Shropshire Council

Using nature to help tackle our Climate Crisis

Dan Wrench

Climate & Carbon Project Officer

Dan.wrench@shropshire.gov.uk

Carbon storage by Shropshire Council

- No specific target for carbon storage
- Shropshire Council will not achieve zero carbon emissions by 2030 – if Scope 3, indirect emissions are included.
- Shropshire Council will need to find ways to compensate for the emissions that can't be avoided.
- Offsetting emissions can include:
  - preventing emissions from happening [only for Carbon **Net Neutral**]
  - Green House Gas removal from the air [required by Carbon **Net Zero**]
- This includes tree planting, habitat management, mechanical / chemical processes, enhanced rock weathering, biochar

Carbon Stores Biochar

The Energy and Bioproducts Research Institute at Aston University declared "the Shropshire firm's biochar meets the criteria set by the International Biochar Initiative (IBI), Biochar Quality Mandate (BQM) and European Biochar Certificate (EBC), which makes it suitable for market applications, such as soil amendment"

Local supplier:

Caradoc Charcoal Ltd

Plenty of scope for more.
Existing uses include:

- Soil enhancer
- Water and air filters
- Increase output of Anaerobic digestors
- Livestock feed additive
- Building materials
- Gas and oils – energy, bioplastics, etc

Carbon Stores Biochar

Birmingham mobile pyrolysis unit – Cofton Nurseries

Carbon Dioxide stored in waste biomass would otherwise be released back to the atmosphere as the material rots – or is burnt

Uses waste brash from Council maintenance to produce around 215 tonnes of biochar per year (Equates to 630 tCO2 **REMOVAL**)
Caradoc Charcoal are selling biochar for £1800 per tonne

Also generates heat for polytunnels, electricity via a generator.

Carbon Stores Biochar

Birmingham mobile pyrolysis unit – Cofton Nurseries

Carbon Dioxide stored in waste biomass would otherwise be released back to the atmosphere as the material rots – or is burnt

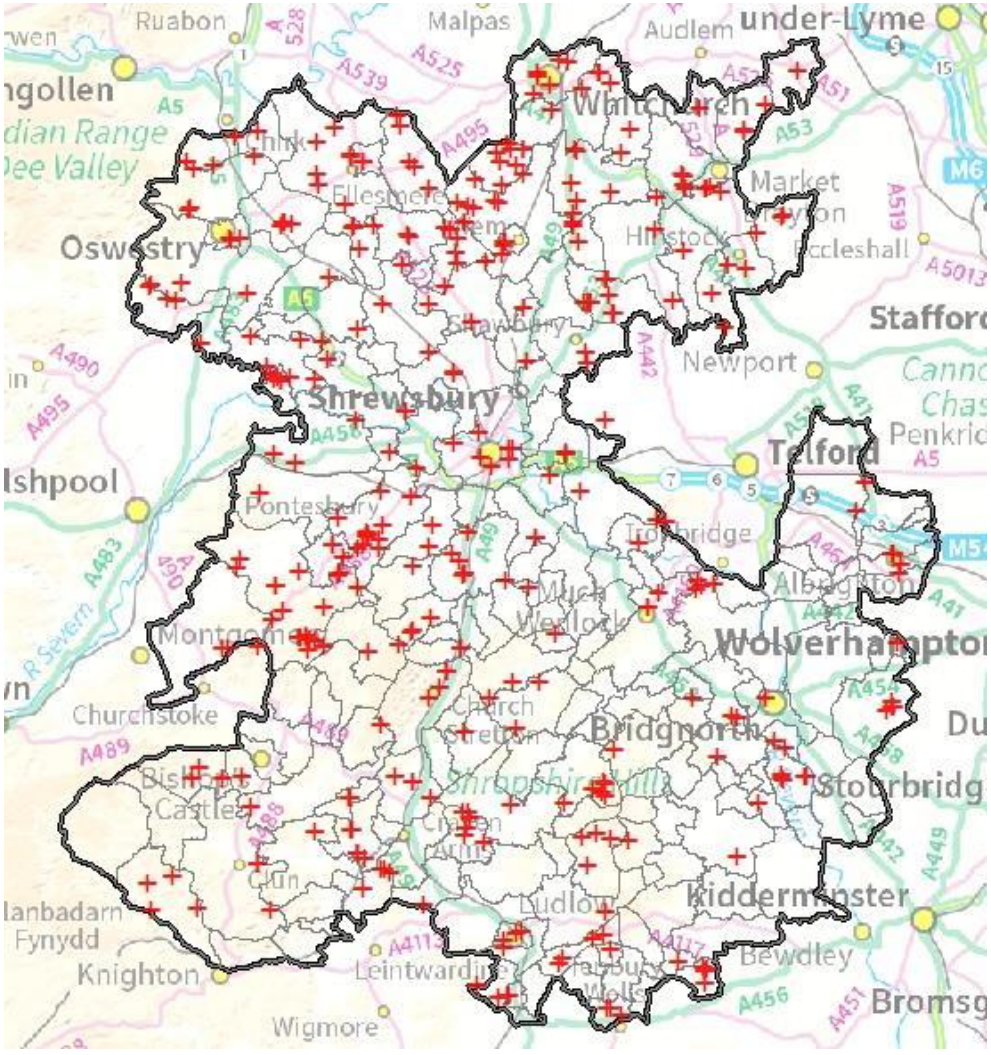
Uses waste brash from Council maintenance to produce around 215 tonnes of biochar per year (Equates to 630 tCO2 **REMOVAL**)
Caradoc Charcoal are selling biochar for £1800 per tonne

Also generates heat for polytunnels, electricity via a generator.

