30% Protected Land by 2030

Will there be enough area to maintain UK food security?

Geoff Sansome

Head of Agriculture

@hawfordfarm

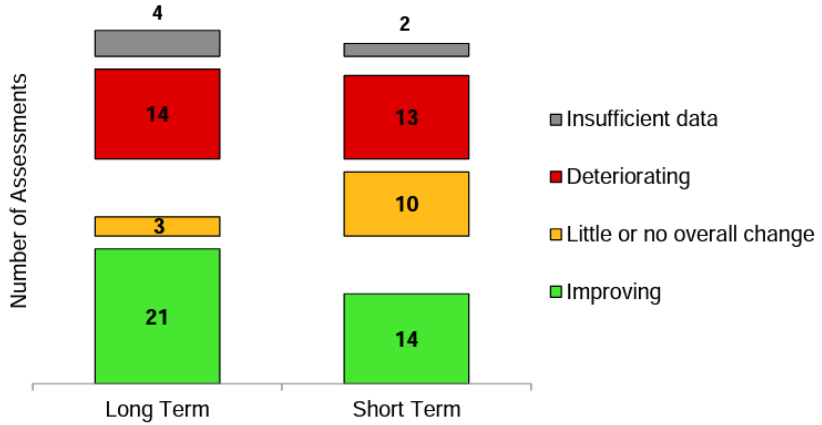
BCPC Congress 2023

www.gov.uk/natural-england

Acknowledge the problem

UK Biodiversity Indicators 2022

Assessment of change: all measures.



UK Biodiversity Indicators 2022

Indicator	Measure(s)	Long-term change[1]	Short-term change[2]	Last Updated	Latest Data
C1. Protected areas	C1a. Total extent of protected areas: on land	✓ 1950–2022	≈ 2017–2022	2022	2022
	C1b. Total extent of protected areas: at sea	✓ 1950–2022	✓ 2017–2022	2022	2022
	C1c. Condition of Areas/Sites of Special Scientific Interest	✓ 2005–2022	✗ 2017–2022	2022	2022
C2. Habitat connectivity		Experimental Statistic – under review	Experimental Statistic – under review	2019	2012
C3. Status of European habitats and species	C3a. Status of UK habitats of European importance	✗ 2007–2019	✗ 2013–2019	2019	2019
	C3b. Status of UK species of European importance	✗ 2007–2019	✗ 2013–2019	2019	2019
C4. Status of UK priority species	C4a. Relative abundance	✗ 1970–2019	≈ 2014–2019	2021	2019
	C4b. Distribution	≈ 1970–2018	≈ 2013–2018	2021	2018

What is 30 x 30?

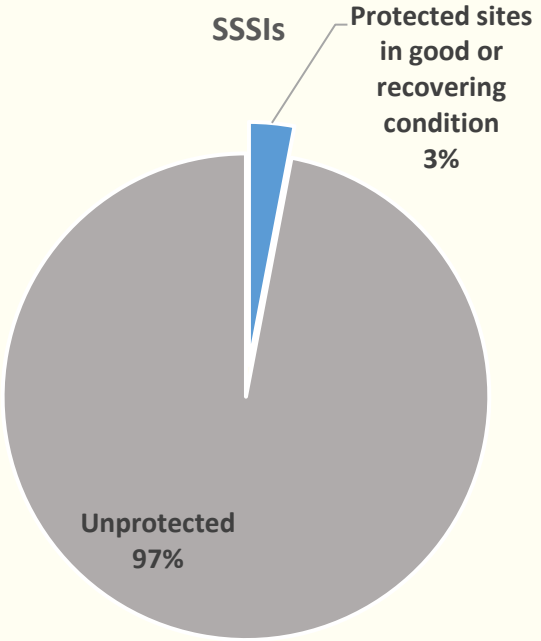
Convention on Biological Diversity

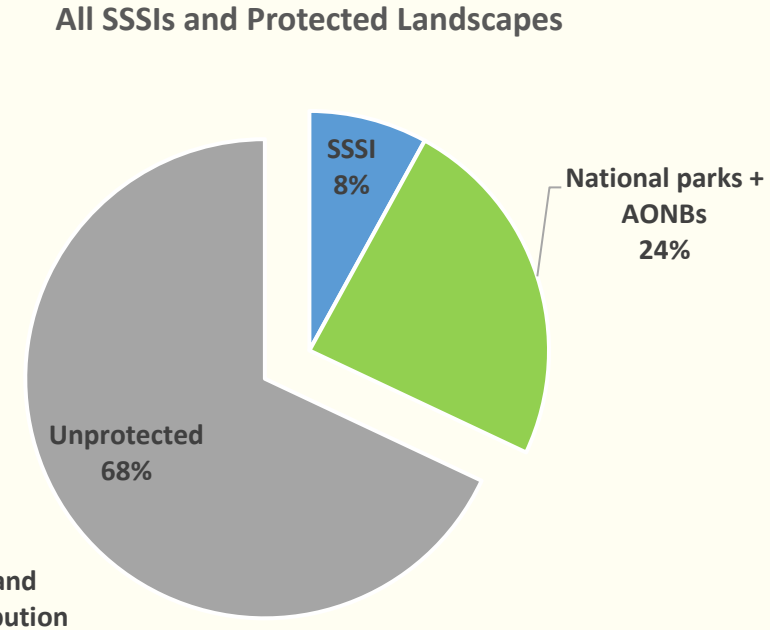
An international target under the Convention on Biological Diversity (CBD).

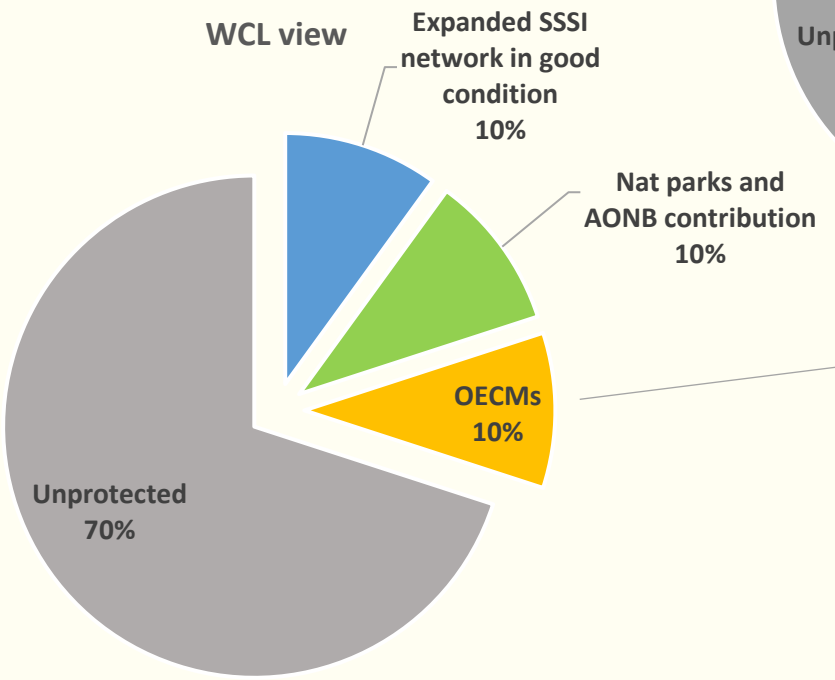
"Ensure and enable that by 2030 at least 30 per cent of terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and ***other effective area-based conservation measures****, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities including over their traditional territories."*

30% of land protected for nature in the long-term and effectively managed.

30 x 30 in England, where are we now?







OECMs
Other effective area-based conservation measures:

- governance and management in place
- conservation outcomes will endure long-term
- not an existing designated protected area
- do not need to be managed primarily for conservation

