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Beauty is in the eye of the beholder

Presented by
JUSTIN SMITH
Green Pigeon Consulting

So, This is What Nature Looks Like

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Nature Determines What Nature Looks Like

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Wildflower Protagonism v Trophic Protagonism

Metric	Wildflower Protagonism	Trophic Protagonism
Success	Flower abundance	Energy flow stability; accepts lower levels of abundance
Time horizon	Short-term	Long-term
Diversity	Instrumental	Intrinsic
Control	High	Low
Intervention type	Continuous, directional Cut and remove	Pulsed, corrective Short term grazing
Failure mode	Collapse	Slow positive change but not immune from species loss.

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Wildflower Protagonism v Trophic Protagonism or ???

Wildflower protagonism removes constraints; trophic protagonism relies on them.

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National Supplier "General Wildflower Mix" (26/27 species)
(The Wildflower Protagonist Selection)

Wildflowers	
Wild Clary	Viper's Bugloss
Teasel	Lesser Knapweed
Musk Mallow	Purple Loosestrife
Ragged Robin	Wild Marjoram
Self Heal	Field Scabious
Purple Cornflower	Small Scabious
Oxeye Daisy	Sainfoin
Yarrow	Bird's-foot Trefoil
Ribwort Plantain	White Clover
Yellow Rattle	Red Clover
Agrimony	Kidney Vetch
Salad Burnet	Wild Foxglove

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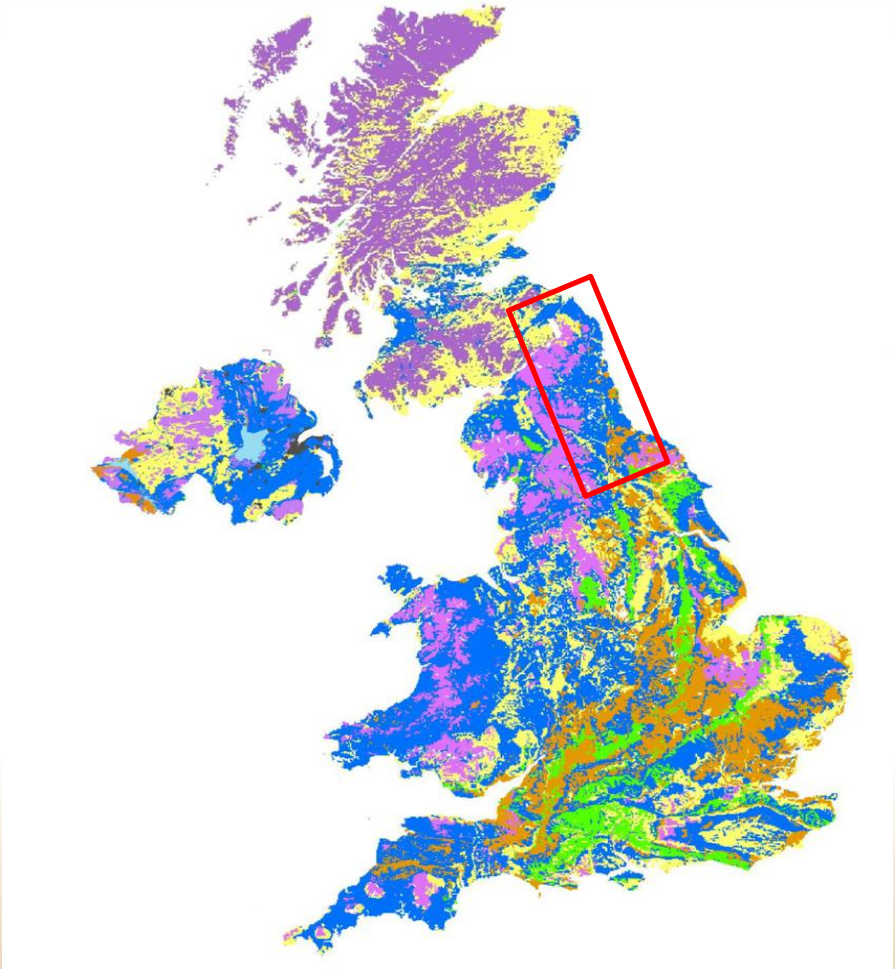