Tree planting – Shropshire Council led

1. **Community Tree Scheme**
   Long-term programme of providing free trees to the community
2. **Trees Outside Woodland**
   Pilot project working with Defra, Tree Council & 5 Local Authorities to tackle barriers to planting trees outside woodland.
3. **Queen's Green Canopy**
   Assistance with and promotion of tree planting to celebrate the Platinum Jubilee
4. **Countryside Site management**
   Trees planted or coppiced as part of general site operation

Community Tree Scheme



Since 2020 we have provided:

- 26,540 Trees
- 27,540 Hedgerow trees and shrubs

Since 2010:

- 95,361 trees
- 85,403 hedgerow trees

Interactive map available from the ‘Trees Outside Woodland’ page on Council web site.

Or:

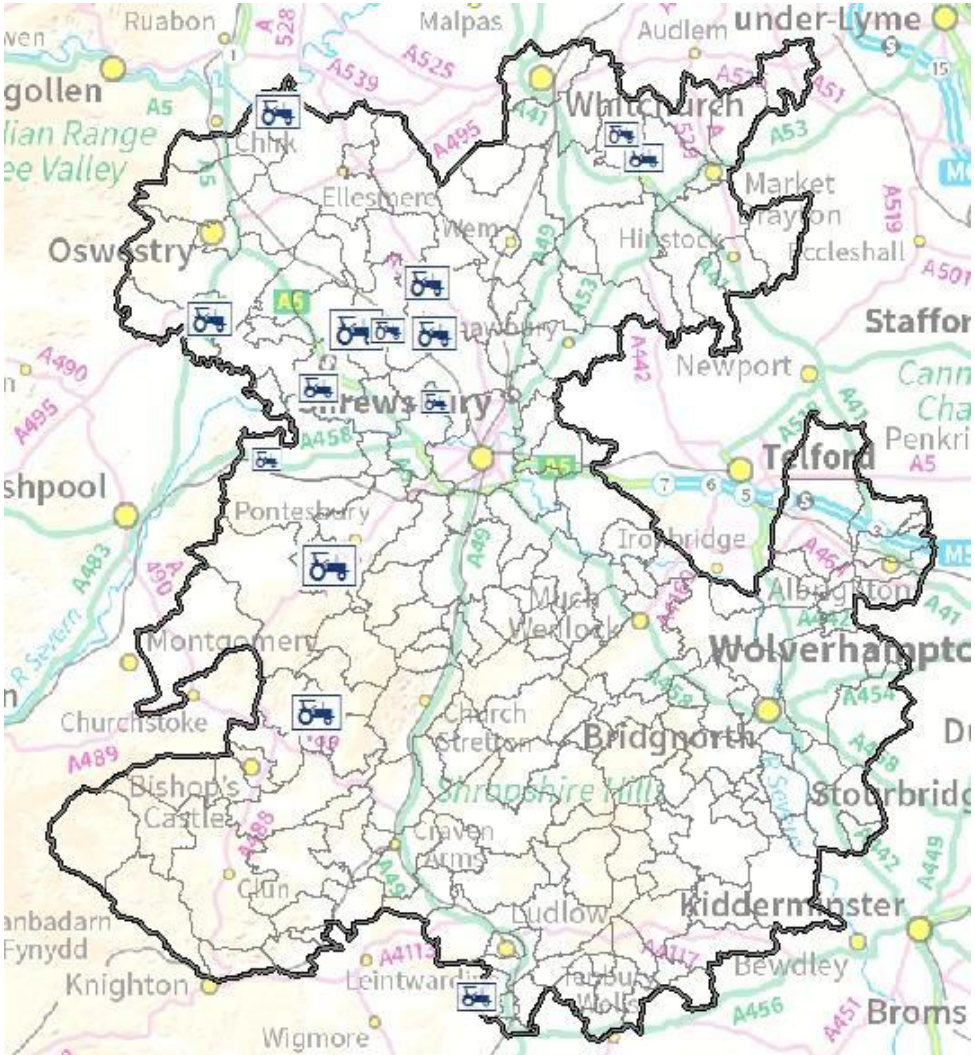
Carbon & tree targets

345,000 trees between 2020 and 2030
Currently we are 900 trees below a target of 34,500 per year

Net Zero carbon emissions by 2030
Tree planting at current target levels would only store 731 tCO2 By 2030
But by maturity the trees would store: 480,000 tCO2

But… Ash die-back may result in the loss of more trees than we are planting.

