

Enabling Dartmoor National Park Authority to prepare for future population growth and the increasing impact on recreation



SWEEP helped Dartmoor National Park Authority (DNPA) apply a Natural Capital Approach to better understand, and mitigate for, the impact new housing would have on recreation in the area. The work directly informed the Authority's plans and policies, and expanded their thinking around possible mitigation measures, as well as giving staff the confidence to move these conversations forward.



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Informed **2** key management plans Dartmoor Local Plan 2018-2036 and National Park Management Plan 2020-2025

Increased understanding of the **£25.6m** (2018) of welfare benefits delivered to local residents

Building resilience to manage a **13%** population rise over the next **25** years

Ways of Working



Why it mattered?

Dartmoor National Park is a unique landscape of vital conservation importance and rich in wildlife, history and culture. In addition to conserving and enhancing everything considered special about the Park, the core work of DNPA is to balance the needs of Dartmoor's residents, businesses and visitors, and to foster the economic and social well-being of local communities.

Delivering on these goals is an increasing challenge in the face of rising visitor numbers driven by population growth and new housing developments. The number of people living in and around Dartmoor is



We know that there are significant health and well-being benefits when people spend recreation time on Dartmoor but continuing to provide a growing population with easy access to the National Park can be a challenge."

Ally Kohler, Dartmoor National Park Authority's Director of Conservation and Communities

set to increase by 13% over the next 25 years (from 2018 to 2039), with day visits by local residents projected to rise by 10% to nearly 8 million in 2039. With this backdrop of uncertainty and change, DNPA is keen to explore new ways to manage and monitor its park.

What we did

The University of Exeter's Prof. Brett Day, Prof. Charles Tyler, Dr Michela Faccioli, Dr Sara Zonneveld and Dr Amii Harwood worked in close collaboration with DNPA in 2017/8 to study the effects and opportunities presented by a growing local population.

The team applied a Natural Capital Approach to identify areas of potential conflict and mitigation measures. This improved on previous DNPA methods for predicting future recreation growth (which were less focussed and based on a large number of assumptions).

Key wildlife hotspots were mapped and the information was combined with data from the ORVal model. ORVal is a sophisticated tool for modelling recreational demand on outdoor green spaces. It was able to project how population growth in areas surrounding the Park would

affect visitor numbers and footfall rates in specific areas over the 25 years to 2039.

Utilising DNPA's local expertise, the team calibrated ORVal to enable spatial predictions of changes in footfall over the coming decades. They developed projections of how this would impact footpath erosion and wildlife, and were able to quantify the welfare values and health benefits derived from recreational visits.

The research revealed that each year Dartmoor provides an estimated £25.6m of welfare benefits to residents of neighbouring Local Authority Districts, and this was expected to increase by £2.5m by 2039.



Impacts & benefits delivered



Policy & Legislation

Informed DNPA plans and policies: Findings informed part of the evidence-based within both the Dartmoor Local Plan 2018-2036 and National Park Management Plan 202-2025 through the Habitats Regulations Assessment which was used to assess the potential impacts of increased population and recreational pressures on designated nature conservation sites.



Organisational Function

Contributed to decision-making, funding bids, saving money and adding value:

Findings are regularly used by project managers to (i) inform DNPA visitors management practices; (ii) in local planning discussions with neighbouring authorities around the need for funding to contribute to mitigation as a consequence of increased growth in recreation, and; (iii) to support new DNPA funding applications (e.g., to Heritage Fund) and its partner organisations (including the Environment Agency) aimed at mitigating the effects of increased recreation growth. SWEEP was able to save DNPA money, through providing expertise and resources that DNPA lacked in-house, and bring additional value by improving on previous DNPA methods for predicting future recreation growth.



Attitudinal/Capacity

Developed understanding and thinking around population futures and 'welfare valuation':

The work has challenged perceptions and attitudes of the DNPA and its wider stakeholders around the impact of increasing footfall pressures and the Park's future survival as a 'wild place'. DNPA staff have an increased understanding and confidence in talking about the benefits, impacts, and possible mitigation measures of various recreation futures.



This improvement in resource targeting [as a result of the OWWL model] will have saved the EA thousands of pounds during each of the six largest storms over the last two winters by being able to be more targeted in our working, and reducing unnecessary trips and deployments.."

Nick Ely, Environment Agency Coastal Modelling & Forecasting Manager



SWEEP brought an academic rigour that has given our staff confidence to talk about what the future might look like in terms of visitors and move the conversation forward!"

Nick Ely, Environment Agency Coastal Modelling & Forecasting Manager

It was estimated that visitors from across England walked around 18 million kilometres in the park each year and when combined with benefits to mental health that arise from spending time in nature, the findings highlighted Dartmoor's significant contribution to maintaining the health and well-being of the region's population. Full details can be found in the report 'Population Futures and Dartmoor National Park'.

Looking to the future

- SWEEP maintains a close working relationship with DNPA through work on the new Quantitative Habitat Mapping project which is developing novel remote-sensing methods for mapping and monitoring woodlands, moorlands and key habitats.
- It is anticipated that further dissemination of this recreational futures work may lead to it potentially being adopted as a methodology for National Parks further afield, both regionally in the South West and nationally.



The recreational futures work provided a very strong evidence base that influenced the management plan, helped us look at recreation management and zoning, and some of the future actions that we'd like to take."

Ally Kohler, Director of Conservation and Communities, Dartmoor National Park Authority

Underpinning NERC Science

The team drew on NERC funded data, remote sensing tools, and state-of-the-art welfare valuation modelling tools [ORVal](#) and [NEVO](#).

About SWEEP

The South West Partnership for Environmental & Economical Prosperity (SWEEP) is a partnership between the University of Exeter, the University of Plymouth, and Plymouth Marine Laboratory. Funded by the Natural Environment Research Council and stakeholders together to solve key challenges faced by those working with our natural resources. www.sweep.ac.uk



Natural Environment Research Council

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