	Chalk or Limestone
	Heavy (clays)
	Medium (loams)
	Peaty
	Sandy

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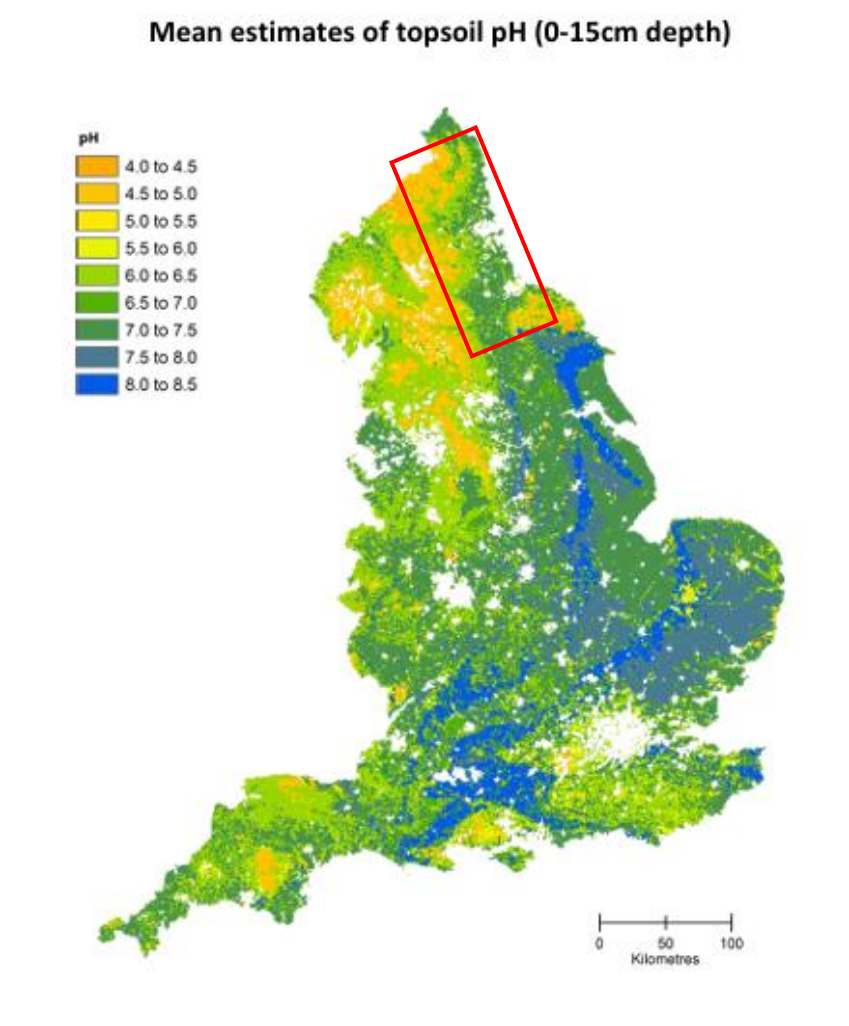

Soil types in the England vary from moderately alkaline to strongly acidic

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Report Number	**20128-25**	**W958**	**Client JUSTIN SMITH**
Date Received	**23-SEP-2025**		**SB20708**
Date Reported	**11-OCT-2025**		**BLETCHLY**
Project	**SOIL**		
Reference	**SB20708 BLETCHLY**		
Order Number	**23/09/2025**		

Laboratory Reference		**SWAS307780**	**SWAS307781**	**SWAS307782**	**SWAS307783**	**SWAS307784**	**SWAS307785**	**SWAS307786**	**SWAS307787**
Sample Reference		201148182	201148181	201148177	201148176	201148175	201148179	201148178	201148180
Determinand	**Unit**	**SOIL S**	**SOIL**	**SOIL**	**SOIL S**	**SOIL**	**SOIL**	**SOIL S**	**SOIL S**
pH water [1:2.5]		8.2	7.8	7.6	8.1	7.7	7.5	8.1	8.0
Available Phosphorus (Index)	mg/l	7.0 (0)	15.7 (2)	17.4 (2)	7.9 (0)	23.0 (2)	22.0 (2)	11.2 (1)	7.2 (0)
Available Potassium (Index)	mg/l	178 (2-)	291 (3)	219 (2+)	203 (2+)	308 (3)	272 (3)	184 (2+)	210 (2+)
Available Magnesium (Index)	mg/l	54.0 (2)	66.4 (2)	92.0 (2)	58.0 (2)	79.7 (2)	88.0 (2)	91.5 (2)	98.4 (2)
Sand 2.00-0.063mm	% w/w	25	48	46	35	48	50	23	35
Silt 0.063-0.002mm	% w/w	43	27	27	35	26	26	45	34
Clay <0.002mm	% w/w	32	25	27	30	26	24	32	31
Soil Density	g/l	1162	1030	1056	1151	998	1050	1217	1137
Total Nitrogen	%	0.20	0.38	0.42	0.22	0.49	0.44	0.20	0.29
Total Inorganic Carbon	%	0.5	0.6	0.3	0.9	0.5	0.2	0.5	0.2
Total Organic Carbon	%	2.0	4.4	4.1	2.8	5.1	4.2	1.9	2.7
Organic Matter	%	3.4	7.6	7.1	4.8	8.8	7.2	3.3	4.7
Total Carbon	%	2.5	5.0	4.4	3.7	5.6	4.5	2.4	2.9