30 x 30 in England

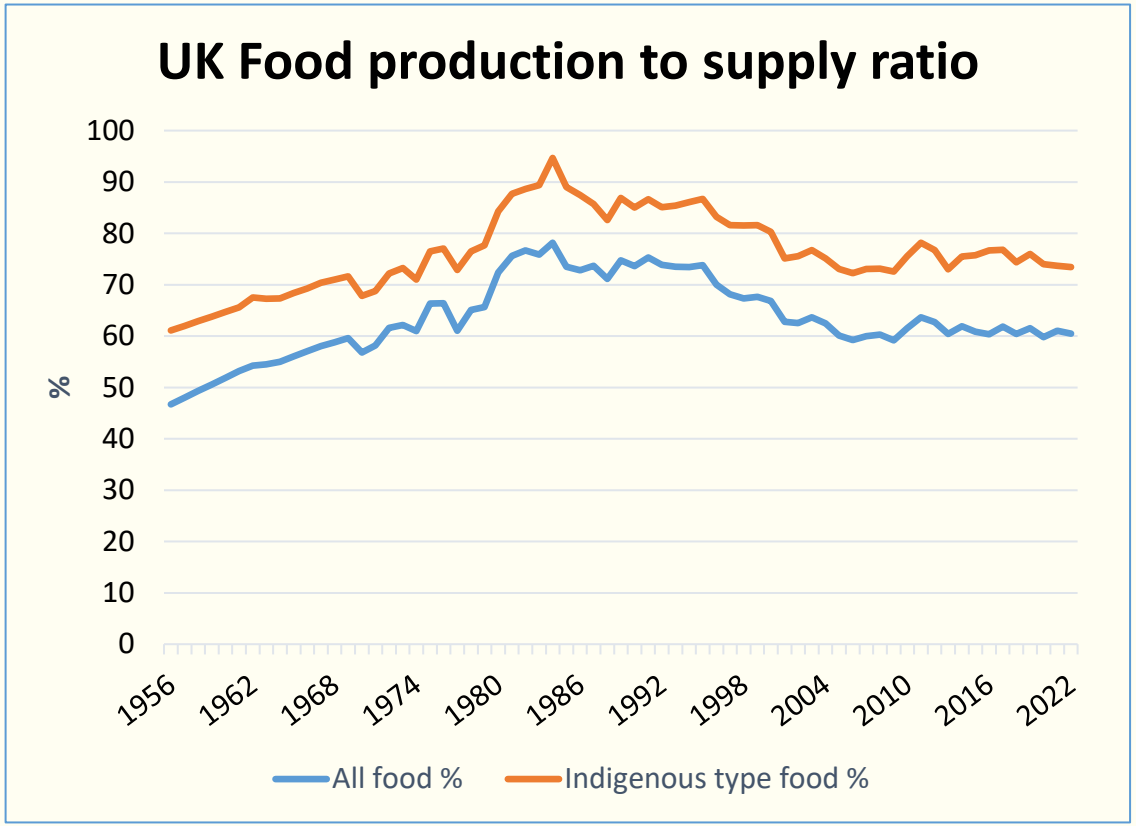
"Delivering this commitment for England will ensure our most important places, at the core of nature's recovery, have the long-term, effective management needed for biodiversity to thrive."

DELIVERY PLAN:

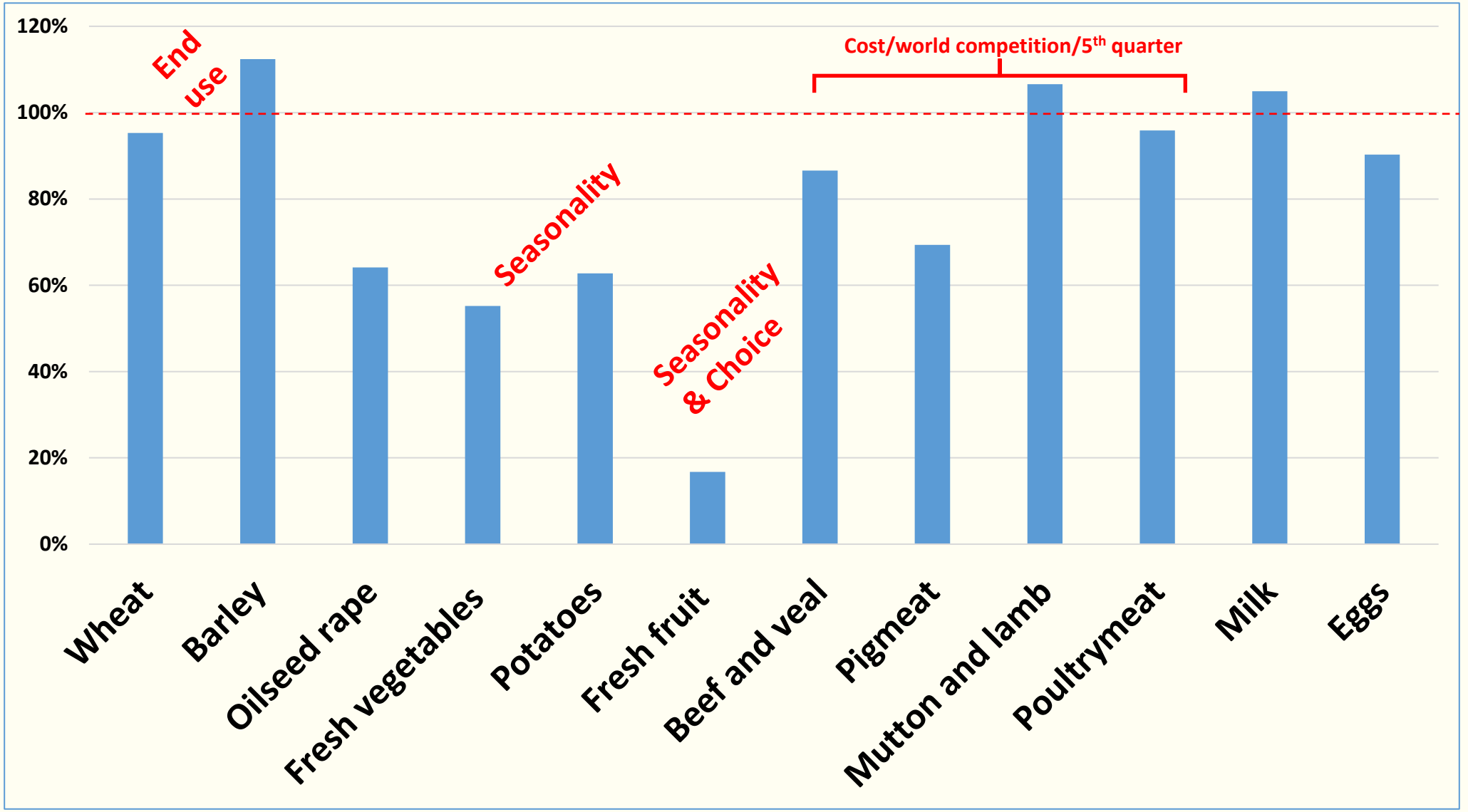
- **Ensure effective policy and statutory safeguards and powers to improve management for nature and prevent degradation.**
- **Designate new protected areas and restore or create wildlife rich habitat outside of these**
- **Invest in habitat restoration across our protected areas and beyond**
- **Publish a map of what counts towards 30-by-30 by the end of the year.**
- **Launch a further 19 nature recovery projects**
- **Work towards a Nature Recovery Network.**
- **Establish another 25 National Nature Reserves**
- **Scale up our Sustainable Farming Incentive offer and evolve CS+**

Food Security (or self-sufficiency?)

1. **Global Food Availability** supply and demand at a global level.
2. **UK Food Supply Sources** where the UK gets its food. Specifically, the UK's principal sources of food at home and overseas.
3. **Supply Chain Resilience** the physical, human and economic infrastructure underlying the supply chain.
4. **Food Security at Household Level** whether households can reliably afford and access sufficient healthy and nutritious food.
5. **Food Safety and Consumer Confidence** the perceived and actual safety and authenticity of food in the UK.



UK 2022 Food Production to Supply (Self-sufficiency)



% all food = 60%

% indigenous type food = 73%

Agricultural Transition Programme

Eustice: I'll ensure money coming out of BPS goes to farmers

George Eustice is the secretary of state at the Department for Environment, Food and Rural Affairs. Here he sets out his arguments why the new Environmental Land Management scheme is a "win-win" for farmers and the environment.

