CCBS CLIMATE CHANGE NATURAL ENVIRONMENT WORKSTREAM

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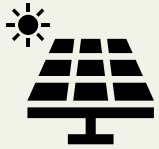
CCBS Climate Change Programme

Programme Objectives

- Contribution to HCC Net Zero Emissions by 2050
- Adapting and building resilience to 2°C
- Use our land to sequester carbon and protect the natural environment
- Review the way we operate to be more climate friendly
- Educate and influence others to join us in tackling climate change

CCBS Climate Change Programme

Programme Workstreams	
Travel & Transport 	• Electricfication • Fuel type • Delivery efficiencies
Energy & Infrastructure 	• Renewable energy • Energy efficiency • HCC emissions
Product Lifecycle 	• Waste reduction & increased recycling • Purchased goods
Food 	• Menus • Food waste collection • Catering waste prevention
Natural Environment 	• Carbon sequestration • Information & education • Demonstration projects

NATURAL ENVIRONMENT WORKSTREAM

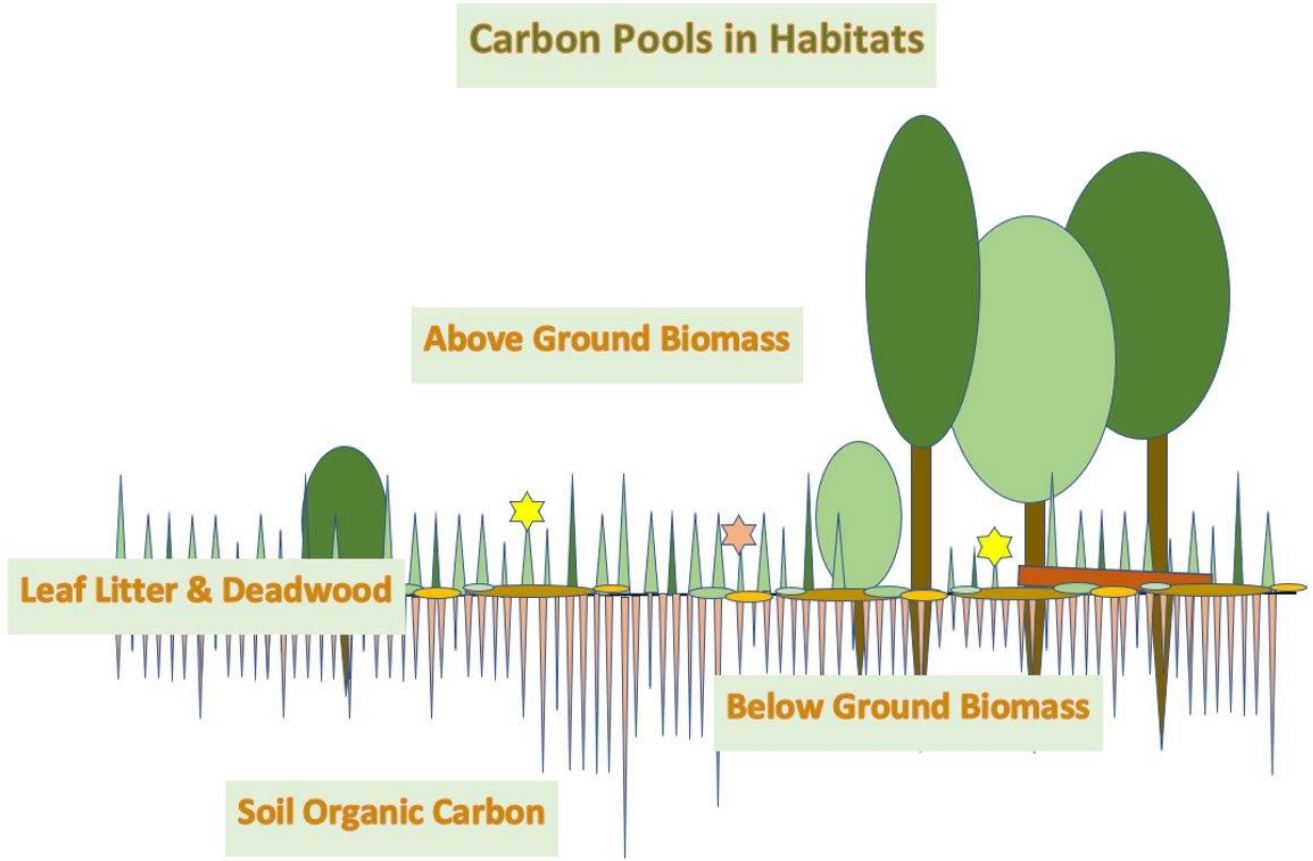
A. Carbon Storage and Sequestration

- Step 1 – determine the current carbon storage of CCBS landholdings (followed by HCC?)
- Step 2 – identify & calculate known risks to carbon storage
- Step 3 – develop a decision-making tool for future land management
- Step 4 – produce a strategy to increase carbon storage

