

Data Access and Availability



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Challenge and Opportunity

Improving quality of, and access to, data, including habitat data and location data, will be essential for meeting environmental targets, unlocking private finance for farm activities, and embedding natural capital into private sector decision-making processes. As highlighted in the UK's Geospatial Strategy, access to location data is imperative in meeting climate targets and achieving net zero emissions by 2050.²²

Having accurate and easily accessible data on the location and condition of natural capital assets on their farms, for example, would enable farmers to more readily engage with environmental markets. Furthermore, having accurate and easily accessible habitat data will allow farmers to share important data with their supply chains enabling access to preferential pricing or certification schemes, or with banks enabling access to specialist products.

In particular, there are two data sets that if made available and easily accessible would support farmers in accessing opportunities and unlock private sector capital.

1. Field Parcel Data

At present, there is no single, digital version of England's field parcels. Rather, there are multiple repositories that collect and hold field parcel data for different use cases, using different methods for collection including hand-drawn maps (see **Table 1**). Furthermore, this data is not easily accessible and can be costly to access. Access to some field parcel and land data sets requires a license and can only be accessed at an additional cost, such as through Ordnance Survey's MasterMap (OSMM).²³

The result is that farmers and land managers, banks, the food and beverage sector, as well as natural capital buyers and investors, are presented with a confusing landscape of field parcel information.

2. Habitat Data

Habitat data is also available in a variety of different 'languages', with multiple ways of describing similar habitat types. This also presents a confusing landscape to different users of the data and can lead to a lack of comparability across farms (see **Table 2**).

Alongside differing data languages, not having easy access to habitat data is making it challenging for farmers to report on habitat baselines and improvements on farm, and for supply chain actors and financial institutions to have a full view of the risk and opportunities throughout supply chains and portfolios respectively.

Addressing data obstacles will ensure farmers and the agrifood and finance sectors are accessing a common baseline of field parcel and habitat data, and open up greater opportunities to access private sector capital. There are specific challenges in meeting this need, however, that will require consideration – notably data privacy. For example, farmers have explicit concerns about external entities benefiting commercially from their data. These challenges, including further concerns around data sharing, are discussed in more detail in the **Considerations** section.

Recommendation

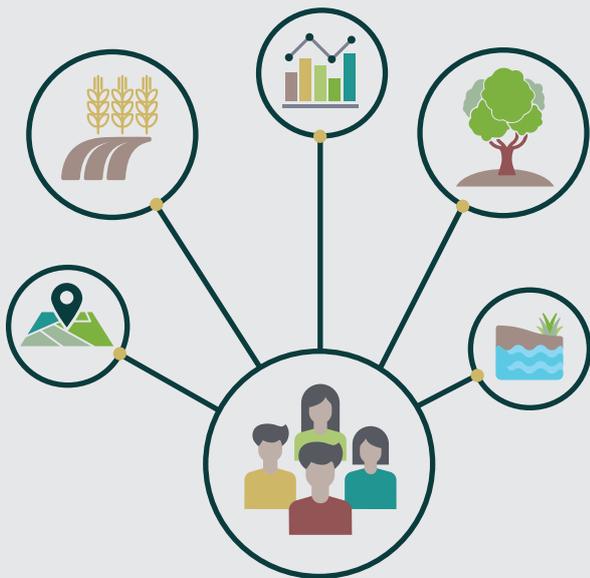
To address the barriers outlined above, we recommend the following:

1. That field parcel data and broader environmental data sets be made more easily accessible and that these data sets can be accessed through a common access point
2. Farmers delivering public goods through public payment schemes to be given access to premium, high quality spatial mapping software (Ordnance Survey MasterMap)

The above recommendations would ideally be implemented UK-wide.

²² Geospatial Commission. Unlocking the power of location. The UK's Geospatial Strategy, 2020 to 2025.

²³ <https://beta.ordnancesurvey.co.uk/products/os-mastermap-topography-layer>



Field parcel and environmental data sets made more easily accessible through a common access point



Access to Ordnance Survey MasterMap for farmers delivering public goods

Considerations

There are important considerations regarding this recommendation that must be addressed if the maximum potential of data is to be realised.

Data Access Point Ownership

There are already efforts underway by Defra to make a large selection of public data sets more easily accessible and we welcome these efforts. Following FAIR principles of findability, accessibility, interoperability and reusability of data,²⁴ Defra can ensure that the maximum potential of its data is realised.