Agroforestry & Orchards



Tree planting that doesn't take land out of farming systems

- 14 Farms involved planting nearly 1000 trees
- Traditional uses like infield trees in traditional pastures, and shelter belts to protect livestock
- Also use of trees as fodder for cattle; walnut as an insect repellent; fruit and nut trees in arable fields as an additional crop.

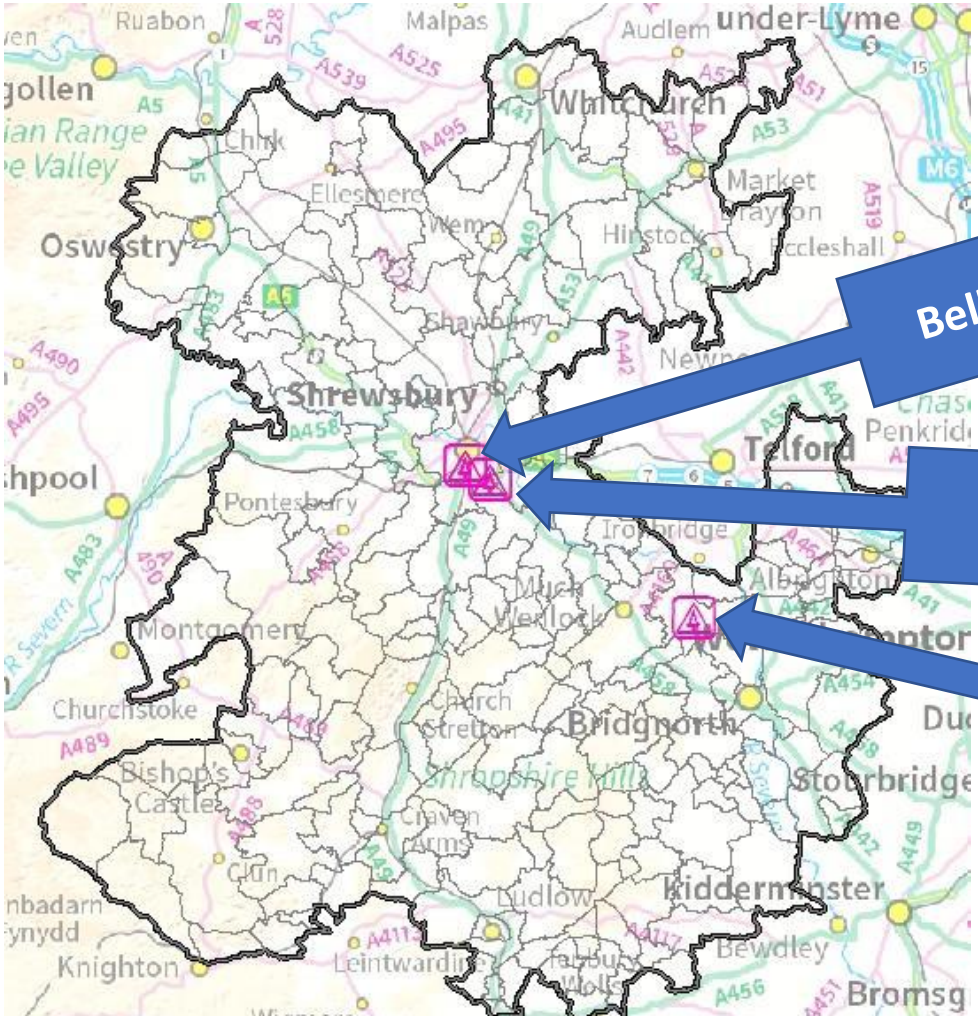
Shropshire Council

Agroforestry & Orchards

Agroforestry & Orchards

Shropshire Council

Community Tree Nurseries

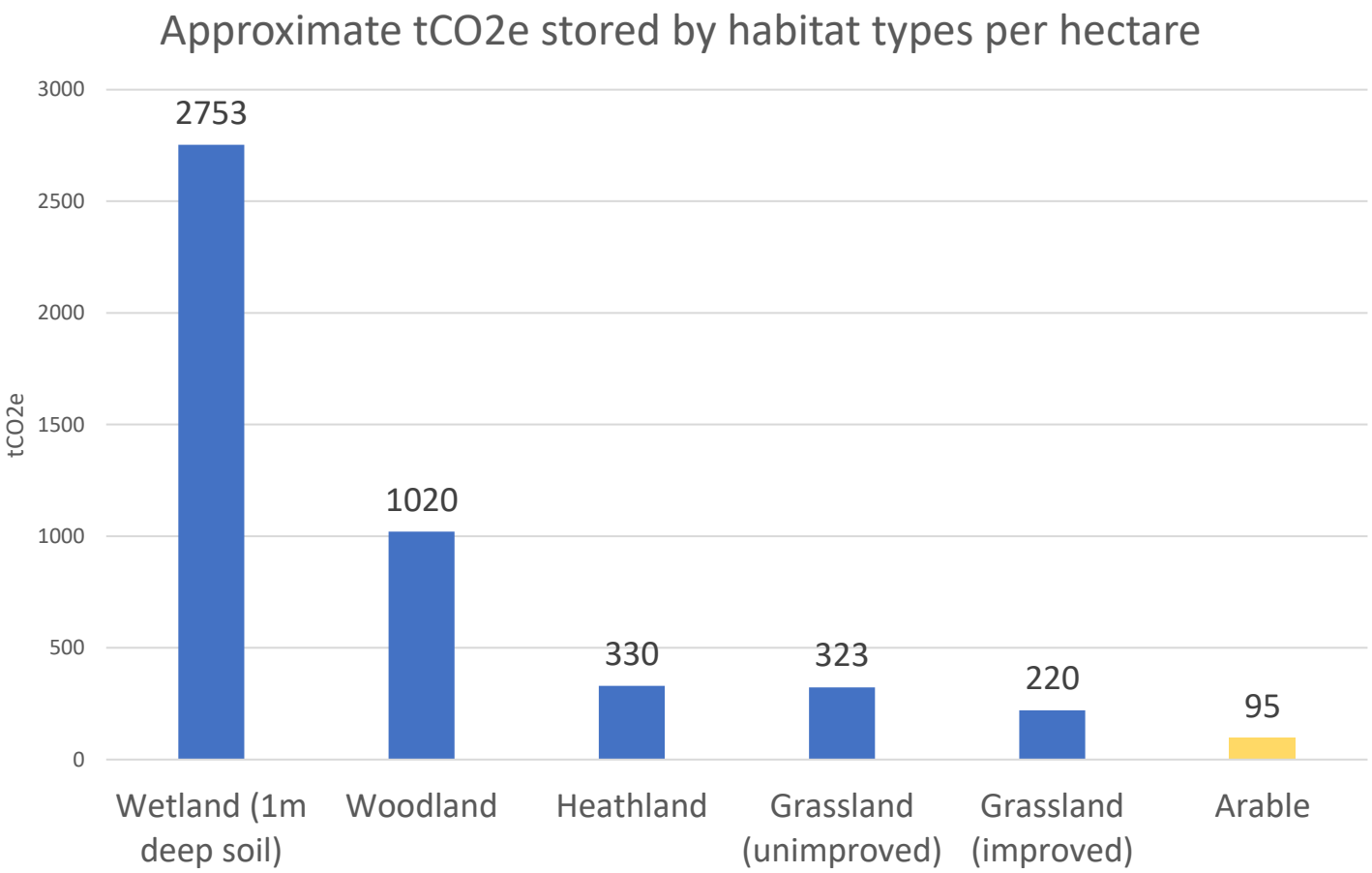


Belle Vue Tree Planting Group

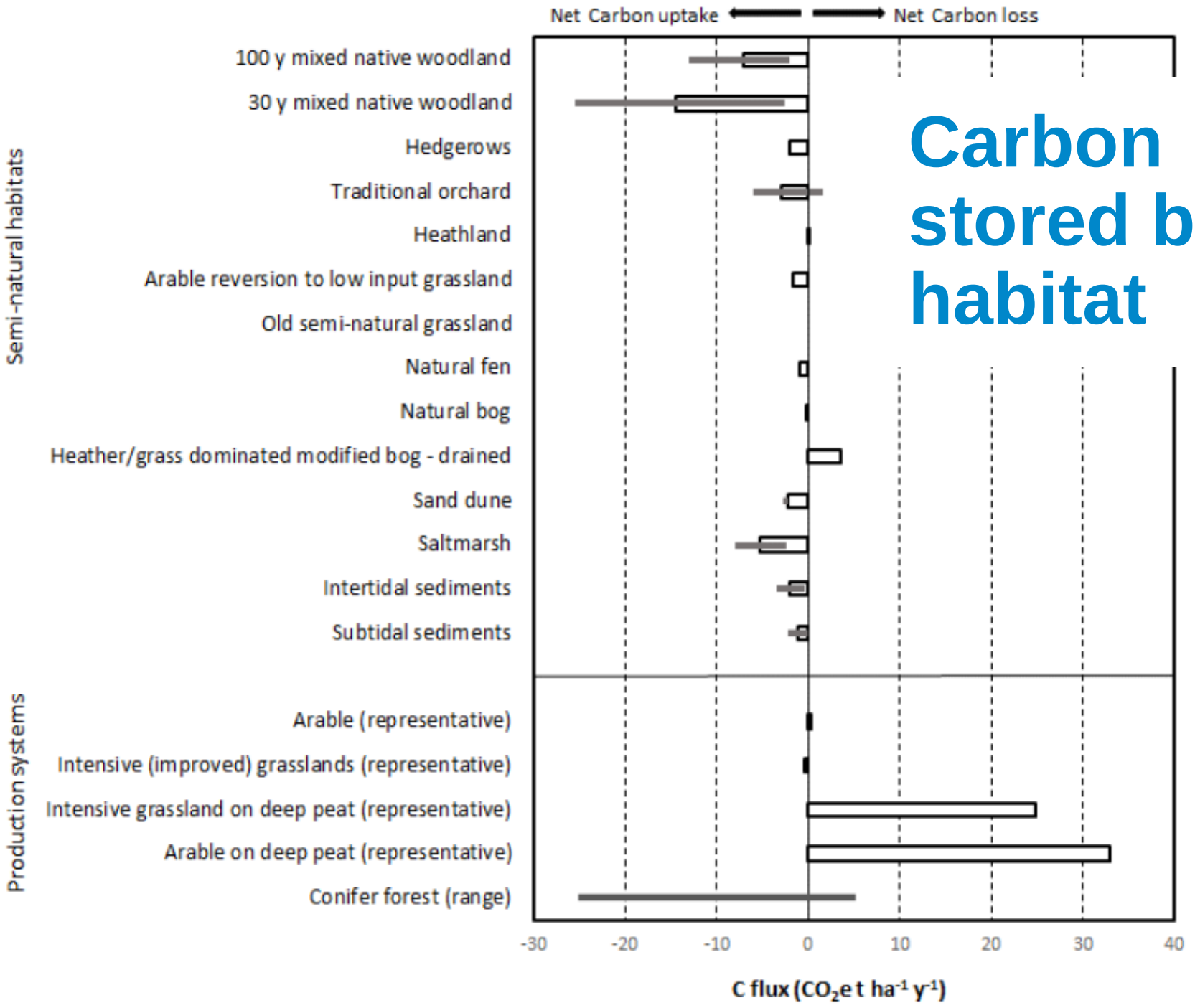
Weeping Cross Depot – Shrewsbury Town Council