ELMS: Farmer payment schemes announced to replace BPS

6th January 2022

Details on the new payments schemes for farmers have been announced

By Lisa Young
Content editor

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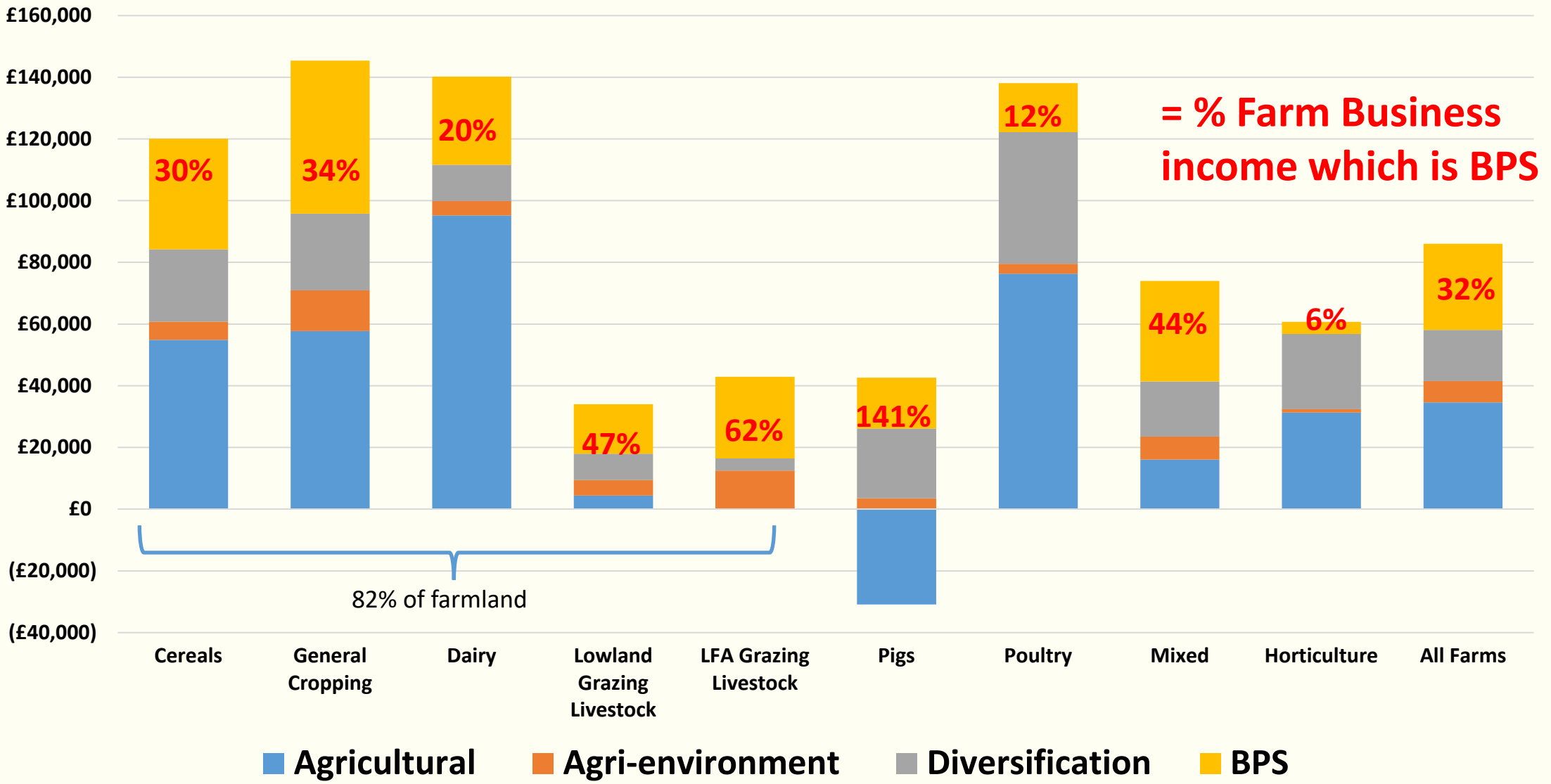
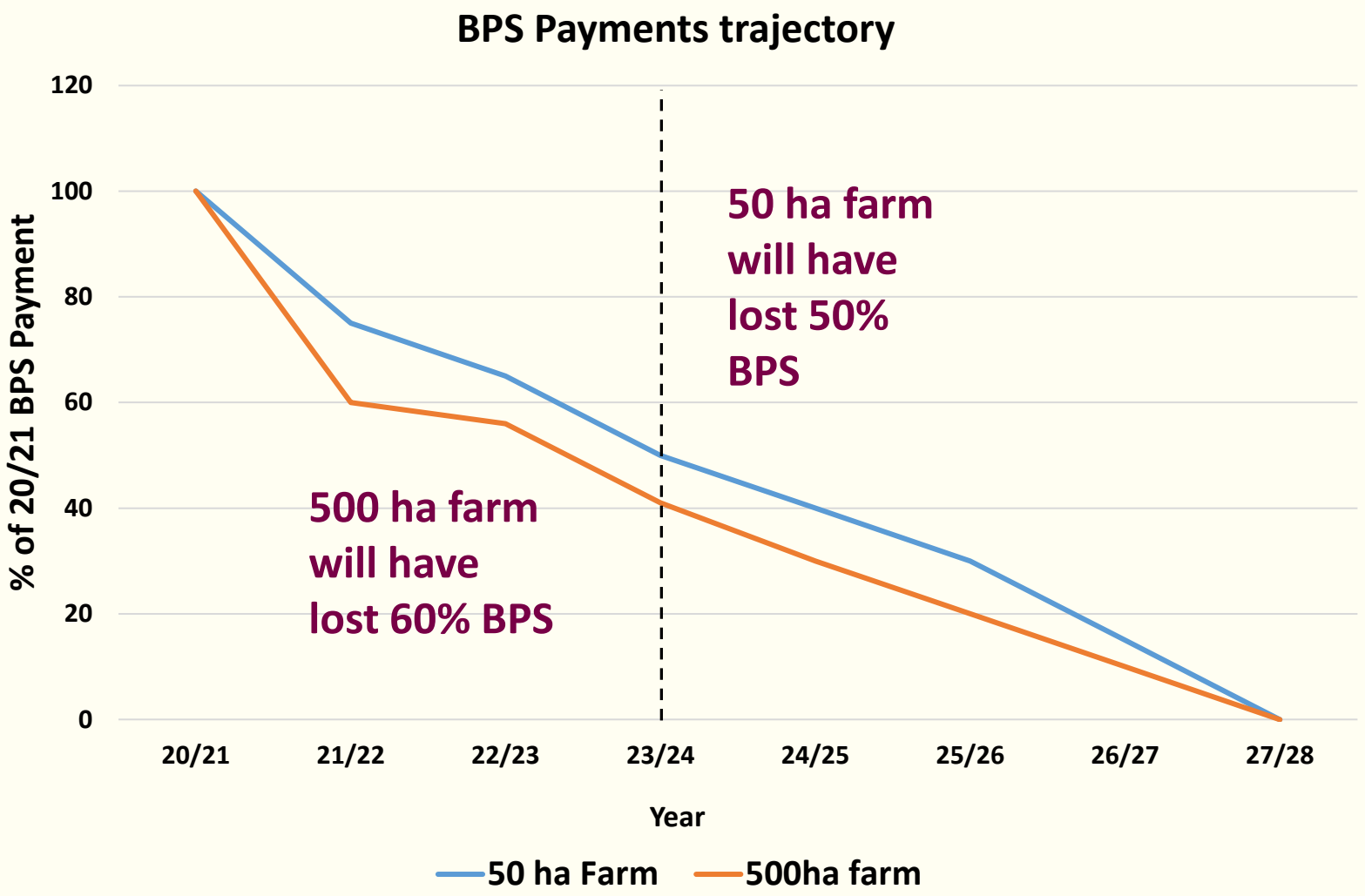
These new payments will not begrudge farmers a margin for doing the right thing for the environment, and in that sense they will represent a departure from the income foregone principle that was used by the European Union. Rates instead will be set at the level needed to incentivise uptake required on the scale we need to deliver our environmental objectives. Eustice OFC22

Farm Business Income by cost centre 2021-22 (2022 Harvest)

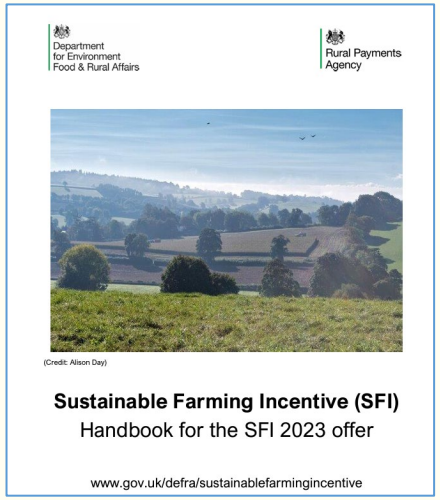


Transition is well underway…



BPS = £233/ha (SDA = £231; Moorland SDA = £64)

ELM: Sustainable Farming Incentive



Code	SFI action	Annual payment
Actions for soils		
SAM1	Assess soil, test soil organic matter and produce a soil management plan	£5.80 per hectare (ha) and an additional payment of £95 per agreement
SAM2	Multi-species winter cover crops	£129 per ha
SAM3	Herbal leys	£382 per ha
Actions for moorland		
MOR1	Assess moorland and produce a written record	£10.30 per ha and an additional payment of £265 per agreement
Actions for hedgerows		
HRW1	Assess and record hedgerow condition	£3 per 100 metres (m) – one side
HRW2	Manage hedgerows	£10 per 100m – one side
HRW3	Maintain or establish hedgerow trees	£10 per 100m – both sides
Actions for integrated pest management		
IPM1	Assess integrated pest management and produce a plan (this action applies to an SFI agreement, rather than a specific area of land (an 'agreement level SFI action')	£989 per year
IPM2	Flower-rich grass margins, blocks, or in-field strips	£673 per ha
IPM3	Companion crop on arable and horticultural land	£55 per ha
IPM4	No use of insecticide on arable crops and permanent crops	£45 per ha
Actions for nutrient management		
NUM1	Assess nutrient management and produce a review report (agreement level SFI action)	£589 per year
NUM2	Legumes on improved grassland	£102 per ha
NUM3	Legume fallow	£593 per ha

Code	SFI action	Annual payment
Actions for farmland wildlife on arable and horticultural land		
AHL1	Pollen and nectar flower mix	£614 per ha
AHL2	Winter bird food on arable and horticultural land	£732 per ha
AHL3	Grassy field corners and blocks	£590 per ha
Actions for farmland wildlife on improved grassland		
IGL1	Take improved grassland field corners or blocks out of management	£333 per ha
IGL2	Winter bird food on improved grassland	£474 per ha
Actions for buffer strips		
AHL4	4m to 12m grass buffer strip on arable and horticultural land	£451 per ha
IGL3	4m to 12m grass buffer strip on improved grassland	£235 per hectare
Actions for low input grassland		
LIG1	Manage grassland with very low nutrient inputs (outside SDAs)	£151 per ha
LIG2	Manage grassland with very low nutrient inputs (SDAs)	£151 per ha
Additional payments		
Additional common land payment (*if a group of 2 or more people apply for an SFI agreement on common land)		£6.15 per ha*
SFI management payment (*up to the first 50 hectares entered into the relevant SFI actions, per SBI)		£20 per ha*