Notes

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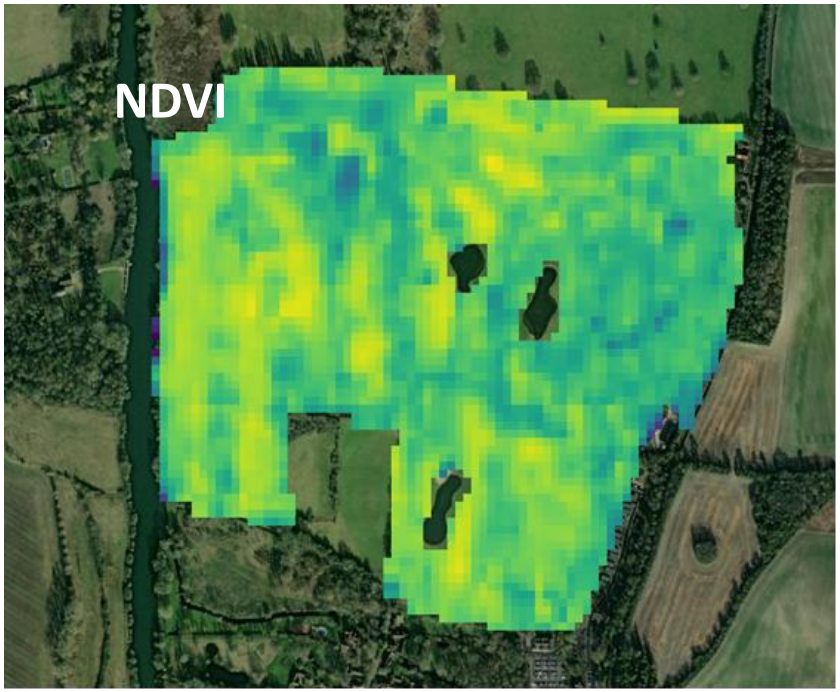
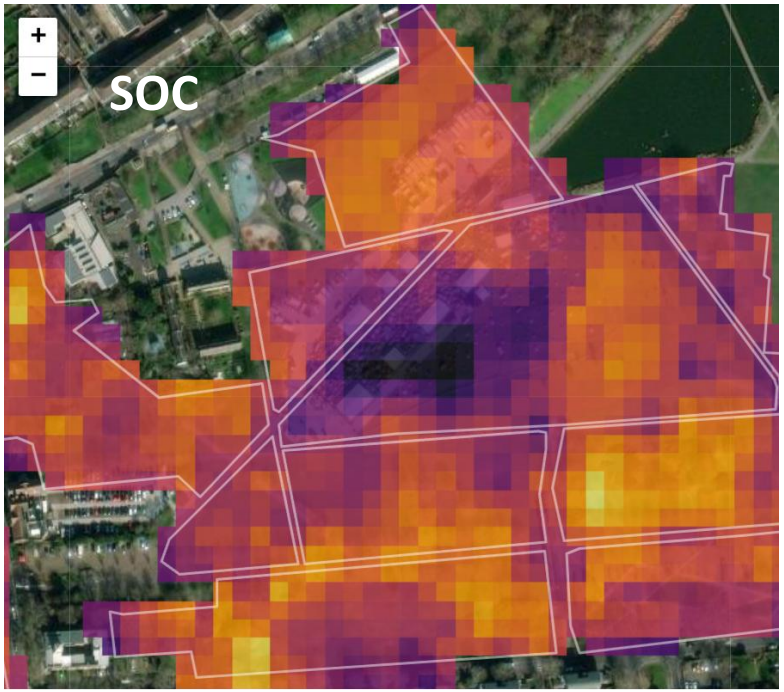
Heat maps for soil nutrient testing locations





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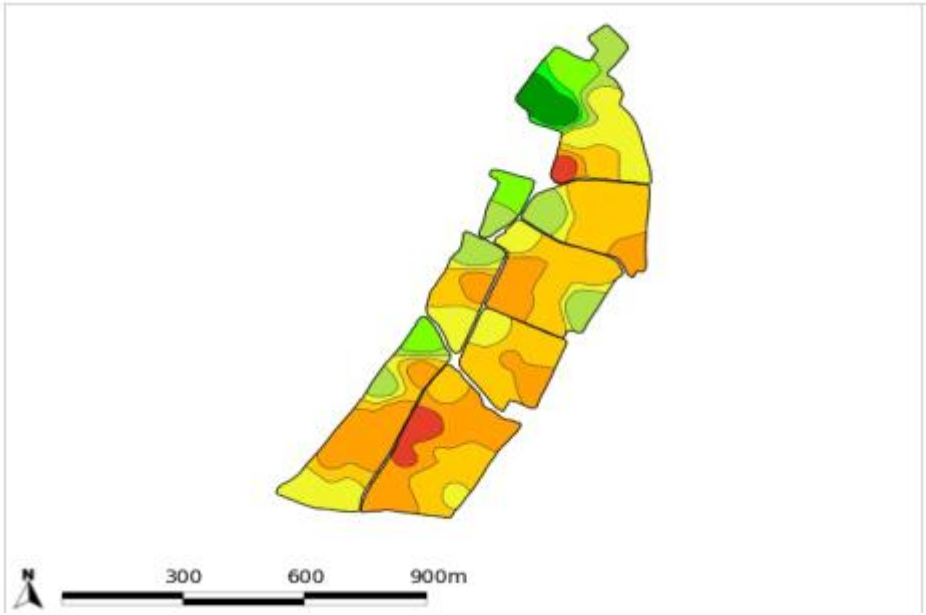

