Fenland SOIL NCPGS Opportunity Mapping Discovery Grant Project

Work by Dr Elizabeth Stockdale and Megan Hudson

Background

In the UK, Local Knowledge of Landscape and Soils (LSK), defined as "the knowledge of soil properties and management processes possessed by people living in a particular environment for some period of time" has rarely been a core component of soil assessment or land management policy.

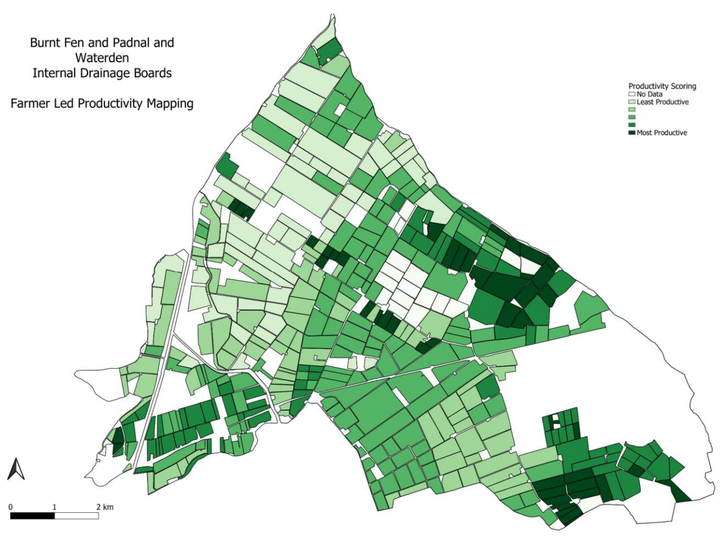
Mounting evidence shows:
1.) The value of LSK integration into participatory soil surveys.
2.) Exclusion of LSK often results in the failure of scientific interventions to improve land use.

The Project

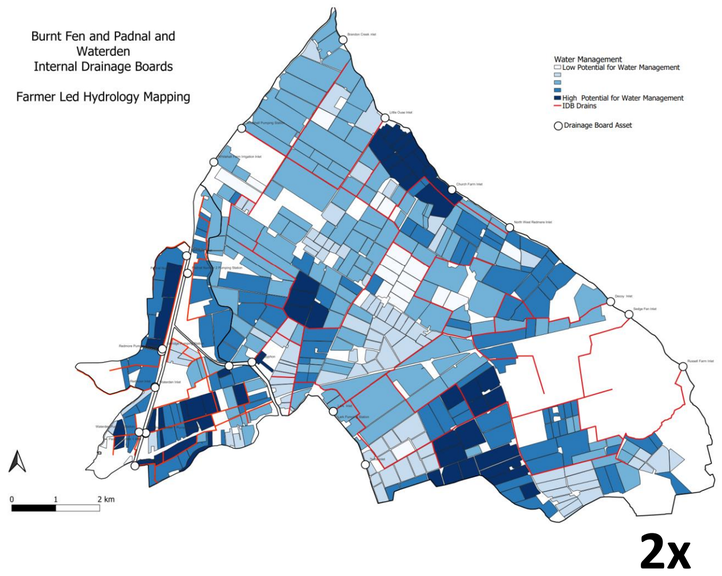
In early 2022, Fenland SOIL and NIAB were awarded a £96k Natural England Peatland Restoration Discovery Grant Project to assess the feasibility of bringing together local expert knowledge of farmers, land managers and drainage experts to tackle carbon loss in the Fens by changing land use.

The aim was to unlock barriers to re-wetting and restoration by developing co-created opportunity maps, which would present land managers with a mosaic of options for changing land-use or land-management. Any change to land-management in the Fens will require close cooperation between land managers and drainage experts to ensure a realistic and feasible plan for management going forward, which reduces emissions, enhances biodiversity and maintains these landscapes for the people that live, work and travel through them. The plans generated need to work with local people to be able to achieve lasting and effective results.

Productivity Map

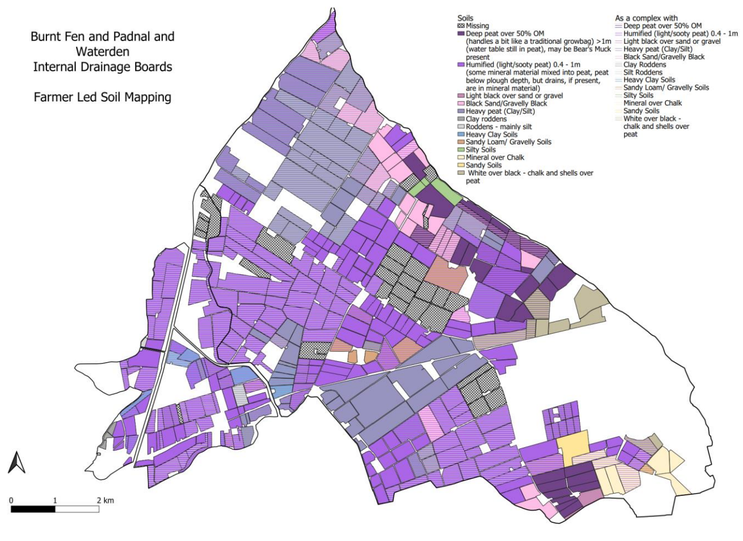


Hydrology Map



2x

Soils Map



Productivity was mapped at field scale by farmers using simple proxy measures including:

- Yield for a reference crop (winter wheat)
- Flexibility (range of crops that can be grown)
- Resilience
- Soil Variability

These measures were combined to give a qualitative index for productivity, producing the above map which was peer reviewed by farmers.