ELM: Countryside Stewardship

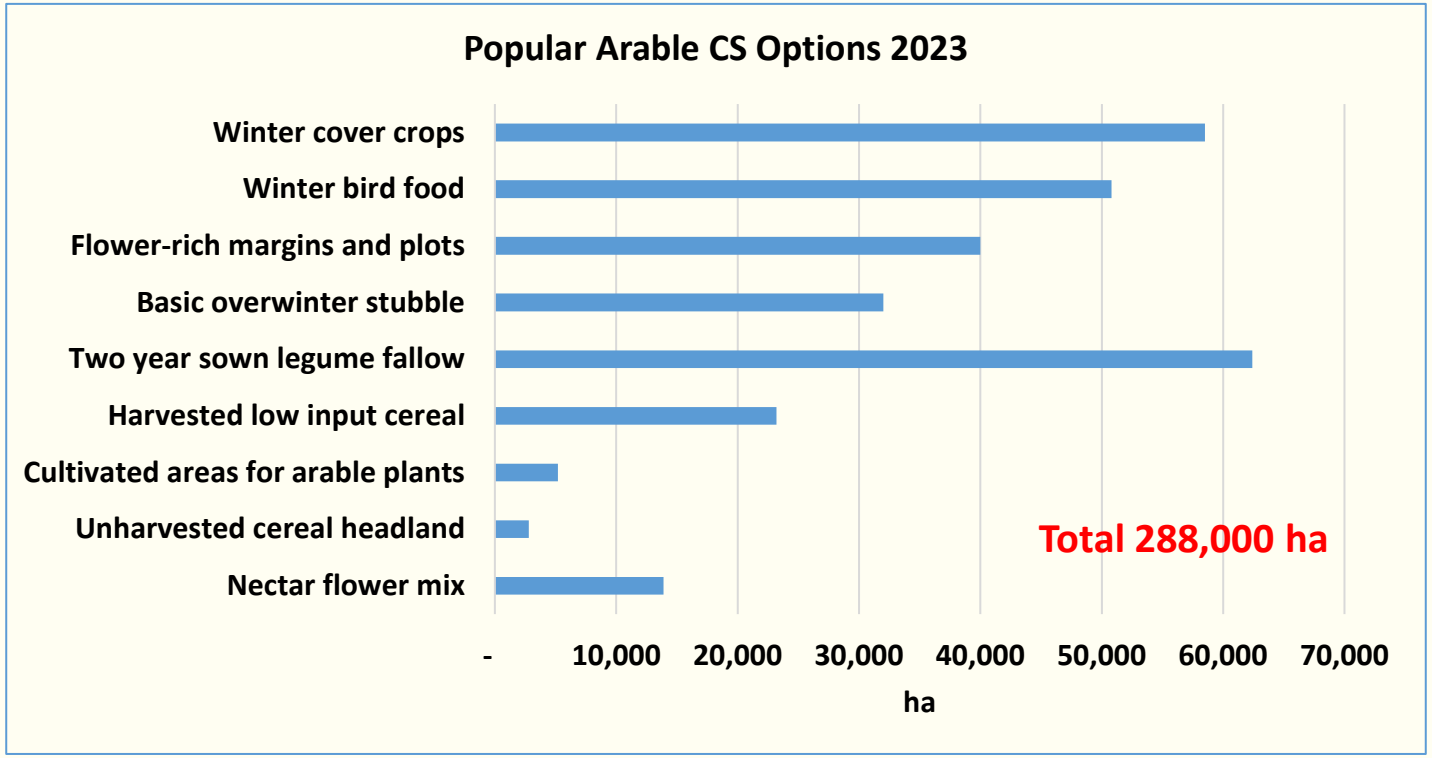
•increasing biodiversity
•improving habitat, water quality, air quality, natural flood management
•expanding woodland areas

Current

- Higher Tier and Mid-Tier Revenue with over 100 options
- Higher Tier and Mid-Tier competitive
- Mid-Tier Wildlife options guaranteed
- Capital Grants
- Approx 35,000 agreements

Future development:

- Collaboration incentives
- Simpler options move to SFI
- Focus on higher value options requiring advice or endorsement e.g. Habitat creation



ELM: Landscape Recovery

Funds landscape scale projects through bespoke, long-term agreements (20+ years)

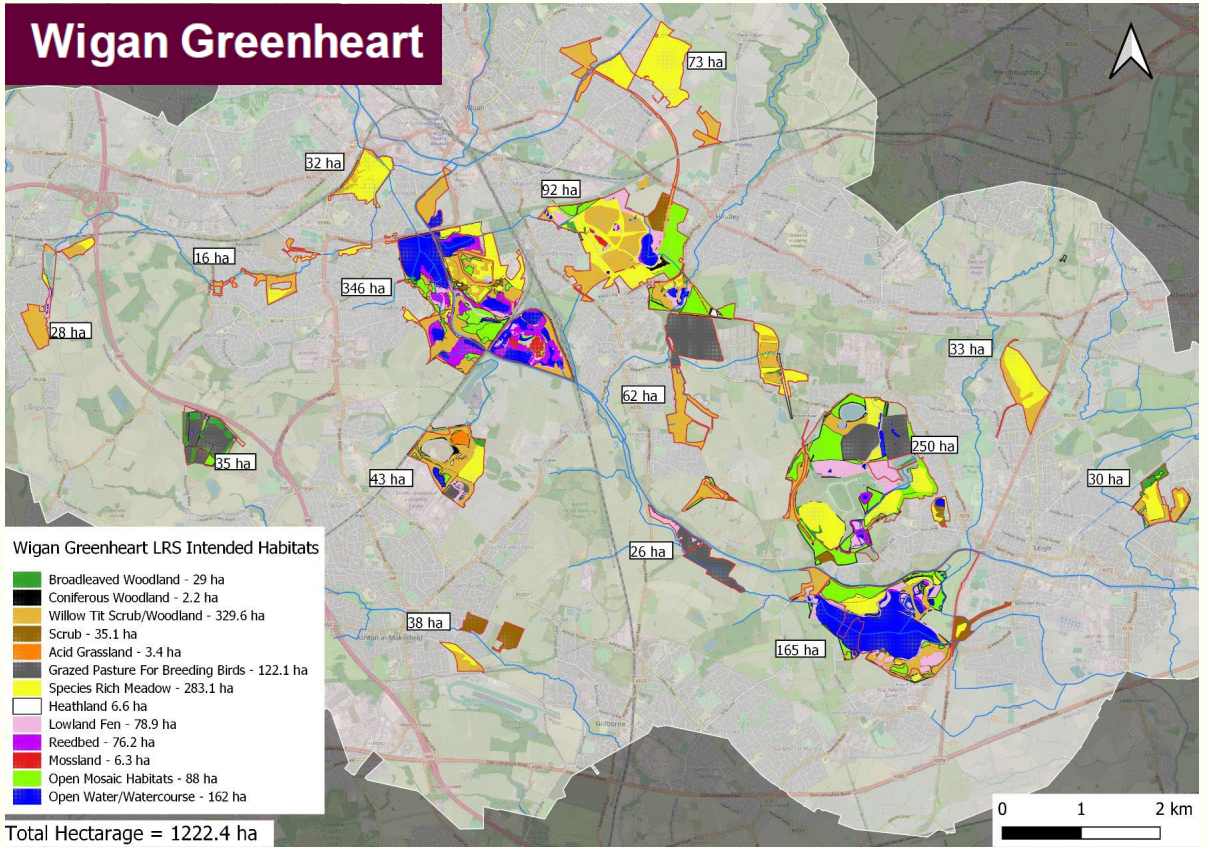
Aims to support large-scale land-use change for the long-term with funding from public and private sources, producing environmental and climate outcomes through habitat and ecosystem restoration.

- Total number of projects in Round 1 = 22. (11 species recovery projects overseen by NE. 11 river restoration projects overseen by EA.)
- Total project area for Round 1 = 41,792 ha. Average project area = 1,900 ha.
- All projects assessed and scored for impact on food production.