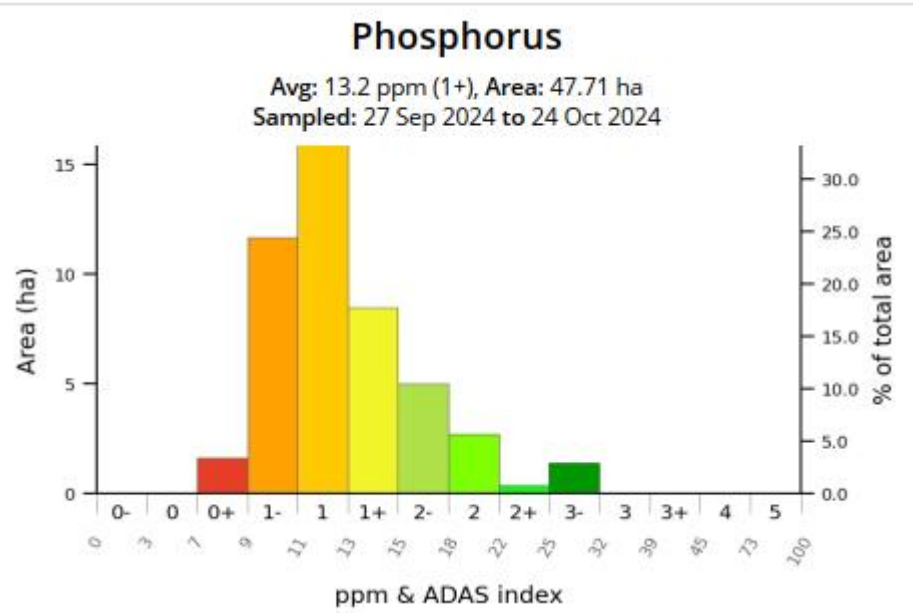

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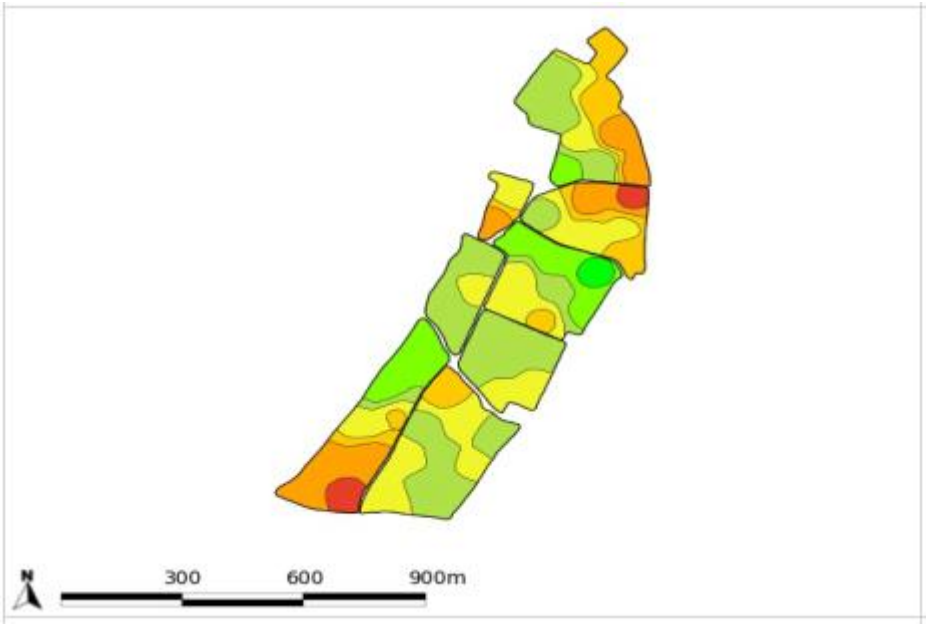