The study found that the existing information held for hydrology at a small scale within the IDBs was limited and therefore hydrology data was collected qualitatively using farmer and local IDB expertise.
As hydrology is considered the most important factor when making peat soils wetter, whether for restoration or wetter farming conditions, the qualitative index was doubled to weight it more heavily.

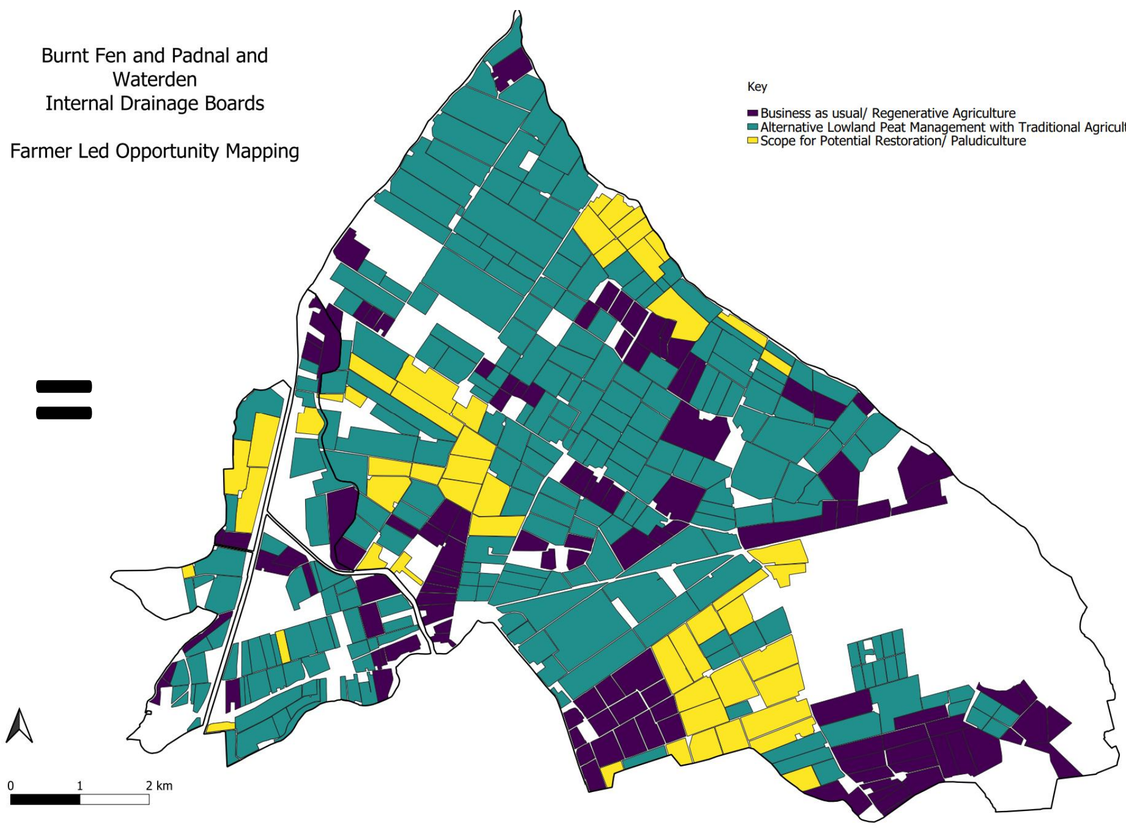
Soil type was mapped at field scale by farmers using a common lexicon or key by colouring in copies of their farm map. This was then digitised to show the dominant and secondary soil types in each field and then ground-truthed.
This mapping layer was then reviewed by expert soil scientists who concluded that the farmer mapping had excellent spatial detail which could be used for more targeted depth and condition surveys.

Results

This roots upwards approach produced a locally codesigned opportunity map covering a mosaic of options for the IDBs that showed that farmers can help design solutions that are achievable at a local scale.

This project has reaffirmed the need to consult local experts when designing complex landscape scale change, to allow scoping to be quickly narrowed down to those areas where it is appropriate. This allows resources to be best used in areas where changes to peatland management are most suitable.

Going forward this mapping method can be used in lowland peat catchments to quickly identify areas to discount or investigate further using more detailed scoping methods.



Contact: m.hudson@fenlandsoil.org