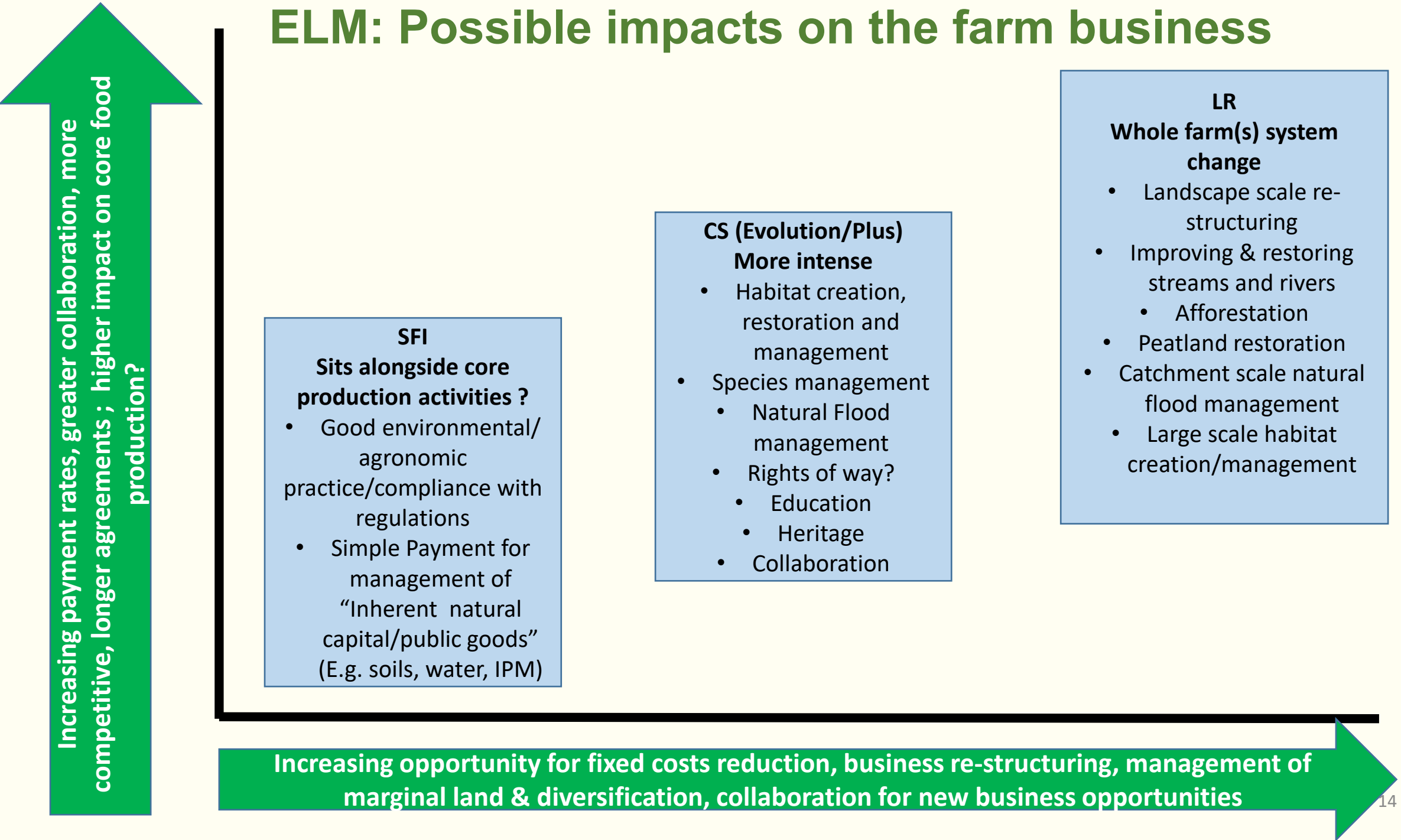
North Norfolk: Wilder, Wetter, Better for Nature

NATURAL ENGLAND

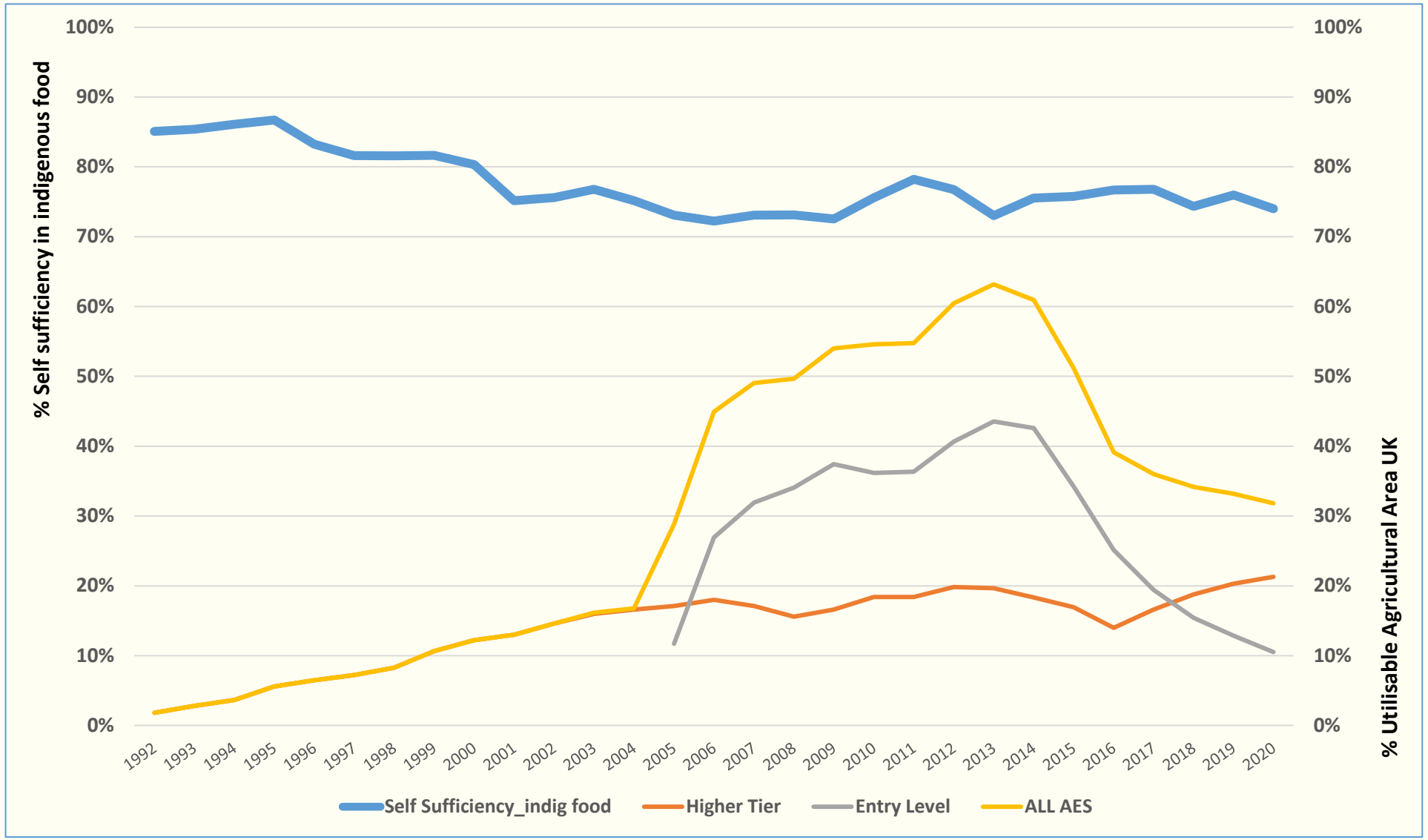
- **Project consortium:** Norfolk County Council, Norfolk River's Trust & The Holkham Estate on behalf of 16 farmers/ land managers
- **Location:** North Norfolk
- **Key objectives:**
  - 1,425ha of habitat creation at the coast and along four chalk rivers.
  - Create grazing marsh and freshwater habitats, and new grass-scrub mosaics. Restore naturally-functioning river-floodplain corridors. Restore former sand dunes.
  - Very many species to benefit! Five headline species: natterjack toad, spoonbill, grayling butterfly, turtle dove & barbastelle bat.
  - Wider benefits: carbon capture, flood management, clean water, pollination & recreation.
- **Area of project:** 13,470ha contiguous area of habitat!
- **Budget:** £565,713



ELM: Possible impacts on the farm business



% UK Self-sufficiency in Food and % Agricultural Area in Agri-environment schemes



Biodiversity Net Gain, what is it?

- An approach to development, and/or land management, that leaves the natural environment in a measurably better state than before the development took place.
- Habitats continue to be lost to development, reducing nature's ability to connect and thrive. In the future, most developments will need to deliver a minimum 10% BNG

    - Mitigation hierarchy reinforced & all nature valued
    - Much earlier consideration of environment in development process
    - More nature close to where people live and work
    - Growing offsite market in providing biodiversity units
    - Long-term investment in nature (30years minimum)
    - Links to LNRS/local environmental plans to help drive connectivity

Enforced by the 2021 Environment Act, mandatory from January 2024

How does Biodiversity Net Gain work?