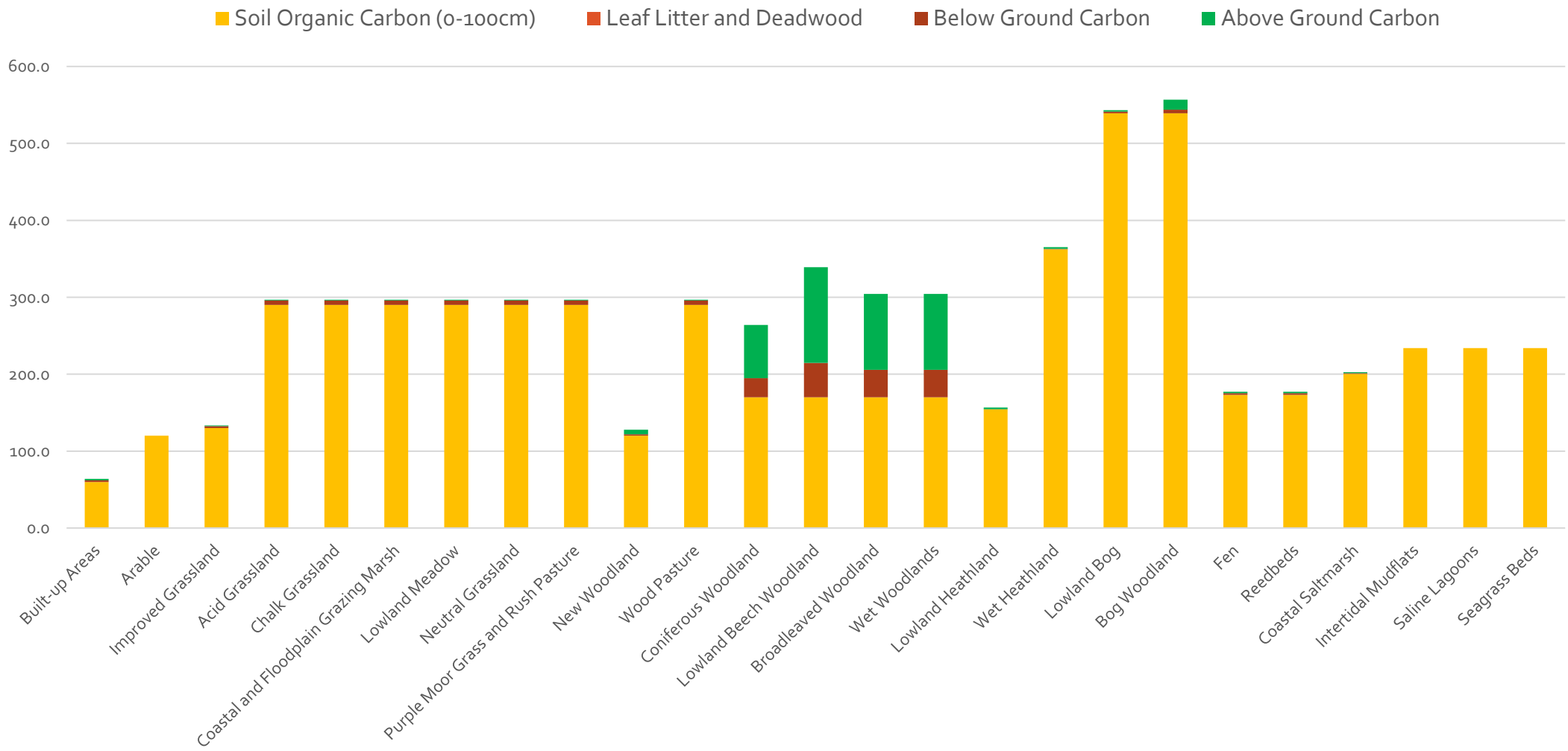
How carbon is stored

All functioning habitats can be a carbon sink, that is land where carbon can be removed (or sequestered) from the atmosphere by natural processes. InVest tool provides values for this function.

Globally twice as much carbon is stored in soils as in the atmosphere, with peatlands contributing 30% of this, although they only cover 3% land area.