To increase access to this data, a common access point should be considered. Government agency ownership of this common access point (sometimes referred to as a hub or platform) would provide confidence to data users.

Working on behalf of Defra, data firm Agrimetrics is bringing together public environmental and field parcel data sets, made available through an Application Programming Interface (API) allowing the data to be easily used by any outside organisation's own software for their own purposes and requirements.

This work could act as a potential common access point for data, although need not necessarily be the only access point.

Field Parcel Data

As mentioned previously, there is no single, digital version of England's field parcels. Field parcel data is collected by many different organisations for specific use cases which has resulted in multiple representations of field parcel boundaries, that could be used for land-based decision making. These are held in various repositories with varying degrees of accessibility including some data sets that require a licence and come at a cost – such as Ordnance Survey MasterMap. This confusing landscape of field parcel data sets can be addressed by making this data more easily accessible and available through a single access point.

These field parcel data sets can in many cases be incomparable to each other. For example, Rural Payments Agency (RPA) field parcel data will not be comparable with HM Land Registry boundary data. The former is a representation of a single field and the latter a representation of ownership boundaries that may include multiple fields in one data polygon. For some stakeholders, field parcel data needs to be

²⁴ Wilkinson et al. 2016, The FAIR Guiding Principles for scientific data management and stewardship

standardised and comparable, yet for other stakeholders the need may not be so specific.

data can be signposted to the data set that is most suited to their needs.

When making any field parcel data freely available and easily accessible, consideration should therefore be given to how consumers of field parcel and boundary

Examples of different field parcel and boundary datasets are included in the table below:

Sector	Entity	Repository	Information Collected
Public	Rural Payments Agency (RPA)	Rural Land Register (RLR)	<p>Spatial land cover data for farms claiming public money from agri-environment schemes. Also includes all past and present non-spatial land use data including field parcel data and hedge data</p> <p>Updated by land managers via RLEI form, using satellite imagery and aerial photography captured throughout the year as part of remote monitoring work and from site visits by RPA field officers. Base layer mapping for RPA Rural Land Register is Ordnance Survey MasterMap</p>
Public	Ordnance Survey (OS)	OS MasterMap (OSMM)	<p>Consistent and maintained framework for the referencing of geographic information in Great Britain</p> <p>Used as the base map for the Rural Land Register and is updated at certain intervals from OS. Considered to be the nation's premium spatial data set</p>
Public	HM Land Registry (HMLR)	HM Land Registry	<p>Records and guarantees the ownership of over 25 million properties across England and Wales, acting as the official record of all mortgages against property²⁵</p> <p>HMLR map to the extent of land ownership and can include multiple field parcels within one polygon</p>
Public	Defra	MAGIC Map	<p>Land designations on field parcels displayed on basic Ordnance Survey maps</p> <p>Includes field boundaries derived from basic Ordnance Survey data</p>
Public	Forestry Commission	Forestry Commission Map Browser	<p>Woodland agreements, felling licences and other designations or features on field parcels displayed on basic Ordnance Survey data</p>
eNGO	National Biodiversity Network	NBN Atlas	<p>Locations of UK species and habitats from surveys</p> <p>Contains field parcel boundaries from Google Maps</p>
Private	Agrimetrics	UK Field Boundaries	<p>Field boundary data derived from SPOT earth imaging</p>

Table 1: Field Parcel & Field Boundary Datasets

²⁵ The Geospatial Commission; Unlocking the Power of Location. The UK's Geospatial Strategy, 2020 to 2025

Habitat Language Harmonisation

Consideration should also be given to the different habitat languages currently in circulation. These languages have their own codes or descriptions for similar habitats, and two examples are included in Table 2 below. This can result in a confusing landscape of habitat data in multiple languages that may or may not be comparable to each other.

When making its data more available, we recommend considering the impact of having multiple habitat data sets with various languages and how this impacts the end consumer of this data. Multiple languages could, for example, impede the interoperability and reusability of some data sets.

It would be useful for end users if this data were made available in a standard language through a common access point. This would allow all habitat information to be comparable, making it easier for farmers to understand the condition of their land and what habitats are present. It would also allow the financial, food and beverage and retail sectors to be confident that what is being reported is comparable and in line with their peers' reporting.