1. Development Site is assessed for biodiversity (distinctiveness of habitat).
2. Loss is calculated
3. Replacement *new or enhanced* habitat creation (Biodiversity Units) are purchased from the market-place or (last resort) as Govt credits
4. The amount of land (BUs) required depends on an equivalence metric (e.g. 1ha of “high distinctiveness” habitat lost may require 5-12ha of “low distinctiveness” habitat created to replace it)
5. Replacement habitat is created, managed and monitored for 30 years

BOX TS 7-1: Calculating area units (AHBUs)

Equation 1: Pre-impact (t_0) biodiversity units for baseline

$$t_0\ Baseline\ AHBU = (A^{t0} \times Q_D^{t0} \times Q_C^{t0}) \times (Q_{SS}^{t0})$$

Equation 2: Post-impact (t_1) biodiversity units for habitat creation

$$t_1\ Creation\ AHBU = \{[A^{t1} \times Q_D^{t1} \times Q_C^{t1}] \times [R_D \times R_T] \times [Q_{SS}^{t1}]\}$$

Equation 3: Post-impact (t_1) biodiversity units for enhancement

$$t_1\ Enhancement\ AHBU = \left[[(\{A^{t1} \times Q_D^{t1} \times Q_C^{t1}\} - \{A^{t0} \times Q_D^{t0} \times Q_C^{t0}\}] \times \{R_D \times R_T\}) + \{A^{t0} \times Q_D^{t0} \times Q_C^{t0}\}] \times \{Q_{ss}^{t1}\}\right]$$

Equation 4: Area habitat biodiversity unit change (on-site)

Onsite AHBU Change = ({t1 Enhancement AHBU + t1 Creation AHBU + t1 Retained Habitat AHBU} - {t0 Baseline AHBU})

Equation 5: Area habitat biodiversity unit change (off-site)

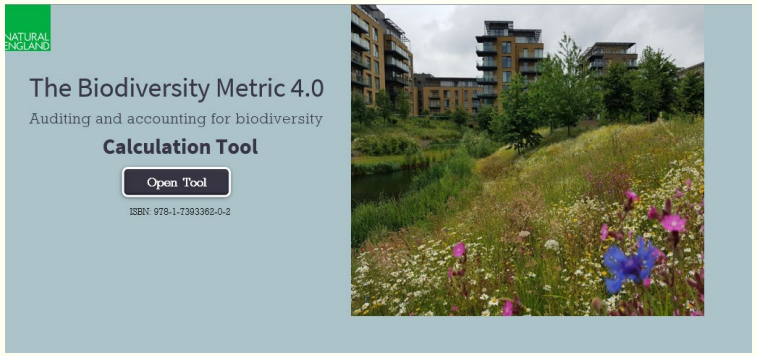
Offsite AHBU Change = ({t1 Offsite Enhancement AHBU + t1 Offsite Creation AHBU + t1 Offsite Retained Habitat AHBU} - {t0 Baseline AHBU}) × R_{OS}

Equation 6: Total area habitat biodiversity unit change (total)

Total AHBU Change = AHBU Change + Offsite AHBU Change

A	Area of habitat (hectares)	R_D	Difficulty (a risk factor)
Q_C	Condition (a quality measure)	R_T	Time to target condition (a risk factor)
Q_D	Distinctiveness (a quality measure)	R_{OS}	Spatial risk (off-site risk factor)
Q_{SS}	Strategic significance (a quality measure)	t0	Pre-intervention (baseline)
		t1	Post-intervention

How will it work in practice?



The biodiversity metric should be used early in the design process to quantify and evaluate the impacts of different design options, when there is more scope to influence design changes to achieve better ecological outcomes.

Use the biodiversity metric to assess different design options

Site selection & design	Biodiversity metric calculations	Biodiversity gain plan	Legal securement of BNG	Addition of land to register	Management, monitoring and reporting
Site selection & pre-application		**Application & Pre-commencement**			**Commencement**
Follow the mitigation hierarchy; select and design a site that avoids any negative impacts on nature. The biodiversity metric can help with this.	Calculate the biodiversity unit value of the site before development, and the proposed value after development. If BNG cannot be achieved on-site then off-site opportunities should be identified.	Set out the strategy for achieving BNG, including information not captured in the biodiversity metric such as species factors, habitat management plans and how the net gains will be managed and maintained.	Land used to deliver BNG off-site will need to be secured for a minimum of 30 years.	Land delivering BNG off-site will need to be formally registered on the Biodiversity Gain Site Register.	Any land delivering BNG will need to be managed, monitored and reported on for the duration of the net gain agreement.

ON-SITE (UNITS)	OFF-SITE (UNITS)	STATUTORY CREDITS*
		
Delivered through habitat creation/enhancement via landscaping/green infrastructure	Delivered off-site through habitat creation/enhancement, including via habitat banks, with public and private landowners	Delivered through large-scale habitat projects delivering high value habitats which can also provide long-term nature-based solutions

*Credits will be made available for purchase in the future. They are intended for use only where BNG cannot be delivered on-site or off-site via the market, as a last resort.

BNG, estimating the market…

Supply

- All English agricultural land 9.2m/ha
- = 17m BUs (approx. 2 per ha)
- Supply varies across Planning authorities; average 55,000 BU (min 1 BU, max 640,00 BU)

Demand

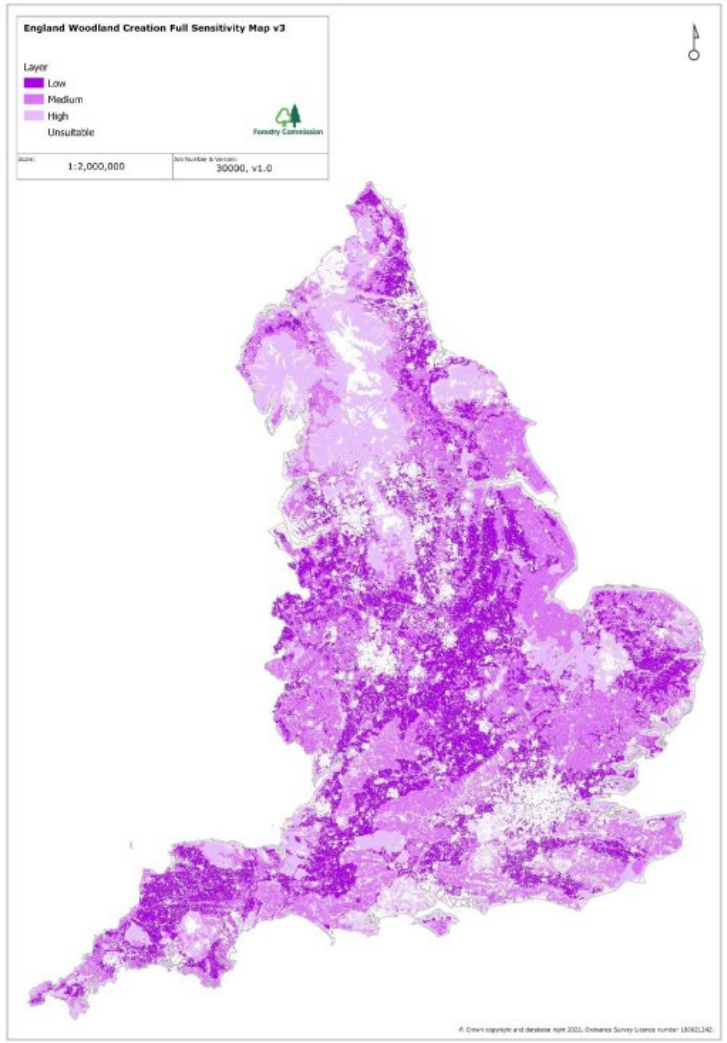
- 487 ha of priority habitat lost per year (6.6% of developed area)
- Average 20ha development per year in each LPA
- England market scope 6,700 ha/year?

Market

- Potential £135-274 million per year?
- Land manager sale price £20,000 per BU (£40,000 per ha). **But** varies with distinctiveness:
  - E.g. the private market is currently offering in the region of £30,000 for "medium distinctiveness" habitat units
  - Taking standard arable land and converting this to "medium distinctiveness habitat" would create 4-6 units a hectare.
  - Assuming 5 units/ha, this gives the potential at current open market prices to deliver £150,000/ha over a 30-year agreement.
  - **But….costs, tax implications, long term land values**

Woodland

Map 1: England Woodland Creation Full Sensitivity Map version 3.0



Targets

The English statutory tree target is for Tree canopy and woodland cover increase to **16.5% by 2050**, requiring an increase of about **260,000 ha (2.9% of Agricultural land)**

This is less than 10% of the 3 million hectares of low sensitivity land mapped (which excludes best and most versatile land)

Woodland Carbon Code

From 2011 pilot launch to 30/6/23, Woodland Carbon Code-registered projects in England =9,100 ha, of which only 2,600 ha are validated/verified. (9,100 ha is ~0.1% of agricultural land in England)

Woodland creation and land quality (2021-22)

- 0.1% was on grade 1 land,
- 6.2% on grade 2 land
- 8.5% on 3a land,
- (Total of 14.7% on best and most versatile agricultural land)

Nutrient Neutrality

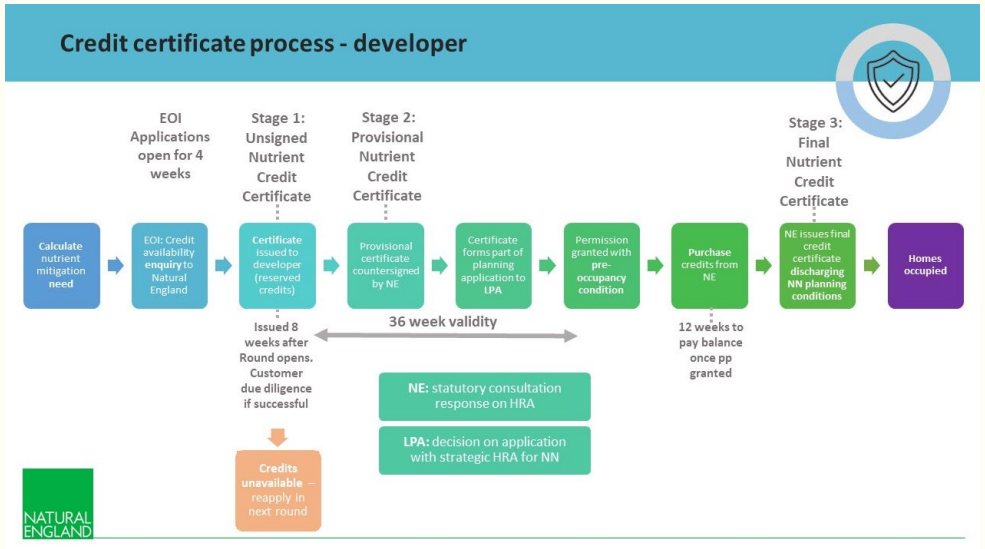
Elevated levels of Nitrogen and/or Phosphorus mean some Habitat Sites are in **'unfavourable'** condition.