Small Woods Association and Willey Estate: Walled Garden

Carbon stored per habitat

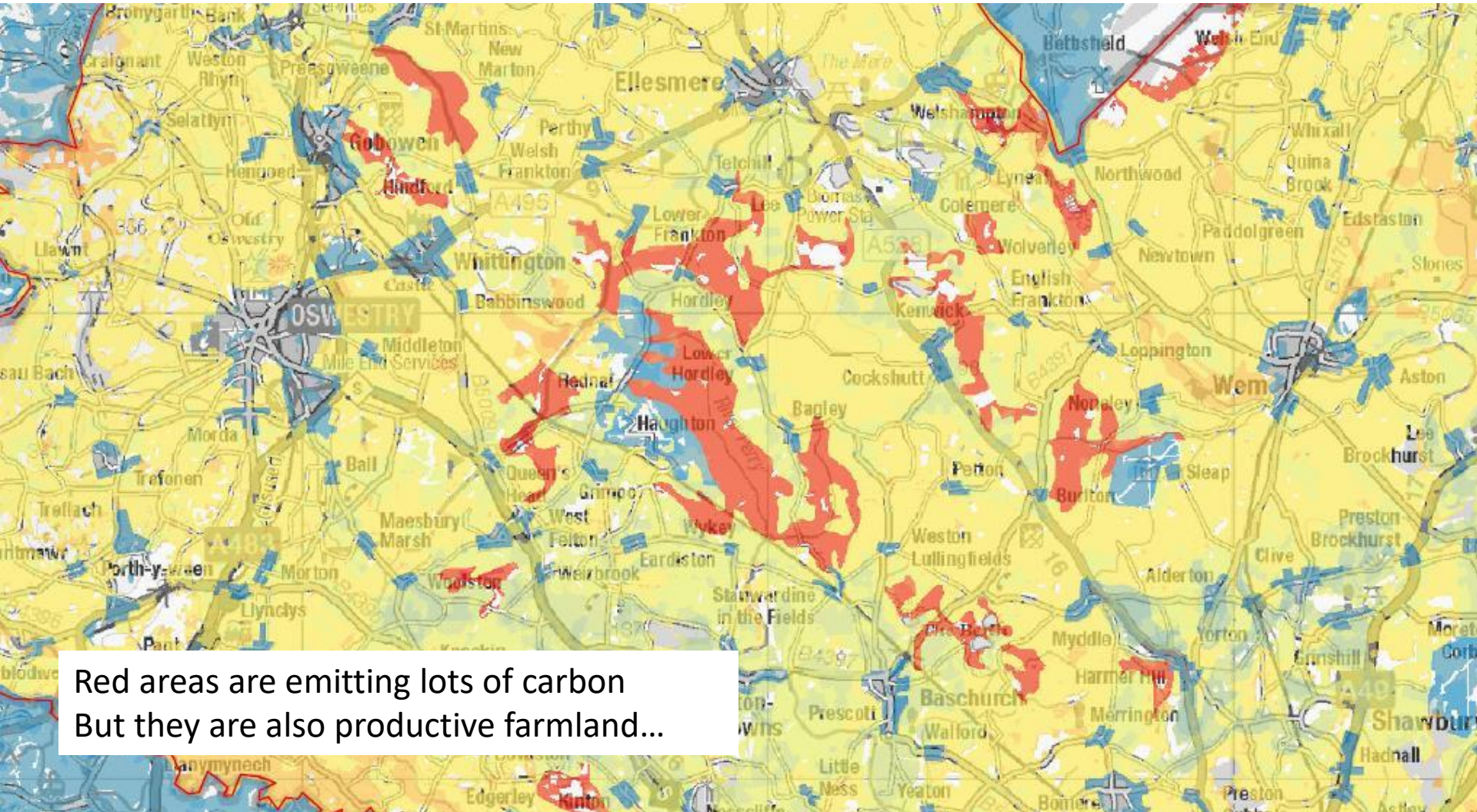


Carbon stored by habitat



Shropshire Council

The Carbon cycle (carbon flux)