There has already been a significant amount of work conducted on standardising habitat information which has resulted in the creation of the UK Habitat Classification (UKHab). The UKHab classification system (**Box 1**) is currently applied in Natural England's Biodiversity Metric 3.1 in use for calculating Biodiversity Net Gain. While some of those interviewed recommended UKHab as being the standardised language, consideration should also be given to other possible habitat languages available, as well as to whether an international habitat data language would be more suitable to ensure global standardisation.

Habitat Language	Description	Example
Phase 1 Habitat Surveys	A standardised system for classifying and mapping wildlife habitats. Habitat types and features are assigned a brief description and allocated a specific name, an alpha-numeric code and a unique mapping colour	Woodlands and Scrub: A Orchard (commercial) A5
National Vegetation Classification Surveys (NVC)	A system for classifying and naming vegetation community types by the component plant types. Twelve major vegetation types denoted by a letter, and further community and sub-community categorisations	Major vegetation type: Woodland and Scrub Community: W2 (Grey willow – downy birch – common reed woodland) Subcommunities: Black alder – meadowsweet; peat moss

Table 2: Examples of Habitat Data Languages

UK Habitat Classification (UKHab)

- UKHab is a unified and comprehensive approach to classifying habitats, merging multiple habitat mapping systems including JNCC's Phase 1 and NVC into a standardised and comparable 'language'. It divides the UK into nine basic habitats and assigns each a Level 2 code – Grassland (g), Woodland (w), Heathland and scrub (h), Wetland (w), Cropland (c), Urban (u), Sparsely vegetated land (s), Rivers and lakes (r) and Marine inlets and transitional waters (t). These are then divided further into priority habitats which also receive a code – such as calcareous grassland (g2). Further detail is added to take into account diversity by giving secondary codes, such as 11 for scattered trees.



Box 1: UK Habitat Classification

Access to Ordnance Survey MasterMap for Farmers

We recommend that farmers have access to a high quality, premium spatial mapping software to create a base layer for their decision making. This will create standardisation across the farming landscape whereby all farmers can report using the same mapping programme to supply chain stakeholders including the finance and agrifood sectors.

Common feedback from farmers regarding data is that there are challenges with being able to find and access quality data, and that the required data either does not exist or is low quality and does not meet farmers' requirements for making business decisions. Examples of this include incorrect boundary, public access and habitat information from some widely available data sets.

The Group recommends that Ordnance Survey MasterMap (OSMM) be provided to farmers, given it is considered to be the most detailed and accurate view of the landscape of Great Britain²⁶ and is already used

by the private sector. OSMM is paid for by the British taxpayer and was made available to public sector bodies, some businesses and start-up companies through a Public Sector Geospatial Agreement (PSGA) in 2018.²⁷ It was estimated that this agreement would boost the UK economy by £130 million annually through innovation, job creation and an improvement to public services.²⁸

Making OSMM fully available to farmers would allow farmers to use high quality base layer maps with private sector programmes that support decision making and enable access to environmental markets. For example, farmers will be able to submit high quality, digital base layer maps of their holdings at no cost into platforms such as Land App in order to build contracted Land Management Plans that include accessing revenue streams from ecosystem markets such as Biodiversity Net Gain. Users of private sector programmes that allow farmers to share data within the supply chain, such as Map of Ag, will also benefit from farmers having access to higher quality, standardised base layers.

²⁶ <https://www.data.gov.uk/dataset/96083a9f-6714-4301-9890-98924c4c723e/os-mastermap-topography-layer>

²⁷ <https://www.ordnancesurvey.co.uk/business-government/tools-support/open-mastermap-programme>

²⁸ <https://www.gov.uk/government/news/unlocking-of-governments-mapping-and-location-data-to-boost-economy-by-130m-a-year>

Access to high quality data has been shown to unlock value that far outweighs the costs. Research has shown that openly accessible and standardised species data sets, for example, create £23 billion of benefits for the wider economy in England alone – at least 14 times greater than the costs of providing that data.²⁹

For the financial services sector, data is pivotal in assessing climate-related risks and opportunities, for timely and accurate regulatory reporting, and for the efficient allocation of capital. Work undertaken by the Network for Greening the Financial System (NGFS) in consultation with banks and other stakeholders, highlighted the importance of data to the financial services sector. Some key requirements of data were identified: easy access to reliable geographical and environmental data; timely updates to those data sets; and standardisation of data sets to ensure comparability.³⁰ Through our interviews with the finance sector, farmers being able to submit a high-quality, standardised base layer will address these needs.