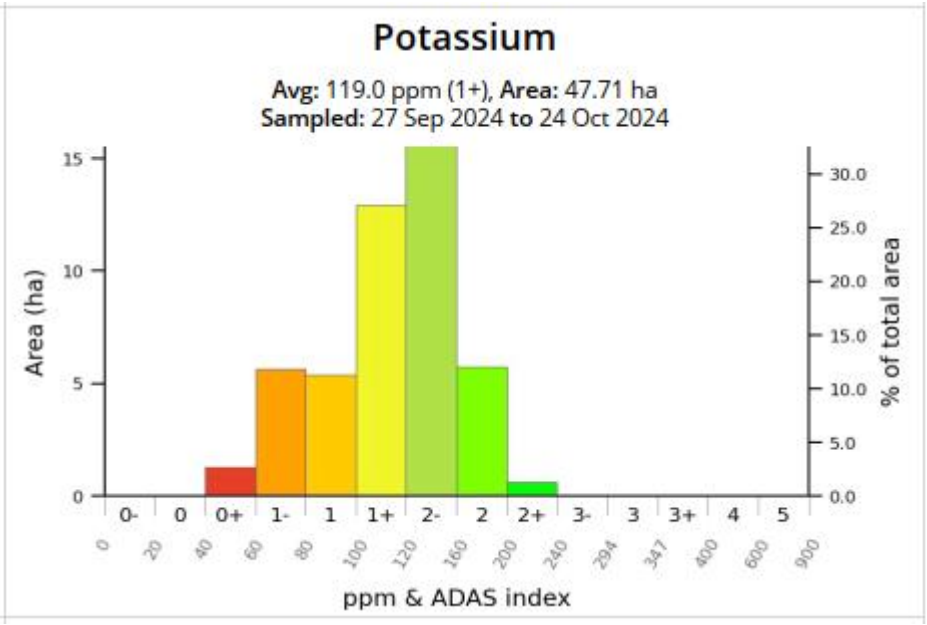

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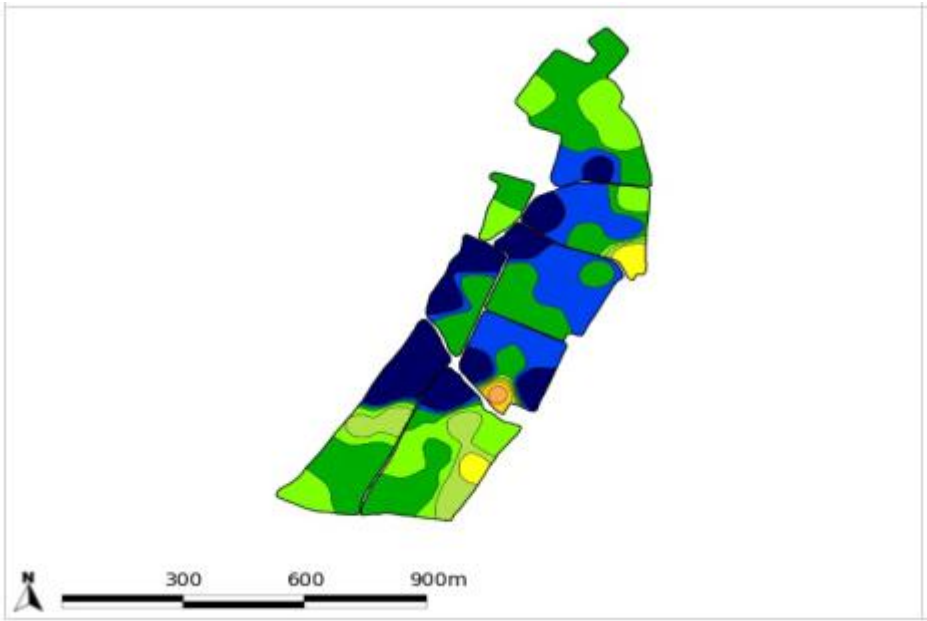

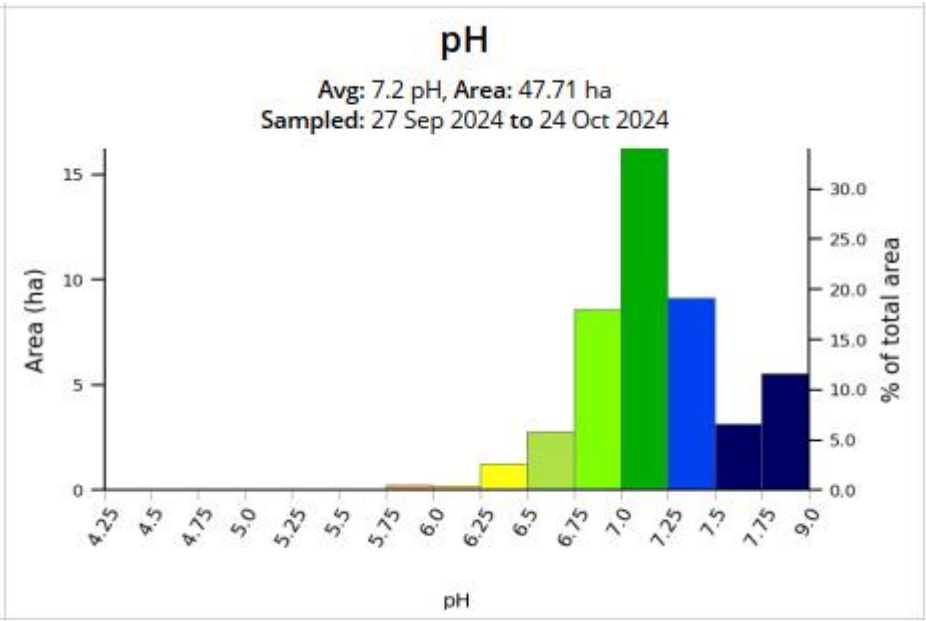

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Environmental Interaction on Wildflower Meadows

Wildflower	Nectar Output	Pollen Output	pH		Fertility
Viper's Bugloss	Very High	High			Low/Moderate
Lesser Knapweed	High	High			Moderate
Purple Loosestrife	High	Med–High			High
Wild Marjoram	High	High			Moderate
Field Scabious	High	High			Moderate
Salad Burnet	Low–Med	Low–Med			Moderate
Small Scabious	High	High			Low/Moderate
Sainfoin	High	High			Moderate
Bird's-foot Trefoil	High	High			Low
White Clover	High	High			High
Red Clover	High	High			Moderate/High
Kidney Vetch	Med–High	Med–High			Low
Corn Poppy	Low–Med	High			Low
Wild Clary	Med	Med			Moderate

pH Range of Soils for Wildflowers		
Neutral soils		
Neutral to alkaline		
Alkaline		
Slightly acidic to neutral		
Acidic		

Insects Preferring Pollen	Insects Preferring Nectar
Honeybees	Butterflies
Bumblebees	Moths
Solitary bees	Wasps
Some beetles	Flies
Hoverflies (partly)	Ants