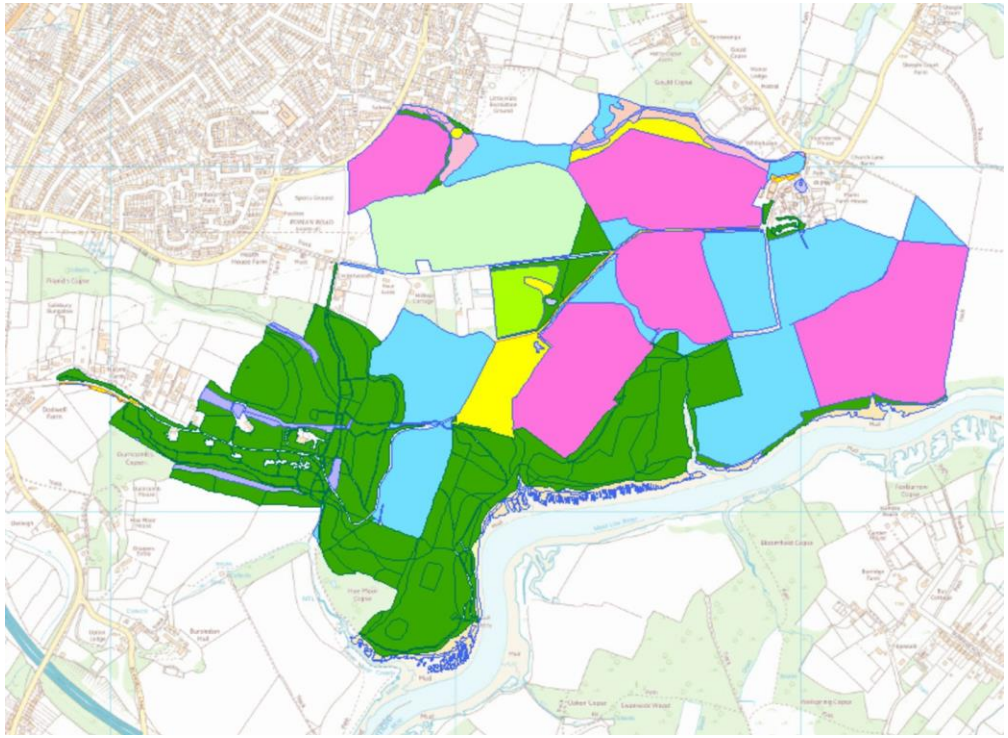


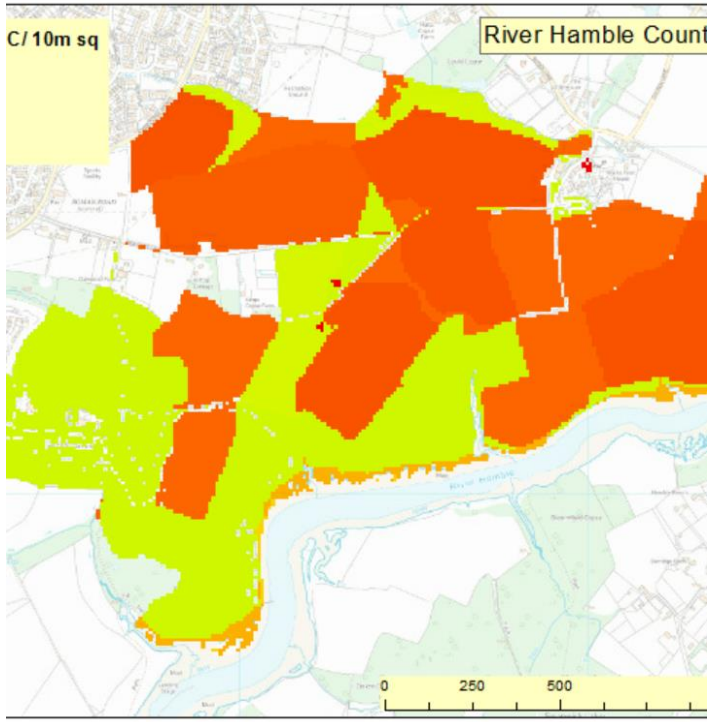
Carbon Pools within Habitats (t C/ha)



Step 1 – determine current carbon storage

- **Land Use Land Category (L**ULC) is mapped using HBIC BAP Broad and Priority habitat layers
- Use the InVest tool to provide a heat map of tonnes of carbon per 10m²
- Example River Hamble Country Park below



