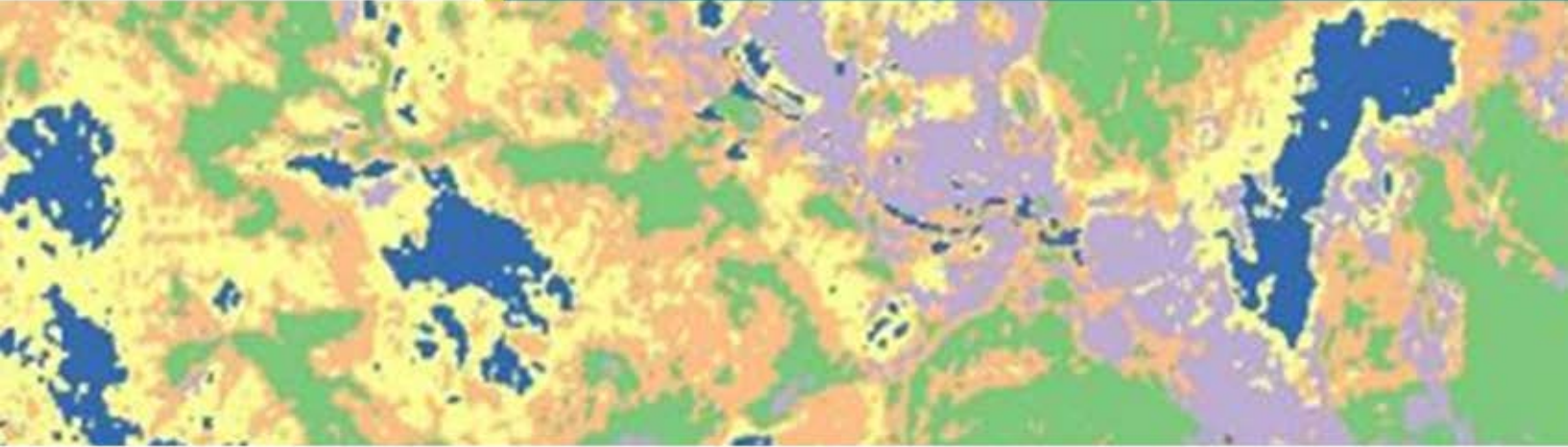


Quantitative Habitat Mapping

Enabling more profitable and sustainable landscape management through the co-creation of novel remote-sensing methods for mapping woodlands, moorlands and key habitats



Project partners



Team

- Dr David Luscombe - SWEEP Impact Fellow and 023 Project Lead
- Dr Karen Anderson - SWEEP Co-Investigator
- Prof. Richard Brazier - SWEEP Water and Business Lead
- Dr Donna Carless - SWEEP Impact Fellow
- Dr Naomi Gatis - SWEEP Impact Fellow
- Prof. Charles Tyler - SWEEP Water Co-Lead
- Dr Sara Zonneveld - SWEEP Impact Fellow

Background

We are now working in an age of open access geospatial data that is free to use and at very fine resolutions.

Having access to such up-to-date information is useful for monitoring patterns and dynamics in the environment and can guide optimal environmental decision-making. However, the highly technical remote sensing workflow, which is needed to translate data and extract information, limits the assimilation of such data into guiding nature-based solutions. Up-to-date, repeatable habitat data at a fine spatial resolution and across large spatial extents is rarely available.

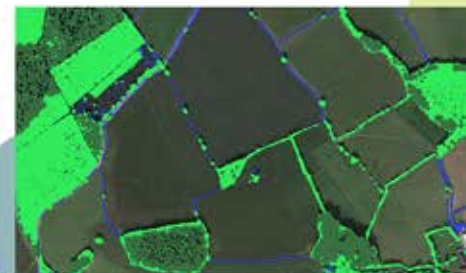
This project will directly fill these gaps by translating cutting-edge geospatial research into an easy to use tool for stakeholders.

This project seeks to develop a set of open source methods and tools using freely available Earth Observation data. These will be optimised to provide fine scale, robust and repeatable habitat mapping data for key landscapes in the South West. Specifically, it will deliver fine resolution mapping of vegetation communities and landcover across Dartmoor National Park and the wooded areas of the North Devon UNESCO Biosphere Reserve. By transferring critical know-how to partners, the methodologically robust datasets can be reproduced as and when they are needed. This provides a comprehensive evidence base to support land management decision-making.

Using expertise from within SWEEP and our partners, we are evaluating and delivering remote sensing workflows, allowing us to semi-automatically classify and map the vegetation classes within our target areas. This is achieved by utilising spaceborne radar (Sentinel 1, SAR), multispectral imaging data (Sentinel 2) and Tellus LIDAR data, in combination with machine learning approaches. We also make use of image classification and uncertainty assessment algorithms that are commonly exploited in the scientific literature.

Working closely with partners has ensured they fully inform the project approaches and product delivery. With Dartmoor National Park Authority, we are mapping habitat types across the entire National Park area, using a classification system adapted from Level 4 of the national UKHab classification scheme. With the North Devon Biosphere Reserve and the Forestry Commission, we are developing mapping products which describe the extent and height of trees across both woodland and hedgerow habitats. Additionally, we are implementing key data processing workflows in open source software platforms, to ensure our project partners can routinely quantify changes in wooded land cover, over time and across landscapes.

In summary, this work fills gaps in the current data, and will deliver a unique set of data, tools and methods for key stakeholders in the South West, with the potential for these to be adapted to other areas and geographical contexts. Our work will actively transfer key methods and know-how to our partner organisations and non-remote sensing specialists so they are able to replicate these to enable long-term monitoring of Natural Capital assets, providing crucial data for evidence-based land management decision-making.



Project contact:

If you interested in finding out more about this work please contact -
Dr David Luscombe (Project Lead) - d.j.luscombe@exeter.ac.uk
Rebecca Abrahams (Project Support) - r.abrahams@exeter.ac.uk