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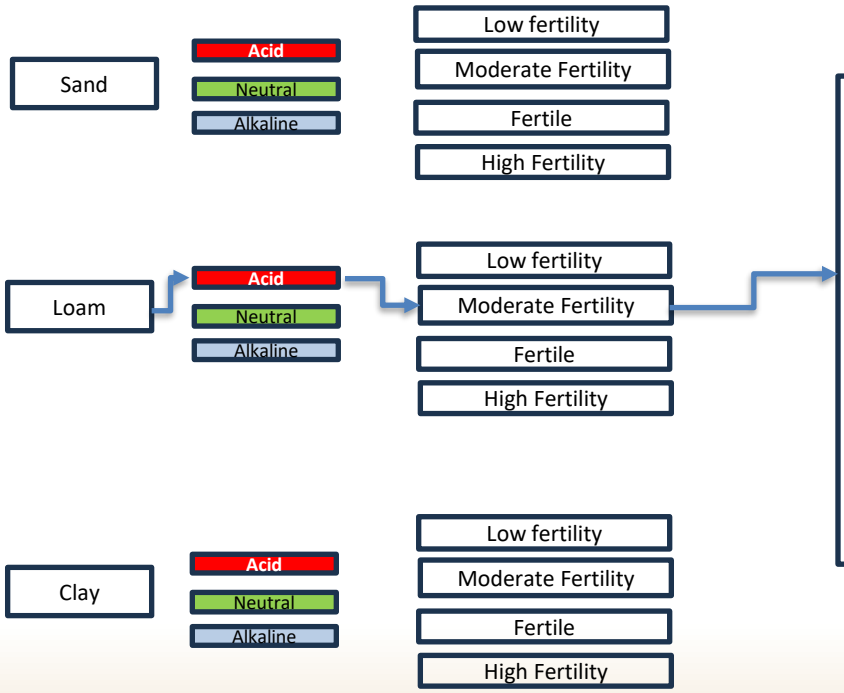

- **Purple Loosestrife**
  - June-September
- **Ragged Robin**
  - May –July
- **Selfheal**
  - June –October
- **Purple Cornflower**
  - June-September

Brimstone, Clouded Yellow, Red Admiral, Small White, Small Copper, Large White Common Ringlet, Common Blue, Green Veined White, Orange Tip, Swallowtail, Brown Argus, Painted Lady, plus general butterflies

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Not just about Pollen and Nectar Rich Plants

but also

Larval Host Plants

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Butterfly Larval Host Plants

Butterfly Species	Larval Food Plant(s)
Adonis Blue	Horseshoe Vetch
Brimstone	Alder Buckthorn, Common Buckthorn
Chalkhill Blue	Horseshoe Vetch
Clouded Yellow	Clovers, Lucern, Bird's-foot-trefoil
Comma	Nettles, Hops, Elms
Marbled White	Various grasses, esp. Red Fescue
Meadow Brown	Grasses: Fescues, Yorkshire Fog, Cocksfoot
Scotch Argus	Purple-moor grass, Tufted Hair-grass
Large Skipper	Cocksfoot, False Brome, Tor-grass
Silver-spotted Skipper	Sheep's-fescue and other fine grasses
Wall	Grasses: Cocksfoot, False Brome, Tor-grass, Fescues
Common Blue	Bird's-foot-trefoil, other Lotus and Trifolium species
Dark Green Fritillary	Violets, esp. Dog violet

Or Is It?!

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Should we be changing the soil environment chemically, and biologically for "*Ecological Value*?"

Or Is It?!

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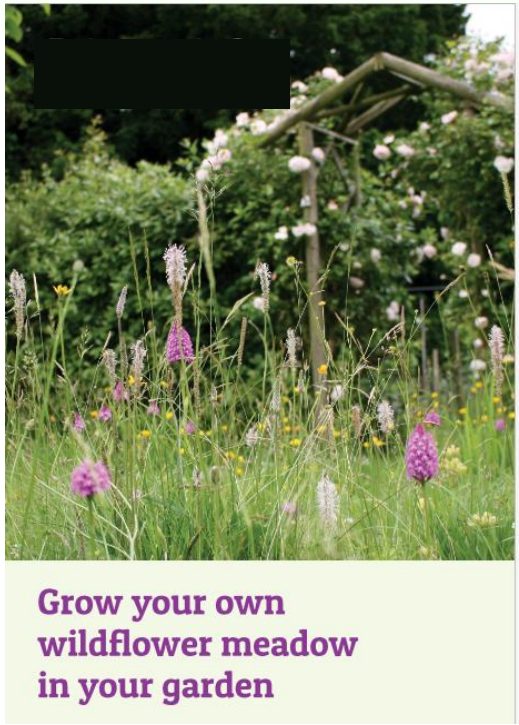
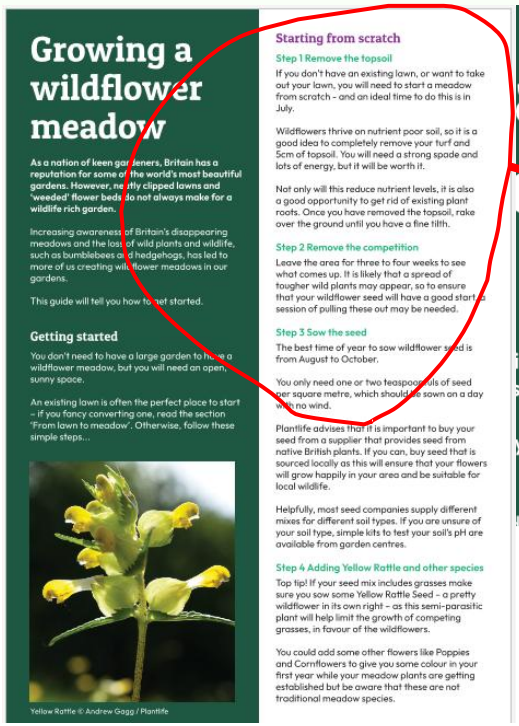