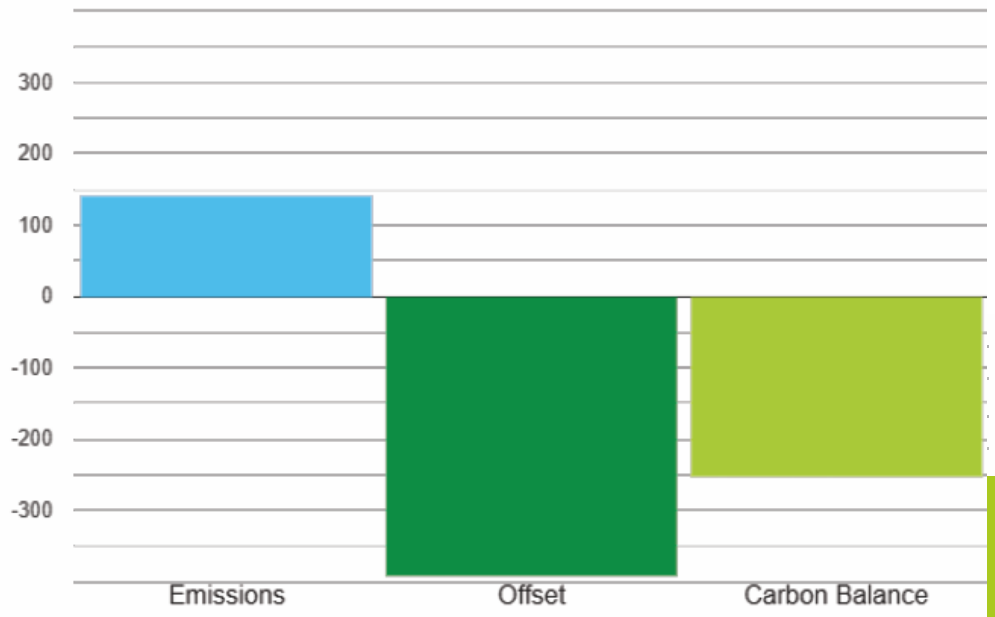
Red areas are emitting lots of carbon
But they are also productive farmland…