We therefore recommend that a cost-benefit analysis be carried out for the potential economic impact of making OSMM data available under the PSGA to farmers and other stakeholders in agricultural decision-making.

As a small pilot, this analysis could be conducted as part of the Landscape Recovery trials whereby farmers taking part in the trials could request open access to OSMM under the PSGA for decision making purposes. This would support the creation of bespoke land management plans built to unlock access to private finance, and could provide a data source on the value unlocked through free access to OSMM.

Trials on data and data access for farmers are also underway through the Food, Farming and Countryside Commission alongside the British Geological Survey, as part of the Geospatial Commission's National Land Data Programme. These trials are to demonstrate how land use data and modelling can improve decision making and help identify possible further data improvements. There is the opportunity for shared learning between these trials and Landscape Recovery to ensure the true value of data access can be captured.

User Experience

Bringing all data sets into a single access point will provide many benefits to different sectors of the economy. For the full value of openly accessible data to be realised, it will require engagement by as many users as possible, including farmers.

There are important issues and perceptions around data within the farming community including data access and privacy. To ensure as many farmers as possible use this data and can benefit from this data being made easily available, these concerns will need to be addressed – chiefly, ensuring that data shared is public data only, and that farmers understand how data will be used.

It is important to consider the implications of a more digitally integrated farming system for those members of the farming community who may not have experience in using online data sets and online programmes to gain business insights, or to access income streams. To ensure the needs of farmers are met, a 'ground up' approach to implementing new data systems involving members of the farming community will be required. The suggested Landscape Recovery trials are a good opportunity to test this approach and to ensure all user needs and training requirements are identified.

Despite the widespread uptake of the internet within the farming community, there may be individuals who do not have internet access or access to a computer. To ensure fair access to data and wider uptake of the data, a skills assessment should be conducted to identify any skills gaps and corresponding training needs. These will need to be addressed to ensure wider usage of data by farmers.

²⁹ Eftec, ALERC, NBN Trust, BRC/CEH. 2021. Mapping the Species Data Pathway: Connecting species data flows in England.

³⁰ Network for Greening the Financial System. 2021. Progress report on bridging data gaps.

Costs

There will be a number of financial costs involved in the creation of a common access point or enhanced data sharing platform. These include: the creation of the digital architecture that will be needed to support it; training of land managers, central government and other possible users of the platform; and possible updates to government systems to ensure they are compatible with the common access point. There will also be maintenance costs involved with the system, and it is important that there is an annual budget earmarked for maintenance to ensure the system runs smoothly and any errors or technological issues can be addressed quickly. There could be costs involved with quality control and data verification, infrastructure upgrades, resourcing costs and possible audit costs.

Coverage

The Group recommends that the development of the data sharing initiative be carried out in consultation with the devolved administrations. If there are similar projects underway in Wales, Scotland and Northern Ireland, then learnings can be shared between projects to ensure efficient use of resources. It should also be carried out in consultation with the private and eNGO sectors as end users of information which may have interests across the UK.

Beneficiaries

The above recommendations will provide a variety of benefits for multiple stakeholders:

Farmers and Land Managers

For farmers and land managers, improved access to field parcel and environmental data, and access to OSMM will help address challenges with Data Access; Affordability; and Resource Commitment.

Data Access

At present, information on farm field parcels and habitat data is held in multiple locations. Bringing these data sets into a single location will greatly improve access to information for farmers and land managers.

This will allow farmers to more easily understand the natural capital assets they have on their farm and to make informed business decisions.

Affordability

Making access to this data free, and having access to OSMM at no cost for an accurate representation of the land, will increase the engagement of farmers with the supply chain and ecosystem services markets by removing any additional pressure on farm finances.

Resource Commitment

Easy access to accurate environmental and OSMM will reduce the amount of time spent searching for, and interpreting multiple data sets. It will also save time when submitting data into the supply chain or into private sector data programmes providing insight to farmers.