Grow your own wildflower meadow in your garden



Growing a wildflower meadow

As a nation of keen gardeners, Britain has a reputation for some of the world's most beautiful gardens. However, neatly clipped lawns and 'weeded' flower beds do not always make for a wildlife rich garden.

Increasing awareness of Britain's disappearing meadows and the loss of wild plants and wildlife, such as bumblebees and hedgehogs, has led to more of us creating wildflower meadows in our gardens.

This guide will tell you how to get started.

Getting started

You don't need to have a large garden to have a wildflower meadow, but you will need an open, sunny space.

An existing lawn is often the perfect place to start – if you fancy converting one, read the section 'From lawn to meadow'. Otherwise, follow these simple steps...

Yellow Rattle © Andrew Gagg / Plantlife

Starting from scratch

Step 1 Remove the topsoil

If you don't have an existing lawn, or want to take out your lawn, you will need to start a meadow from scratch – and an ideal time to do this is in July.

Wildflowers thrive on nutrient poor soil, so it is a good idea to completely remove your turf and 5cm of topsoil. You will need a strong spade and lots of energy, but it will be worth it.

Not only will this reduce nutrient levels, it is also a good opportunity to get rid of existing plant roots. Once you have removed the topsoil, rake over the ground until you have a fine tilth.

Step 2 Remove the competition

Leave the area for three to four weeks to see what comes up. It is likely that a spread of tougher wild plants may appear, so to ensure that your wildflower seed will have a good start a session of pulling these out may be needed.

Step 3 Sow the seed

The best time of year to sow wildflower seed is from August to October.

You only need one or two teaspoonfuls of seed per square metre, which should be sown on a day with no wind.

Plantlife advises that it is important to buy your seed from a supplier that provides seed from native British plants. If you can, buy seed that is sourced locally as this will ensure that your flowers will grow happily in your area and be suitable for local wildlife.

Helpfully, most seed companies supply different mixes for different soil types. If you are unsure of your soil type, simple kits to test your soil's pH are available from garden centres.

Step 4 Adding Yellow Rattle and other species

Top tip! If your seed mix includes grasses make sure you sow some Yellow Rattle Seed – a pretty wildflower in its own right – as this semi-parasitic plant will help limit the growth of competing grasses, in favour of the wildflowers.

You could add some other flowers like Poppies and Cornflowers to give you some colour in your first year while your meadow plants are getting established but be aware that these are not traditional meadow species.

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Does Reducing SOM Affect the Whole Soil Ecology?

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Converting grassland to wildflower meadow: impact on soil quality indicators for carbon sequestration

Alice A. Breeveld[1,2,*], Saskia Pagella[1,3], Jane Fisher[1]
Academic Editor: Martin A. Nuñez

Abstract

The extensive loss of carbon-rich, species-rich grasslands to agriculture and development has had detrimental impacts on wildflower abundance and diversity. Therefore, conversion of verges, lawns, and fields into wildflower meadows (WFMs) has gained prominence in recent years. However, a frequent recommendation for WFM establishment is to reduce soil fertility, raising concerns regarding the impact on carbon sequestration. To address the question of how WFM conversion might affect soil carbon retention, an experiment was conducted by UCL, UK, converting grassland into WFM using different strategies: deturfing or scarifying, plus seed sowing. Measurements included earthworm abundance, live biomass, and microbial decomposition rates via a cotton strip assay (CSA), to provide insights into the initial phase of carbon sequestration: organic matter decomposition. The findings unveiled critical insights. In the short term, WFM conversion resulted in reduced earthworm populations relative to the control, especially when the conversion involved a high level of disturbance by removing turf. Conversely, mowing led to increased earthworm populations and accelerated CSA decomposition compared to the control. These findings suggest that the effects of disturbance and removal of biomass through deturfing or scarifying, and the energy supply provided by mowing and leaving the arisings, had more impact on the earthworm population and CSA decomposition than the increased diversity of the sown wildflowers. **Successful WFM establishment can be achieved without turf removal, a practice that exerts adverse effects on soil life. These findings have broader implications for grassland resource management in the context of climate change mitigation through soil carbon storage**.