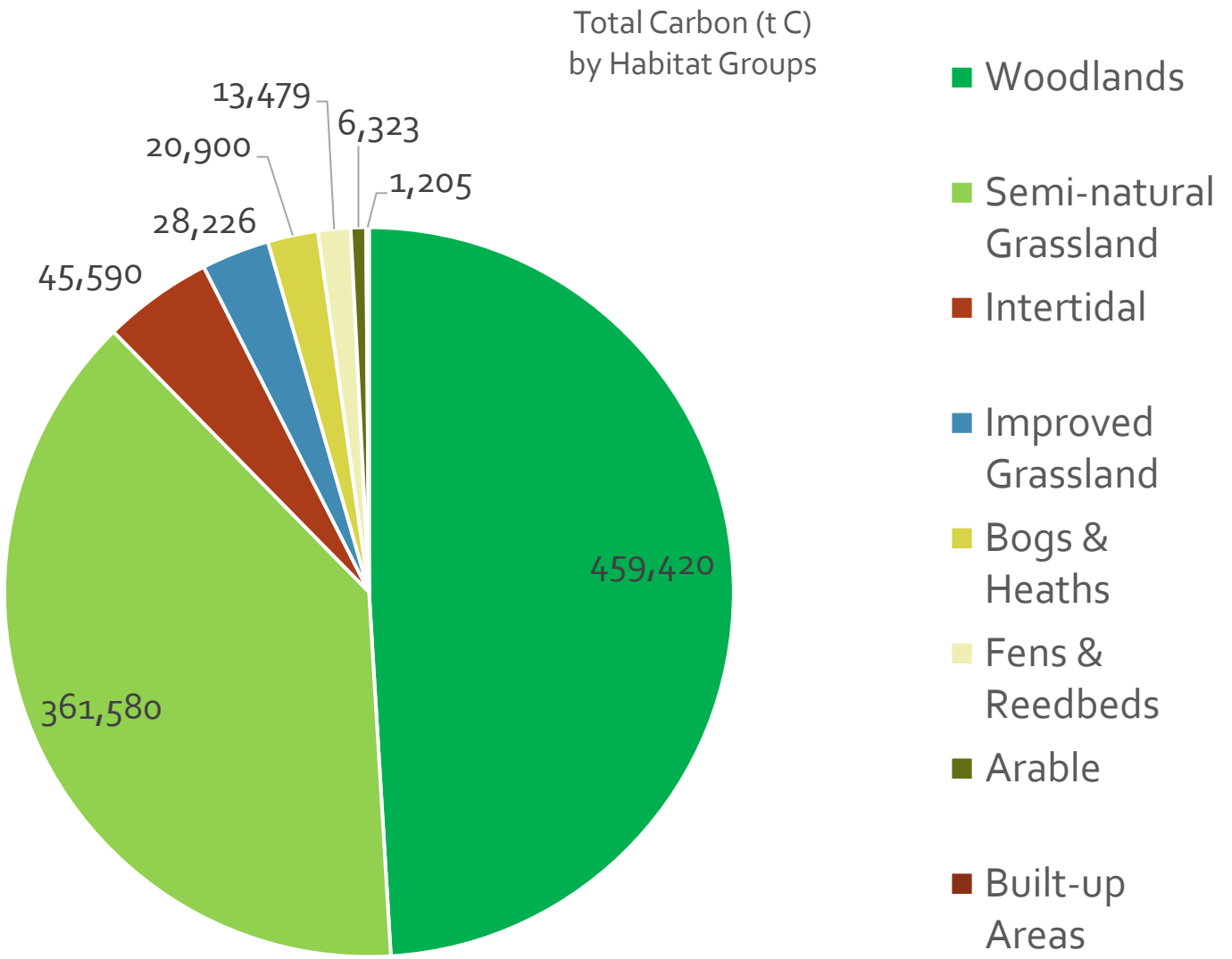


Habitat specific carbon storage

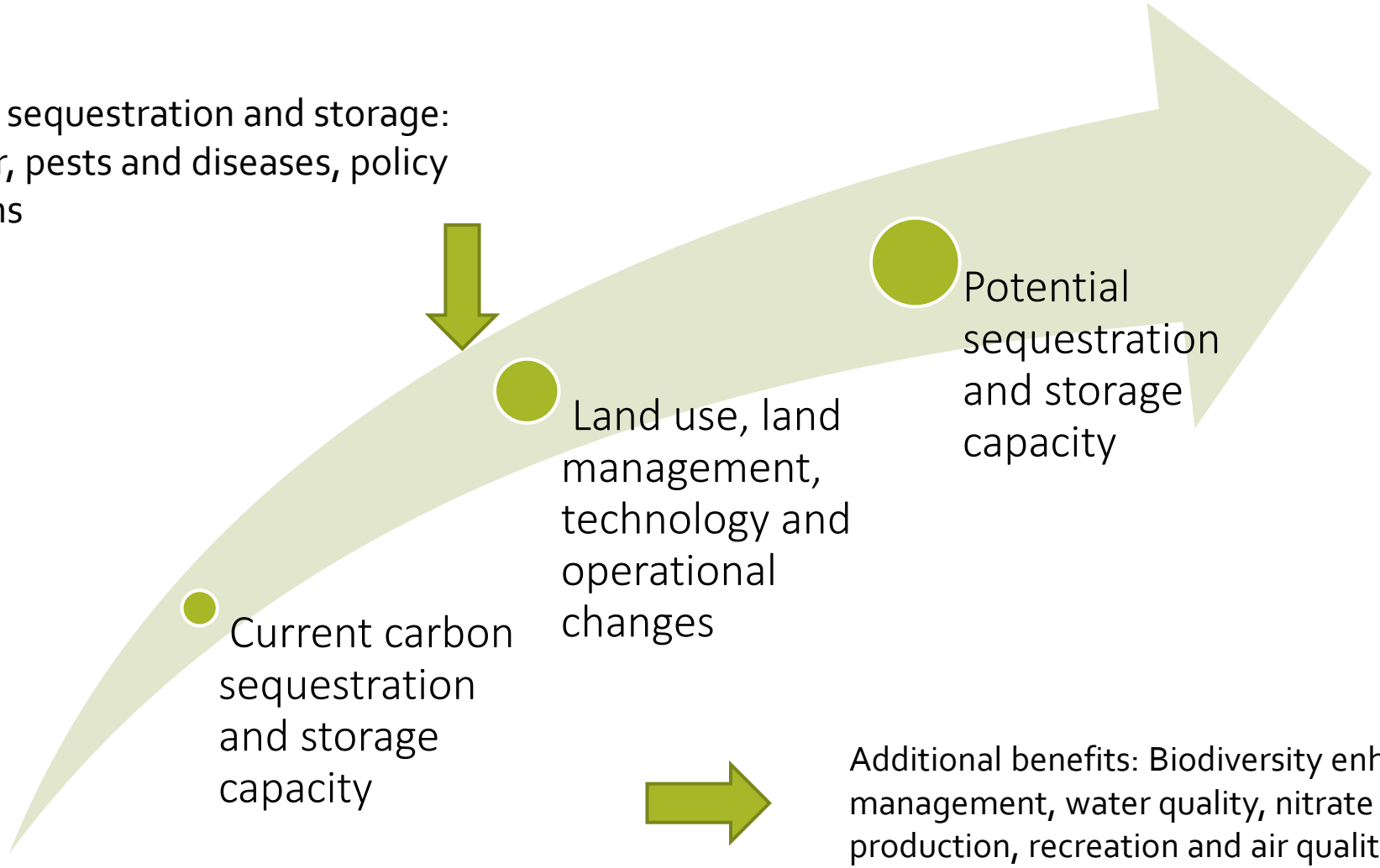
Total estimated carbon stored within the Countryside Service landholding is 936,723 tonnes with an overall mean of 272.7 t C/Ha

Next step is determine the current carbon storage of the rest of CCBS landholdings and then HCC. Finer grain for agricultural land.

Also determine the level of carbon sequestered per habitat per annum. Early indications are around 12,000 to 17,000 tCO_2



Risks to sequestration and storage: weather, pests and diseases, policy decisions



Additional benefits: Biodiversity enhancement, flood management, water quality, nitrate mitigation, food production, recreation and air quality

Step 2 - Risks to carbon capture and storage

Increase in Mean Sea level rise	• Coastal erosion and decreasing land area • Submergence of coastal areas – changing nature of carbon capture
Changes in summer and winter temperatures and precipitation	• Long term changes in grassland and species communities e.g. sites dry out or become waterlogged limiting ecosystem function (could be offset by flood storage) • Increase/decrease in primary production may change nature of habitat • High temperatures leading to increased fire risk and release of carbon • Extreme precipitation events where they lead to negative habitat/ecosystem modification and subsequent carbon sequestration
Soil changes	• Wind erosion and waterlogging • Pressure for continued cultivation of arable land across Hampshire when other sustainable methods more appropriate
Pests & diseases	Ash Die Back and similar on the increase. Risk to carbon sequestration short term even with successful replacement policy.
Development	Utilisation of land asset for development
Policy changes	Policies and iniatives that have a perverse consequences for example funding for habitats preventing positive changes that drive carbon sequestration
Financial and resource drivers	Pressures that prevent "doing the right thing"