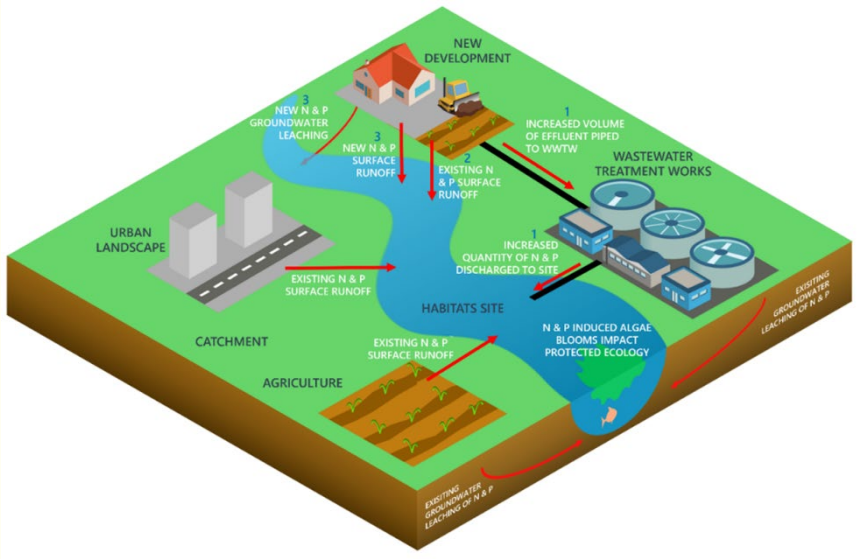
Therefore, adding any further nutrient pollution will make the sites worse and/or hinder their recovery.

Natural England **issued Nutrient Neutrality advice to 42 LPAs in 27 catchments** March 2022.

This advice impacts on residential planning applications.

Requirements can be fulfilled by private schemes or NE credit certificates

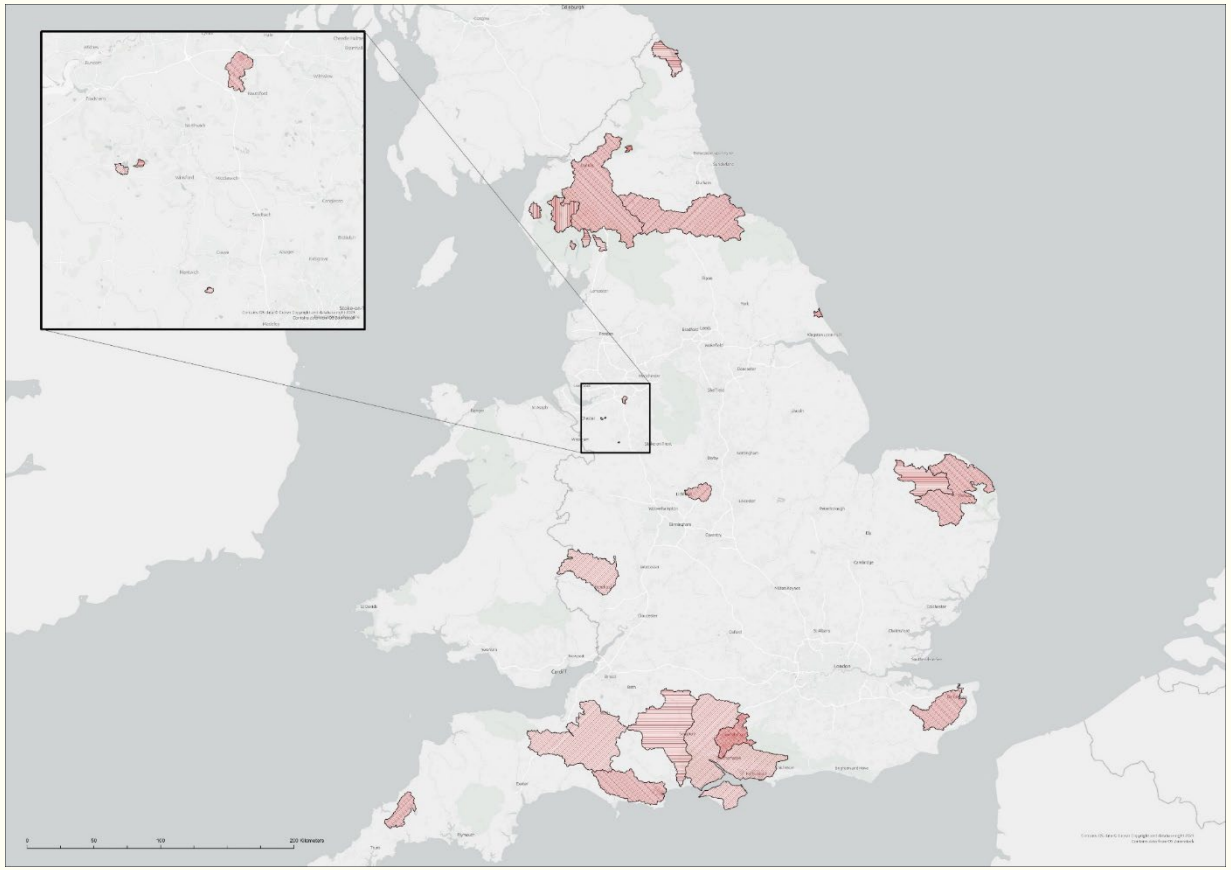




Nutrient Neutrality catchments and impact

Permanent solutions:
Long term
80 - 125 years ‘in perpetuity’
e.g. Constructed wetlands, fallowing land, woodland

Temporary solutions:
Short term
e.g. Cover crops, arable reversion, riparian buffer strips
(Pending a new duty on water companies to upgrade wastewater treatment works in designated areas by 2030)



27 catchments, across 42 Local Planning Authorities all impacted by excess N, P or both

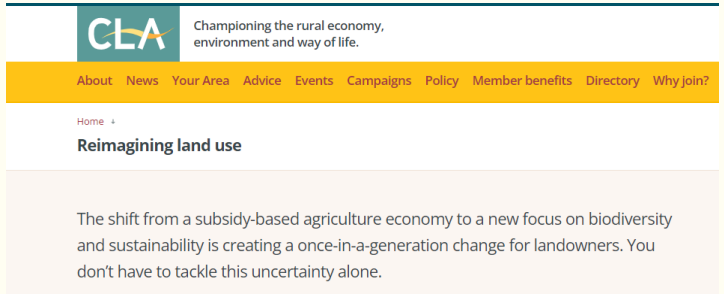
Impact on Land use?

Due to local factors and variety of solutions, it is difficult to predict the total land use required for NN mitigation as the nutrient reduction value of each mitigation site varies.

Around 500ha of wetlands could mitigate the equivalent of 100,000 houses.

