there is the evidence to show where taking action can deliver enhancement to multiple ecosystem services.

Recommendations

Implementation priorities for nature recovery

Maximum value from the Natural Capital Strategy will be realised by embedding the findings into local government strategy and development planning. This requires users to understand the range of Information provided - mapping and quantification of assets, measurement of ecosystem services, and monetary valuation of annual benefits and assets. This will ensure an integrated approach to planning, that will lead to making the most of opportunities for natural capital protection and enhancement and bring wider understanding of the societal benefits of natural capital.

- Recommendation 1: The findings of the Natural Capital Strategy should be incorporated into future Development Plans and embedded into a wide range of relevant policy. Key actions for incorporation into these plans and policies are summarised in the boxes of 'key points and recommendations' presented under each ecosystem service theme in Chapter 3: Spatial Distribution of Ecosystem Services, Risks and Opportunities. These should be cross-referenced against the landscape character considerations in Chapter 5: Using landscape character to inform decision making.

The boxes of key points and recommendations in Chapter 3 and Chapter 5 allow specific land management actions to be targeted to specific regions within Derbyshire. Many of the



recommendations will have multiple benefits across several ecosystem service themes. For example cross-slope hedgerow planting for improved surface water regulation will increase carbon sequestration, and can enhance biodiversity and water quality regulation. Therefore, while different locations within Derbyshire will have different ecosystem service priorities (e.g. flood risk or water quality issues), it is important to view mitigative action holistically, identifying the wide range of benefits and NBS action can provide across all of the ecosystem service themes, and in building resilience to climate change.

Derbyshire currently has a very strong woodland network in some areas and where hedgerows occur these greatly enhance woodland connectivity. There are clear opportunities to strengthen the woodland network by planting and this is a way to deliver significantly towards net zero through carbon sequestration. However, planting must be done in the right place.

- Recommendation 2: The maps and proposed land management guidance for LCTs are always used to ensure appropriate siting of woodland expansion in order to deliver the carbon, biodiversity, water regulation and landscape benefits. Through development of the National Forest there is an opportunity to enhance connectivity of large areas of core woodland habitat that are currently relatively isolated

Peat formation on blanket bog is predicted to become less achievable in parts of Kinder Scout due to climate change.

- Recommendation 3: This provides a strong argument for targeting peatland restoration measures to this vulnerable area; by restoring peatlands the existing carbon stock locked away in the peat will be more resistant to oxidation due to drying-out. At the same time, protecting the peat resource also maintains the important water-regulating function of peat.

Climate change analysis has shown the upland fringes becoming more important for arable crops and drought is predicted to affect many of the areas where crops are currently grown.

- Recommendation 4: In agricultural areas particular consideration should be given towards supporting agricultural management practices for enhancing soil carbon (which improves soil moisture retention), increasing on-farm water storage (including wetland creation), agroforestry, or growing alternative, drought resilient crop varieties.

There is a large number of highly fragmented grassland habitat patches within the Needwood & South Derbyshire Claylands, and Peak Fringe & Lower Derwent regions; the grassland network is not currently working well in these areas. These core habitat patches are likely to be less resilient/ more vulnerable to pressures as a result. Agri-environment schemes are likely to be key to supporting the recovery of the grassland network in these areas.

- Recommendation 5: For grassland opportunities, a site-level assessment is likely to be needed to assess habitat condition and ensure the most appropriate nature-based solutions.
- Recommendation 6: For heathland expansion, investigate areas of coniferous plantation that may have been on former heath sites; such areas could revert quickly back to heath habitat.



The key to realising funding, including for nature-based solutions on land owned by the councils and national park authority is to form partnerships with local stakeholders.

- Recommendation 6: The 'Nature for Climate Fund' and 'Green Recovery Challenge Fund' should be explored for funding for creation, restoration and management of woodland and peatland habitats, afforestation opportunities, and nature-based projects.
- Recommendation 7: Consider joining the NRN Delivery partnership as this will open up networking opportunities, including a regular NRN conference, workshops and meetings.

There is an increasing emphasis on private and third sector businesses to invest in the natural environment, including through mandating biodiversity net gain.

- Recommendation 8: There is potential to grow the tourism sector beyond the Peak District, especially along the River Trent corridor. This could be facilitated a new environmental/ leisure corridor using biodiversity net gain funding associated with minerals extraction and housing growth (see Trent Valley Vision).

Keeping the Natural Capital Strategy up to date

The level of analysis and frequency for updating underlying data and the timing of re-assessment of natural capital depends on the rate of changes to underlying data and available resources.

- Recommendation 9: When new LCTs from PNDPA are available these should be incorporated into the analysis of ecosystems services to assess the implications for future land management.
- Recommendation 10: An update cycle of five years is recommended for the habitat map and re-running the ecological network and ecosystem services modelling.
- Recommendation 11: More detailed updates to the accounts would be beneficial at the time that spatial plans (recommended at least every five years) or other strategic documents are renewed. Some aspects of the natural capital asset account can be readily updated on an annual basis (e.g. water supply and minerals data can be updated to the latest annual volumes, and market price values can be updated annually).

Improving the Natural Capital Account

Improvements could be made to broaden and strengthen future versions of the accounts.

- Recommendation 12: Refining the partial benefit estimates included in the account that are material, but only calculated for parts of Derbyshire (e.g. education and volunteering). Local data collection is required to quantify these on a local and regional scale and will require liaison with local and regional stakeholders.

As described in Chapter 6, a complete natural capital account would include an assessment of current and planned spending on maintaining the extent and condition of the natural capital assets, including in response to future trends (e.g. climate change) providing the benefits assessed. This enables comparison of expected costs and benefits, and consideration of whether enough resources are being put into the right actions to ensure those benefits and the natural capital assets that provide them are sustained over time.



- Recommendation 13: Assess the cost of maintaining natural capital assets, including current spending levels and actions needed in response to future pressures, e.g. from climate change. At the Derbyshire scale this would require buy-in from key public and private stakeholders who manage the majority of relevant spending and their willingness to provide such data.

The economic value of natural capital assets is calculated by aggregating the value of benefits they can provide over time. Expected future changes in the quantity and/or value of benefits are reflected in the estimates where relevant data is available (such as increasing value of mitigating carbon emissions). However, there is insufficient data to represent some expected future changes (such as climate change risks) in the account.

Furthermore, while the account provides useful information to help manage natural capital it should be noted positive values do not necessarily mean that the natural capital assets are being managed sustainably. To assess this, more understanding of future trends (e.g. climate change) and estimations of maintenance costs would need to be factored in.

- Recommendation 14: Better understanding is needed of future trends in benefits from natural capital, including those caused by climate change. Monitoring trends from the baseline will over time build a greater understanding of how sustainably natural capital assets are being managed.

Communication of the Natural Capital Strategy:

The Natural Capital Strategy would benefit from further communication materials.

- Recommendation 15: A Storyboard is developed to communicate the Natural Capital Strategy to stakeholders and the wider public to improve accessibility of the findings and promote the key messages. This would include making selected large scale and/or interactive copies of the habitat maps available.
- Recommendation 16: A process could be developed to demonstrate, promote and track the activity being carried out to deliver the Natural Capital Strategy. This could involve development of a dedicated web resource; planning and cost analysis would be needed to ensure adequate staff resources.