Step 3 – Decision making tool

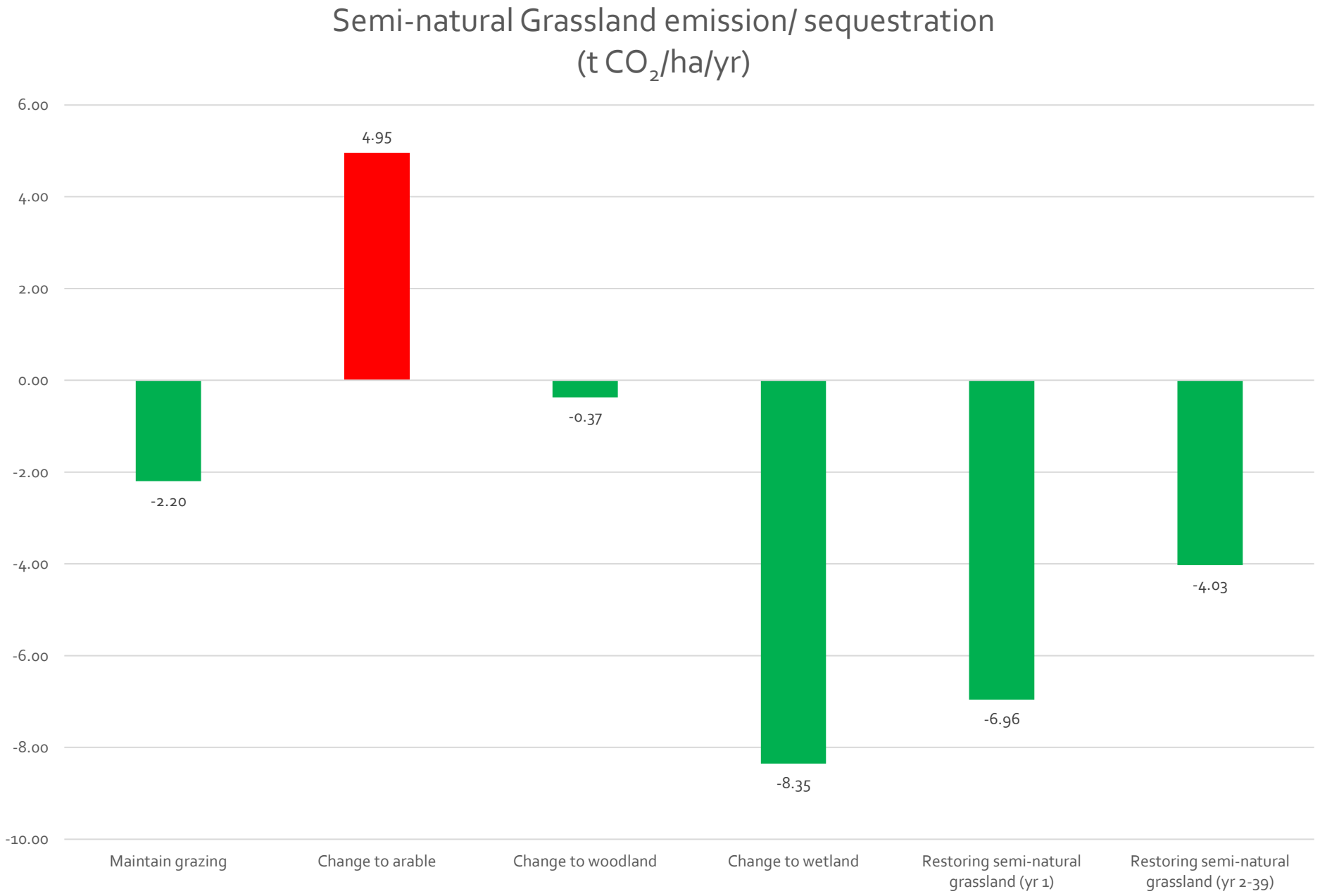
CCBS landholdings (Countryside, Rural, Schools, Strategic land)