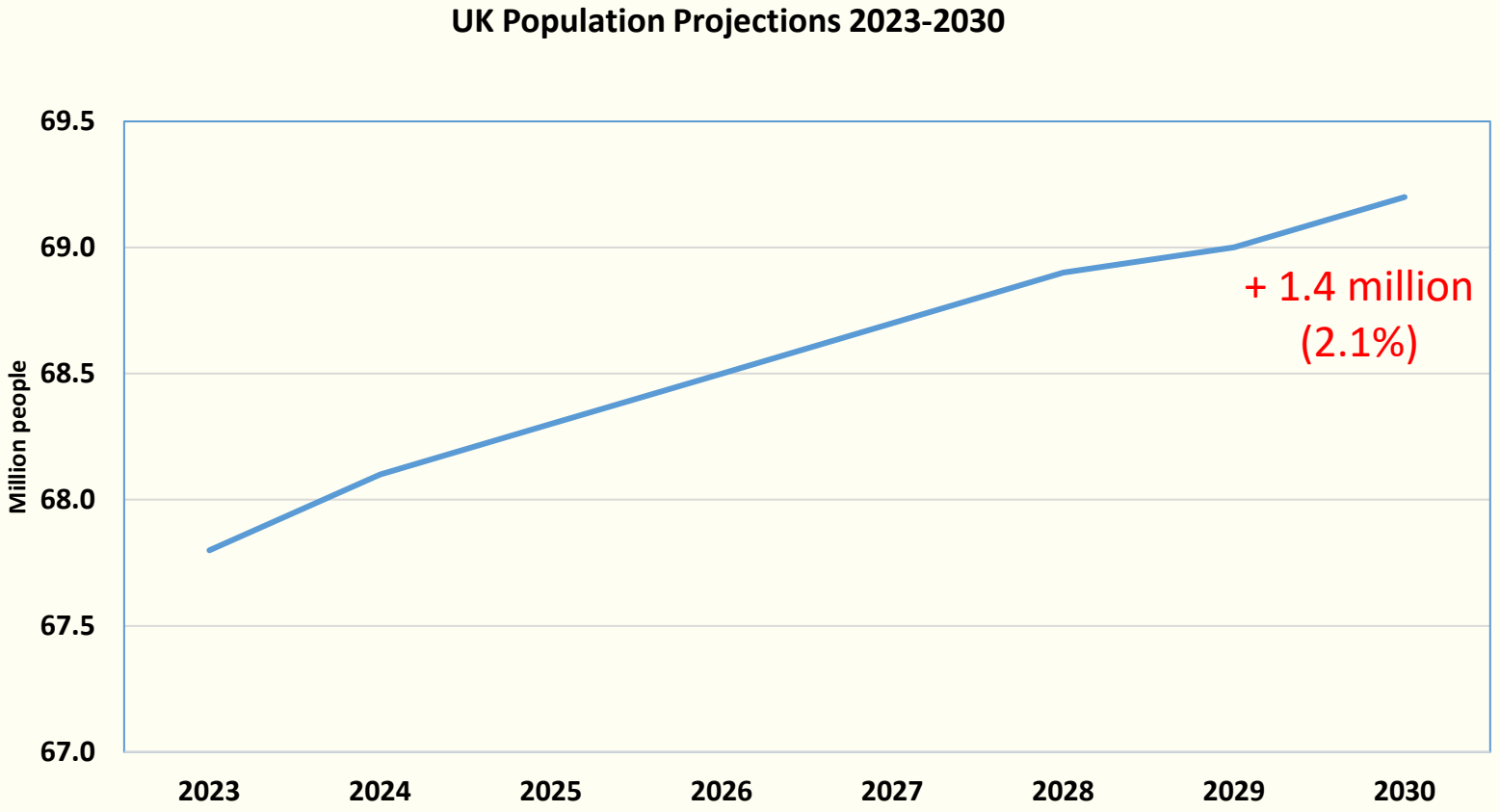
This is equivalent to the housing demand across all 27 catchments to 2030. (Range 200-1400 ha)

Conclusion: Issues/unintended consequences impacting agricultural production



- Decline of BPS puts downward pressure on farm rents (from tenant perspective)
- BPS and Agri-environment created a "management control" requirement link, now gone, making it more attractive for landowners to consider other activities (ELM, OECMs)
- Availability of 20-30 year commitments and revenues presents an opportunity attractive to some landowners
- Early evidence of Farm Business Tenancies being withdrawn and new environmental markets putting a new "floor" into rental values
- ELM is quite "experimental" in some areas and will inevitably be revised and changed. Absence of budget limit by ELM component may exacerbate this and undermine farmer and land manager confidence.

Conclusion: Feeding the UK in 2030



Future factors are; reduced fertility issues and net migration

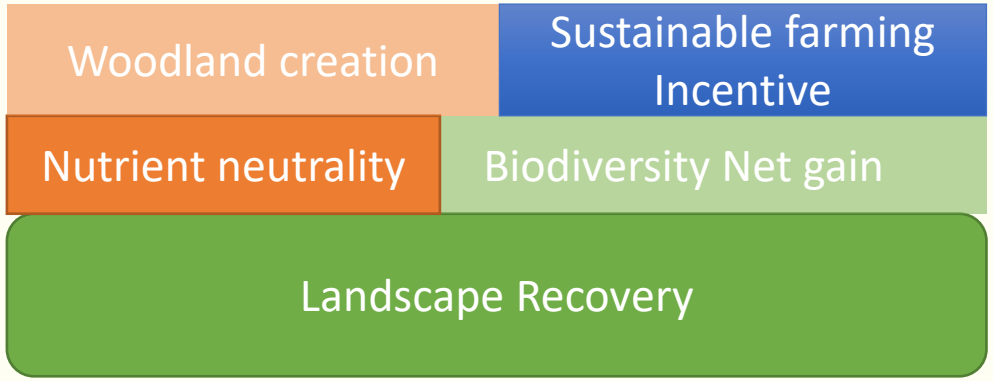
Source ONS

Conclusion: Impact of 30x30 on land area for food production

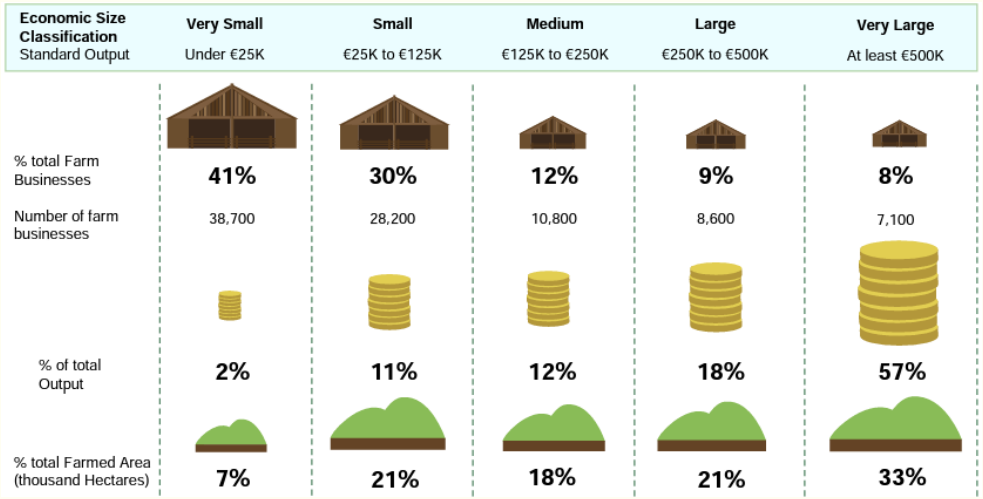
Initiative	Impact on food production	Comment/risk	Potential to contribute to 30x30?
Protected Sites (SSSI)	Low	No targets for new designations	Yes
Protected landscapes	Low	Increased focus on protecting/managing biodiversity	Some
SFI	Low	Free choice of whole field non-producing options?	No
Countryside Stewardship	Low/medium	Targeted, works alongside food production, but increased incentives for habitat creation?	Some
Landscape Recovery	Low/medium	Large scale but unlikely impacts on BMV soils	Yes
Woodland	Low/medium	Low grade land, slow uptake	Yes
Nutrient neutrality	Low	Limited areas required	Yes
Biodiversity Net gain	Medium/High	Dependent on economic climate, development pressures and landowner appetites	Yes

Conclusion: Other factors

Stacking

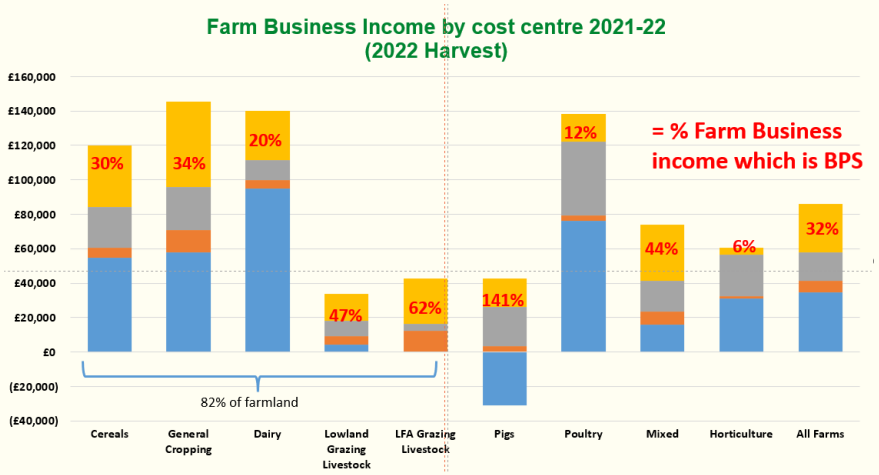


Farming Productivity



"8% of English farms produced 57% of the agricultural output using just 33% of the total farmed land area."

Farming profits



Farming Policy/budget security

Changing dynamics
Domestic budget pressure
Meeting public and consumer demands
World economic/political shocks

Conclusion:

30% Protected Land by 2030
Will there be enough area to maintain UK food security?

YES

"In terms of food security, there is actually more to be gained from paying for environmental projects. The biggest threats to food security now — even bigger than Putin's war — are climate change and ecosystem collapse."

Thank you