Shropshire Council

Carbon Calculator

Farm Carbon Calculator

SUMMARY: Stiperstones National Nature Reserve. Sept 2021

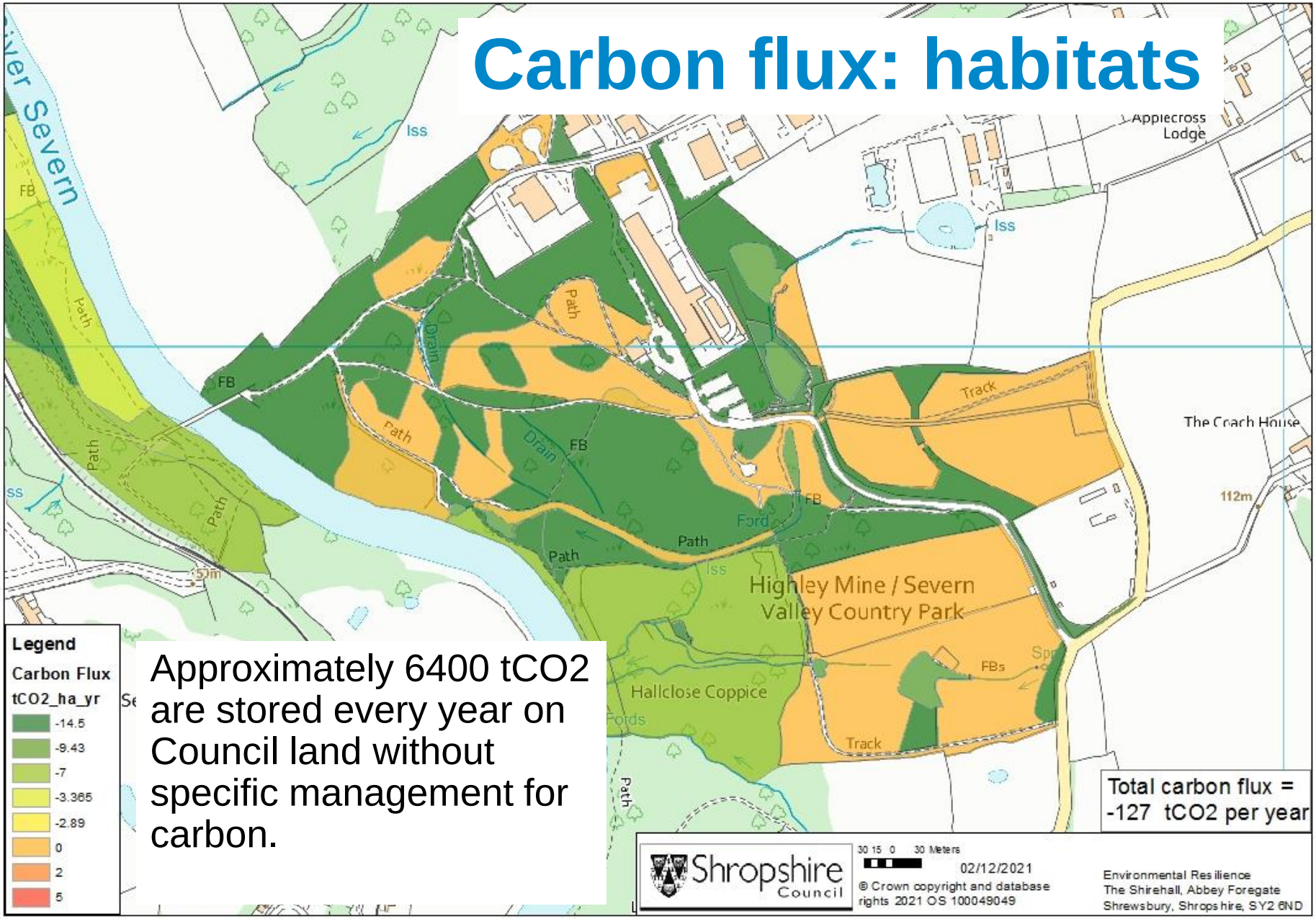


-252.30

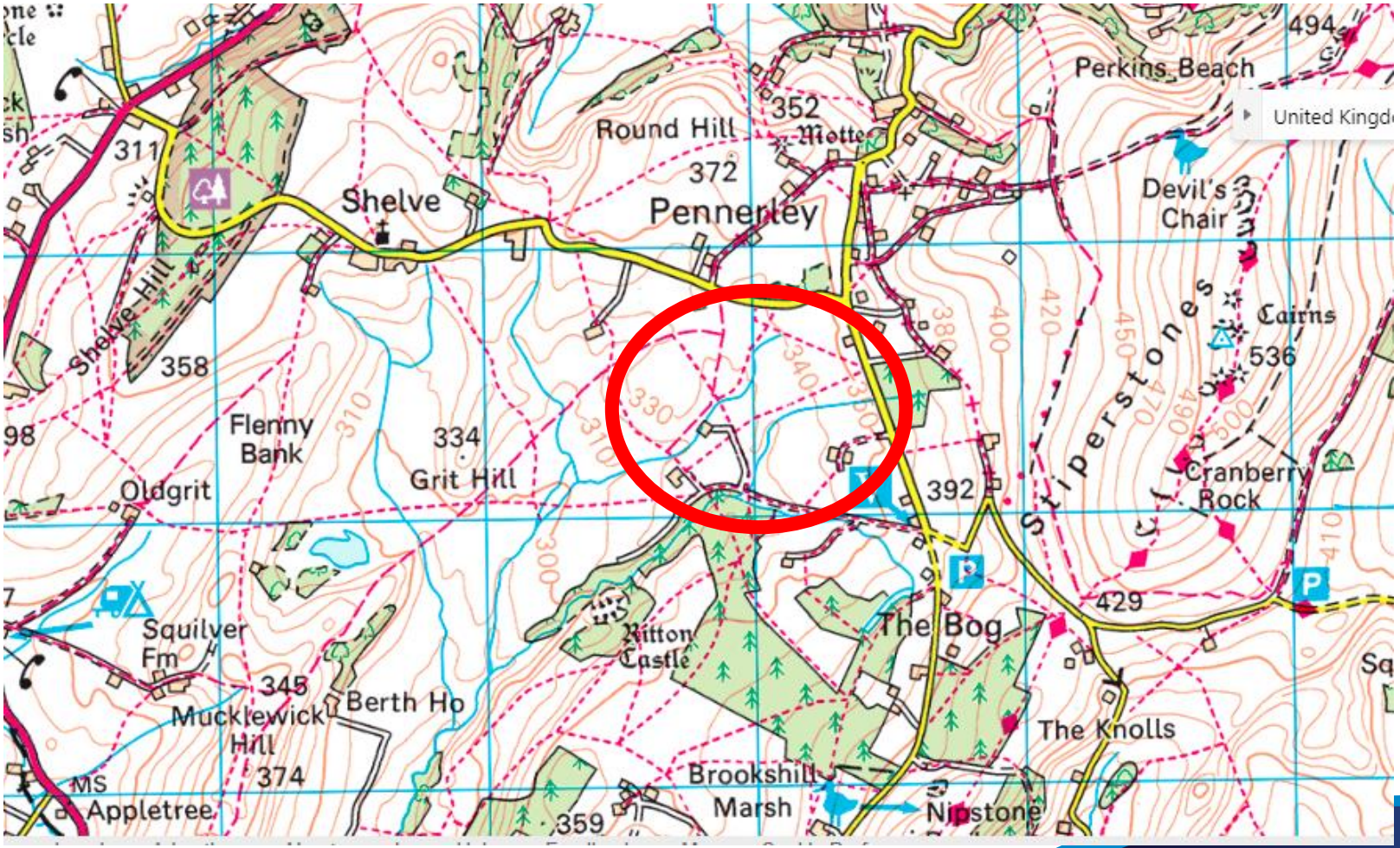
tonnes CO_2e per year

Sequestered

Carbon flux: habitats



Soil carbon and peat - Shelve



Soil carbon and peat

12 hectares (29 acres)

Currently emitting around 500 tCO2 every year as peat dries out

(All Council trees provided since 2010 have stored 350 tCO2)

Short rotation willow could store additional carbon. Over 250 tCO2 per year.