Current & potential carbon sequestration and storage

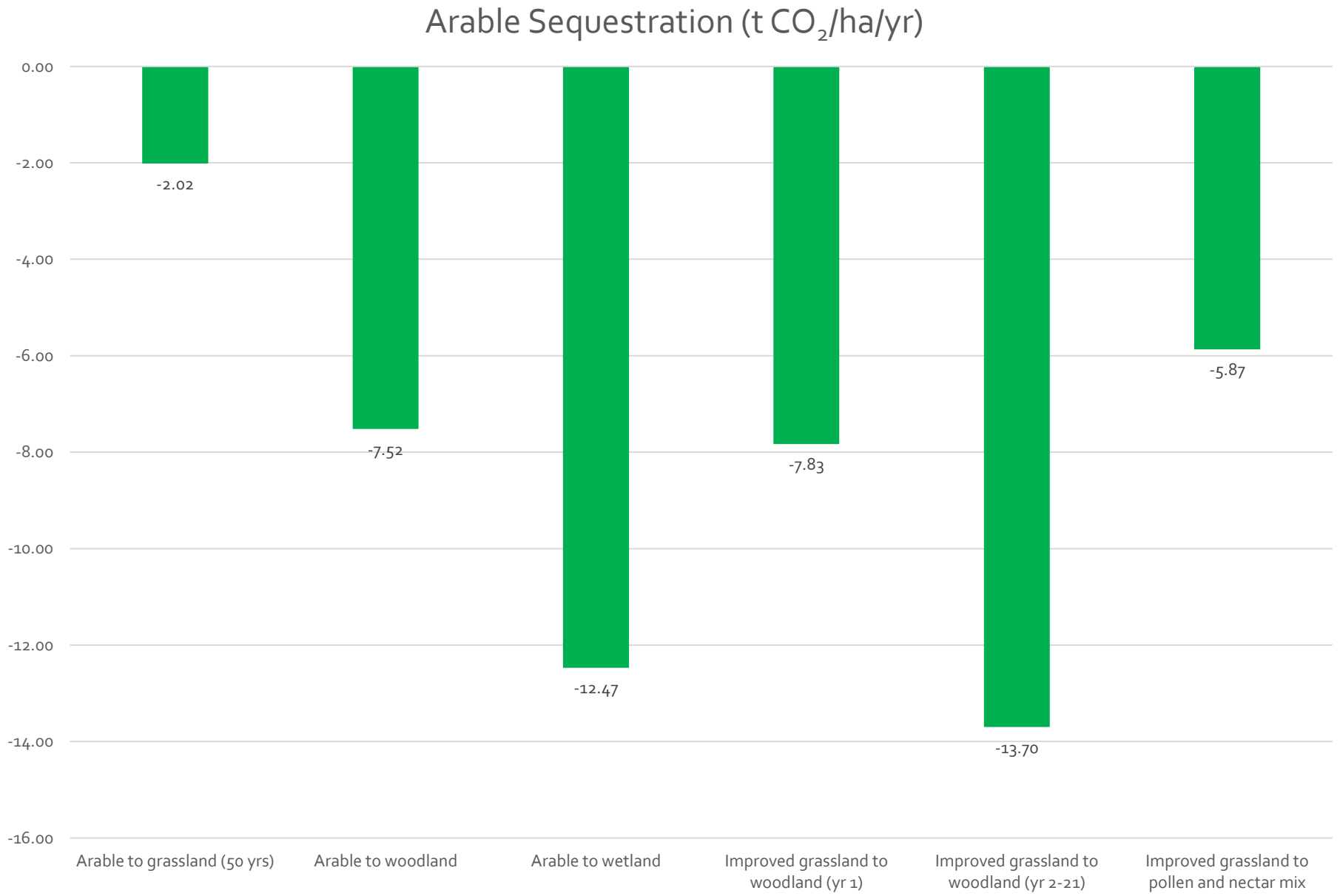
- Land use
- Adaptive management
- Activities & operations
- Acquistion & disposal

→ Asset Strategy

Carbon sequestration and management options

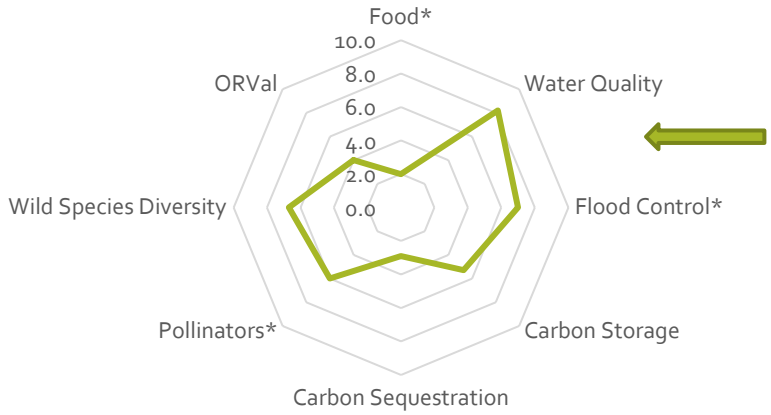


Carbon sequestration and management options



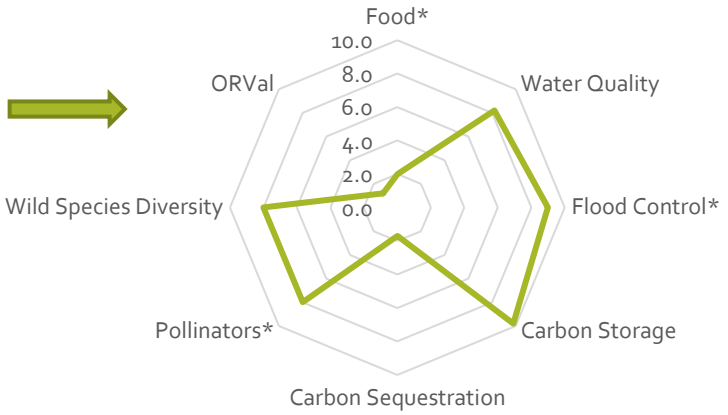
Tools to help us prioritise positive management actions for Climate change

Titchfield Haven

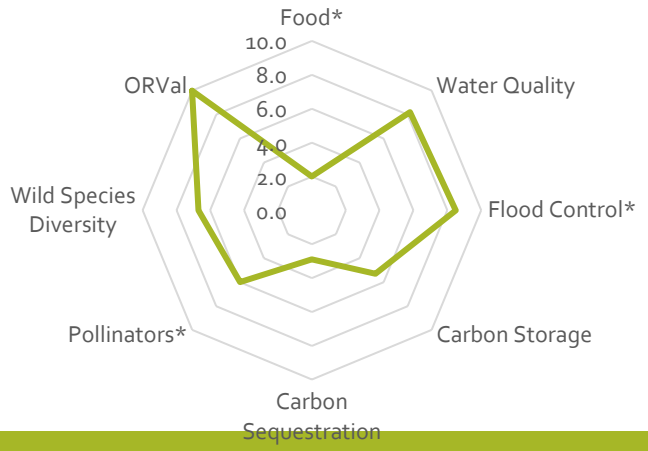


Sites where actions for water quality and flood control can deliver for wildlife and carbon and our customers