UK Government

Improved access to high-quality data on a wider scale and the provision of OSMM to farmers, will address concerns for the UK Government around; Environmental Reporting; Policy; and Cross-Departmental Collaboration.

Environmental Reporting (domestic and international)

Having field parcel and habitat data easily accessible through a common access point will enable a 'state of nature' to be efficiently calculated. This can be used as a benchmark from which to begin measuring progress against domestic and international climate and environmental targets including 30x30, emissions reductions and the creation of wildlife-rich habitat.

Policy

Having accurate field parcel and habitat data held in an easily accessible location can help provide the UK Government with an overview of land use across the country, ensuring a smooth transition to ELMs and that interventions are consistent with policy objectives and local priorities around habitat restoration, food production, carbon sequestration and flood risk reduction.

Cross-Departmental Collaboration

With multiple departments responsible for meeting the UK Government's environmental targets, having this common access point and all data available in one place, will allow for a holistic view across different land-use departments such and could also provide real time information flow and collaboration between departments to efficiently meet these targets.

Financial Services Sector

For the financial services sector, data is essential in assessing climate-related risks and opportunities, for timely and accurate regulatory reporting, and for the efficient allocation of capital.

Having easy access to important data sets and farmers having access to OSMM, will better enable banks and financial institutions to target farms for financial support and free baselining tools, and will help address challenges of: Data Accuracy; and Reporting Burdens.

Data Accuracy

Having easy access to a wide range of habitat data, and farmers in their client base submitting high quality, standardised maps through OSMM will enable the financial sector to begin to more easily and accurately set science-based targets to track scope 1 and 3 (if applicable) GHG emission reductions across their asset portfolios. Furthermore, it would enable financial institutions to more easily and accurately locate and assess their interfaces with the natural environment and source nature-related risk data for TNFD reporting. This would result in a more detailed understanding of risks embedded in their asset portfolios for more efficient distribution of capital into the farming transition.

Reporting Burden

Having easy access to habitat data through a common access point, and standardised high quality maps from their farming client base via OSMM, will allow financial institutions to more easily collate data for various mandatory reporting requirements including those for the FCA, scope 3 emissions reporting in line with TCFD

recommendations, progress on portfolio alignment to net zero pathways for the Net-Zero Banking Alliance and for upcoming Sustainability Disclosure Requirements. Furthermore, a UK-wide data strategy would ensure ease of use and standardisation across their client base that may span more than England alone.

F&B and Retail Sector

For the food and beverage and retail sectors, having environmental data more easily accessible and farmers having a high quality spatial mapping programme as standard will help them target farmers in their supply chain for financial support, premium payments or the provision of free baselining tools and address concerns with data accuracy; and reporting burdens.

Data Accuracy

Easily accessible habitat data, and standardised high quality maps from their farmer suppliers, will enable the sector to more easily track GHG emission reductions across the supply chain and ensure that any information submitted for reporting requirements is accurate. It will also allow a company to more easily locate and assess their interfaces with the natural environment and source nature-related risk data for TNFD reporting, delivering a more detailed understanding of risks embedded in the supply chain.

Reporting Burden

Being able to easily access habitat data and high quality standardised maps from their farmer supplier will allow larger companies to more easily collate data for reporting requirements such as scope 3 emissions for climate disclosures in line with TCFD recommendations, as well as Scope 1 emissions for Streamlined Energy and Carbon Reporting and upcoming SDR. Furthermore, a UK-wide data strategy would ensure ease of use and standardisation across geographically dispersed supply chains.

³¹ Network for Greening the Financial System. 2021. Progress report on bridging data gaps.

Buyers of and Investors in Ecosystem Services

For buyers of, and investors in ecosystem services, farmers having access to priority habitat and spatial data sets will address challenges with: Data Accuracy; Verification, and encouraging Greater Participation in Environmental Markets.

Data Accuracy

Easily available habitat data and sellers of ecosystem services having access to OSMM, will allow full accounting of ecosystem services to take place more accurately and more easily across landholdings.

Verification

Having environmental data more easily accessible, and all farmers using OSMM as the base layer for field parcels will allow buyers and investors to easily verify any claims on environmental improvements made by land managers.

Greater Participation in Environmental Markets

Through access to OSMM, farmers will be better able to develop an environmental Land Management Plan to identify and capture the opportunities available from environmental markets. This will increase opportunities to invest in these markets for buyers.