Simple solution is to block land drains. This would reverse carbon loss, reduce flooding downstream and improve biodiversity and water quality. BUT… The farmer may be out of pocket. So how is this paid for?

Soil carbon and peat

Regenerative agricultural practices can:

- replace carbon in soils lost through over-use of chemical fertilizer
- reduce atmospheric CO2
- boost soil productivity
- increase resilience to floods and drought.
- Increase biodiversity
- Reduce nutrient losses

Such regenerative techniques include:

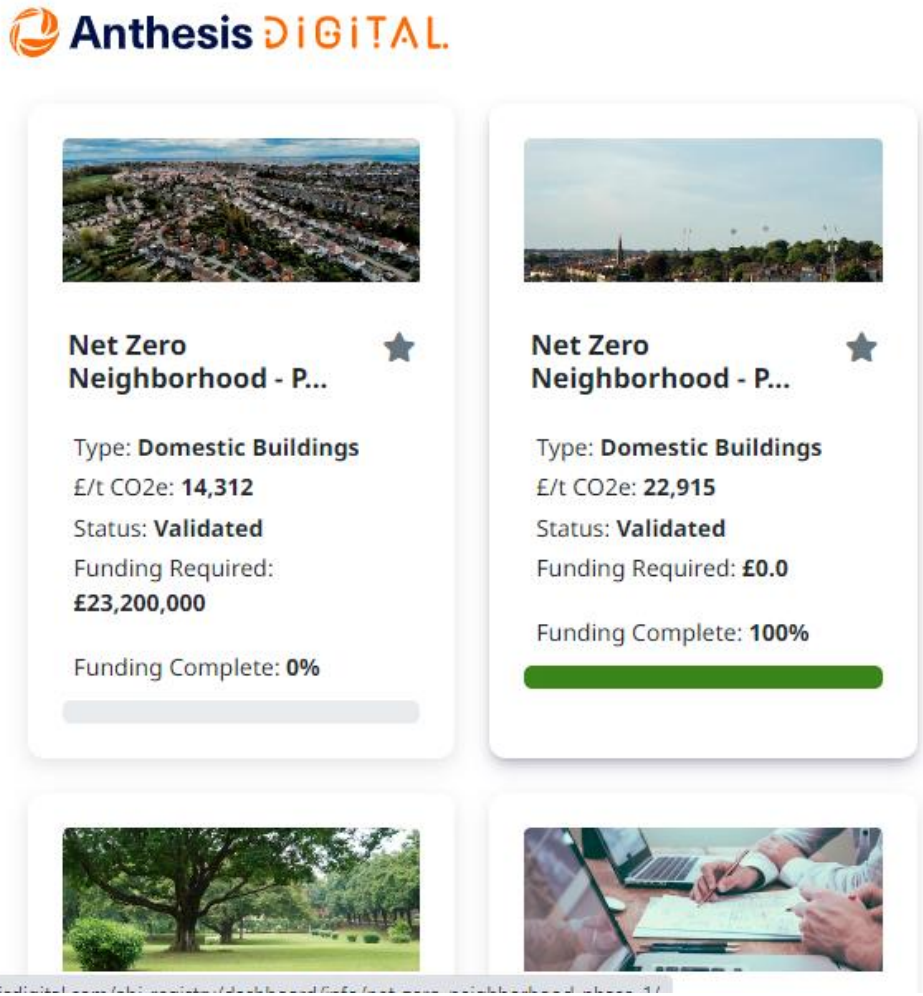
- planting fields year-round in crops or other cover
- Reduced ploughing or no-til farming
- agroforestry that combines crops, trees, and animal husbandry
- Greater use of biomass grown on site for incorporation in soils, creation and use of biochar, re-wetting fields

Area Based Insetting

Calculating the carbon reductions from local projects:

- Local Authorities should try to offset locally rather than international projects like REDD+
- Current local offsetting includes:
  - Tree planting using the Woodland Carbon Code – only 1 ‘seller’ known about in Shropshire
  - Some limited potential for Peatland Carbon Code
- Local businesses want to fund local projects for their Corporate Social Responsibility targets but have few to choose from.
  - Example of Miles Macadam’s carbon neutral road scheme
- ABI is a developing national framework to allow local investment in low carbon or carbon removal projects

Area Based Insetting - ABI



Phase 2 of ABI resulted in 4 worked up projects listed on the registry
In Shropshire and options for more

Thank you for listening

Dan.wrench@shropshire.gov.uk