BW Moors



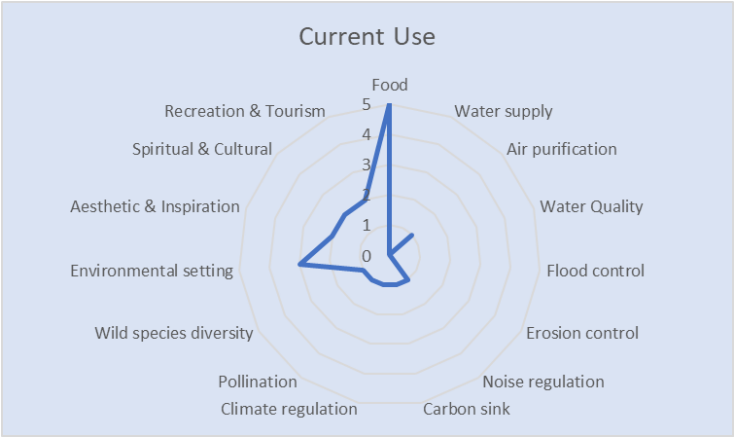
Lymington



Example: Titchfield area

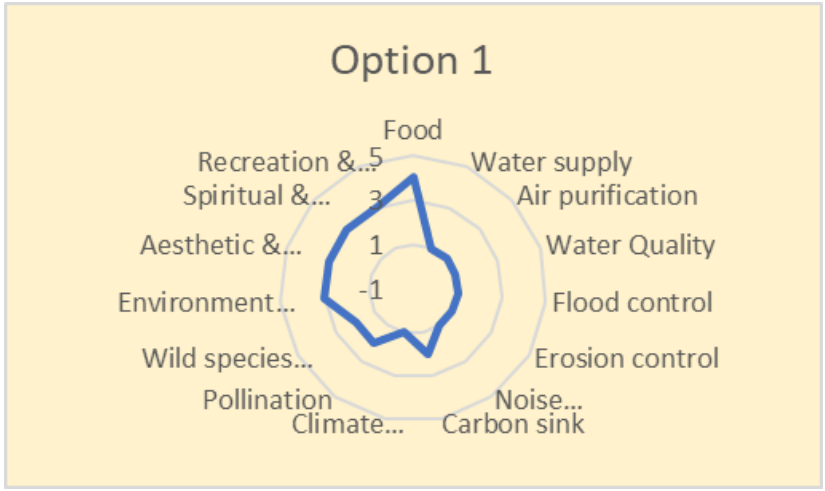
Current Use – arable/market garden growing root-crops and other vegetables
Food production values are high with fertiliser input and bird scarers used to protect crops throughout the year. Regular cultivation of the soil results in erosion, soil disturbance and oxidisation, decreasing the potential for carbon storage. With exposed soil, erosion can lead to topsoil loss and silt in the runoff with reduced water quality. Water will not be retained on the site for long, reducing the ability of water to enter groundwater reserves. The site is on a coastal location so has a relatively high environmental setting value. Access is along the coastal fringe and is used by a significant number of people.

- Carbon storage 44t C/ha (3,784 t C)
- Emission/sequestration 0.09 t CO_2/ha/yr (2.11 t C emitted/yr)
- Nitrogen loss 2,511 kg/yr



Example: Titchfield Area

Option 1 – arable/market garden growing root-crops and other vegetables with enhanced access
Retain agricultural use for the majority of the site. Fence out a 10m strip around the periphery to provide additional access route and reduce direct disturbance to the centre. Stop use of bird scarers. Develop the strip as grassland/scrub matrix for access and increased biodiversity; 4km route and 4ha in area.



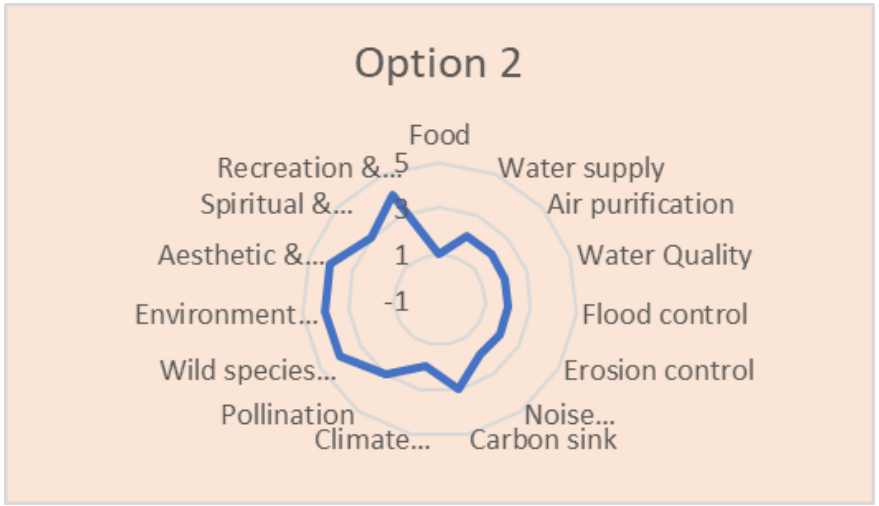
- Carbon storage 44t C/ha
- Emission/sequestration 0.09 t CO_2/ha/yr & -2.02 t CO_2/ha/yr (0.19 t C sequestered/yr)
- Nitrogen loss 2,446 kg/yr resulting in 65 kg/yr reduction

Example: Titchfield Area

Option 2 – Conversion to low intensity coastal grazing

Site fenced to reduce direct disturbance to waders and Brent Goose in the winter. Grassland restored and low intensity grazing introduced. Area may still function for agricultural use and food production, conservation beef.

Continuous vegetation cover will reduce erosion, retain soils and result in cleaner water in any runoff.



- Carbon storage 67t C/ha (5,762 t C)
- Emission/sequestration -2.02 t CO_2/ha/yr (47.38 t C sequestered/yr)
- Nitrogen loss 1,118 kg/yr resulting in 1,393 kg/yr reduction

Step 4 – Strategy for increasing carbon sequestration & storage

- Links to other plans and strategies e.g. Tree strategy
- Part of local nature recovery strategy (on the basis that what benefits biodiversity benefits carbon sequestration)
- Strategies for different parts of the Department but principles similar e.g. mowing/cutting regime changes
- Discussion with Natural England and other agencies about adaptive land management to build resilience for future rather than looking backwards

B. Education and influence

The role of the new Education Engagement Task Force is education and influence through engagement

a) To help staff, partners and public become more aware of projects and initiatives around the county and to raise awareness of:-

- The climate impacts on the natural environment
- The steps HCC are taking to increase carbon capture and storage
- The action individuals, organisations and other authorities can take to support positive carbon sequestration activity

C. Demonstration Projects

- Runways End Eco Centre
- Hilliers Frontier Garden
- Carbon positive Country Park

Currently working on the scope of these and the funding requirements.

Positive work underway - highlights

Parish Pollinator project

Developing local action plans to improve provision for and understanding of pollinators.

Restoration of Fen habitat (1.4ha).

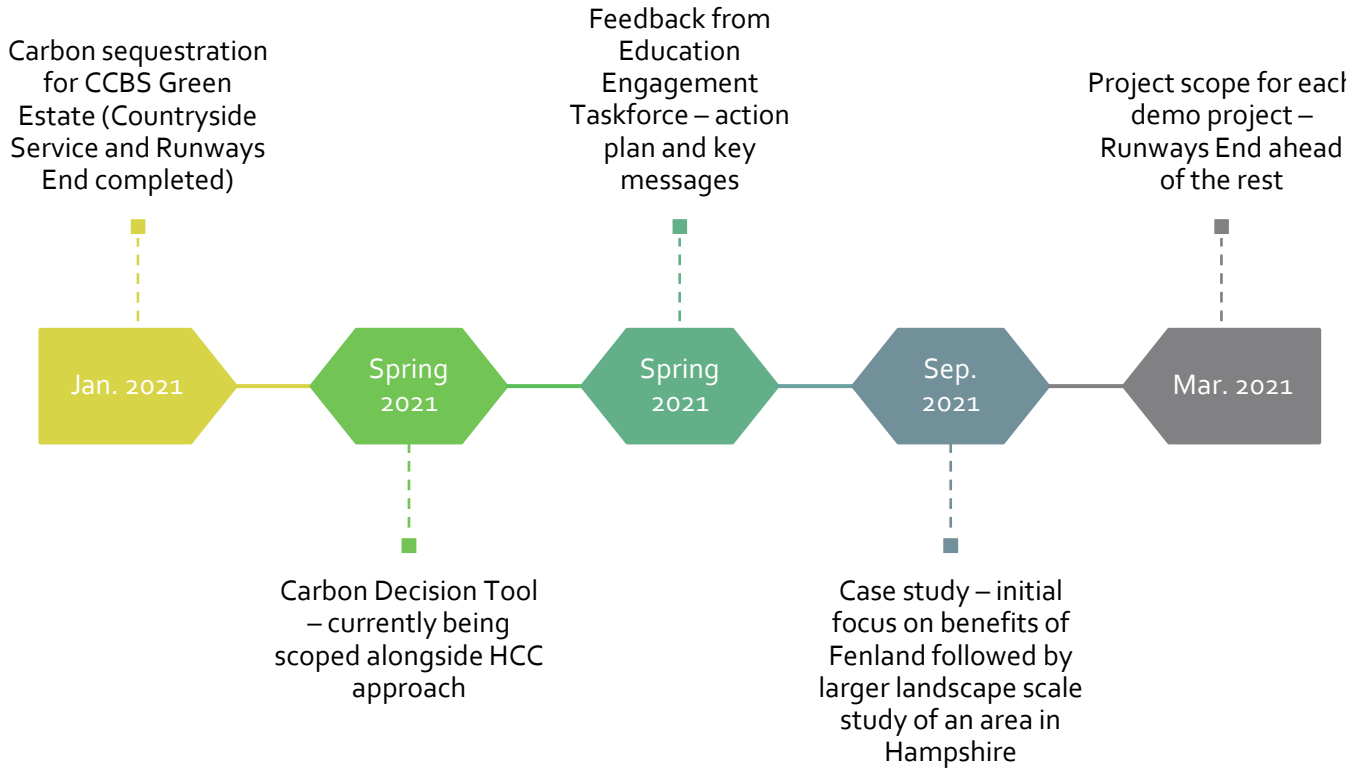
Farm Carbon Toolkit

All tenant farms asked to calculate their carbon footprint.

Woodland Action Plan

mitigation for Ash removal inc. ash retention zones, tree planting and natural regeneration.

Key milestones



THANK YOU