ACADEMIA ENVIRONMENTAL SCIENCES & SUSTAINABILITY

Breeveld et al. (2024), Academia Environmental Sciences and Sustainability University College London

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Soil type	System focus	Long-term acidification risk	Typical pH behaviour	Ecological implications
Sand	Floristic rich (cut & remove)	High (Loss of base cations)	Persistent decline	Rapid worm loss. Poor nutrient cycling . High vulnerability to stress.
Sand	Trophic rich (organic return, grazing)	Moderate (OM and cation buffering)	Slow decline / quasi-stable	Partial trophic integrity retained. Stress resilience

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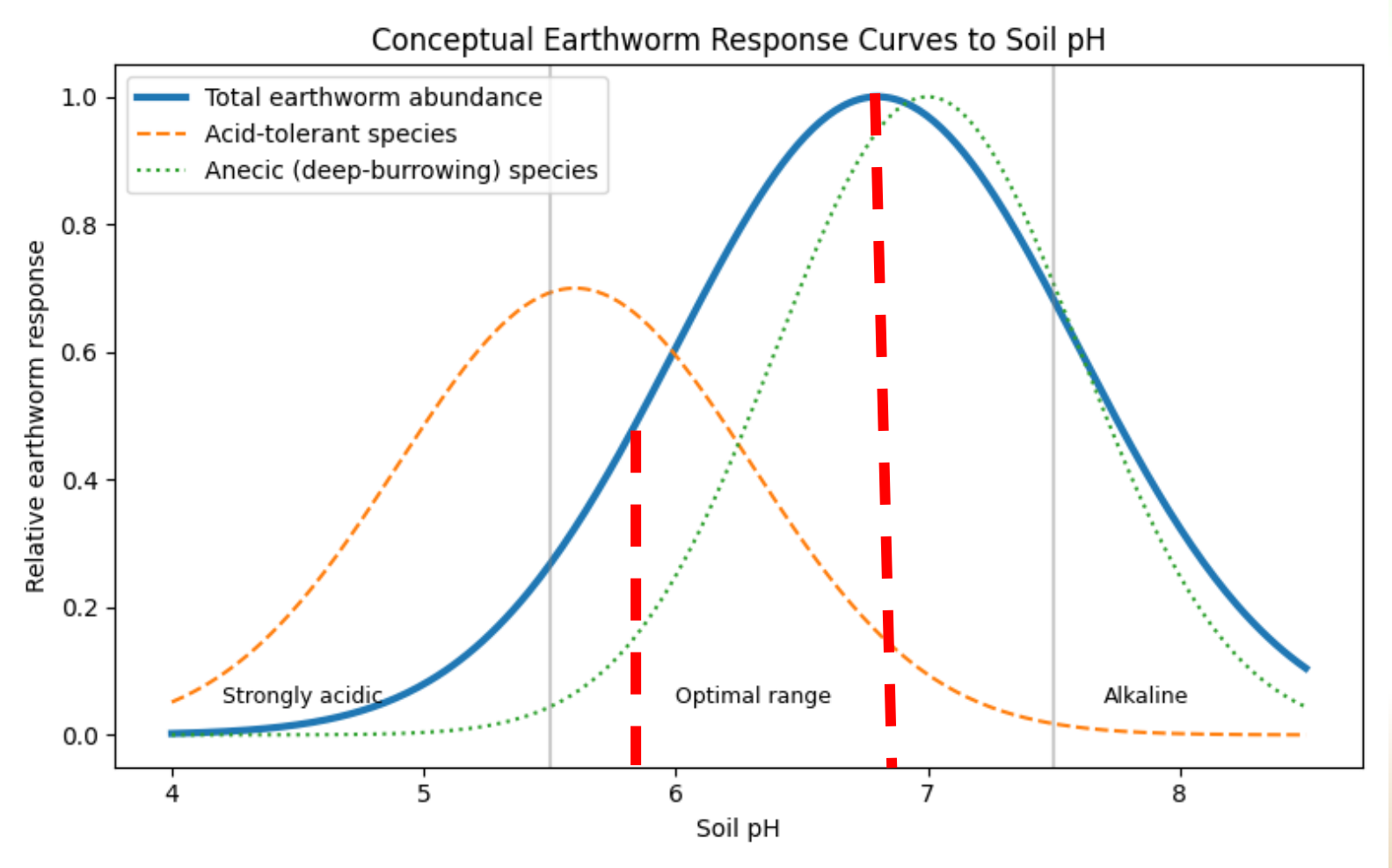

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Time Scale of Biological Damage from Continuous Biomass Removal

Time Scale	Biological Component Affected	What Changes	Reversibility
Weeks–months	Surface microbes	Rapid decline in activity and biomass	✅ Fast if biomass restored
Months (6 m–1 year)	Microbial respiration	Reduced nutrient mineralisation	✅ Fast–moderate
Months–1 year	Mycorrhizal fungi	Fragmentation and reduced colonisation	✅ Moderate
1–2 years	Earthworm activity	Reduced feeding and burrowing	✅ Moderate
2–5 years	Earthworm populations	Decline in abundance and diversity	⚠️ Slow recovery
2–5 years	Soil food web	Complexity diminishes loss of trophic levels	⚠️ Slow
3–10 years	Microbial community	Shift toward fungi-dominated species	⚠️ Slow
5–10 years	Biological aggregation	Reduced biologically-formed aggregates	⚠️ Slow
10+ years	Resilience of soil biology	Poor recovery after stress (drought, tillage)	❌ Very slow
Decades	Biological legacy effects	Local extinction of sensitive species	❌ Difficult

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The Trophic Protagonist would argue non-replenished removal of organic matter is a biologically blunt instrument.

But What If??!!

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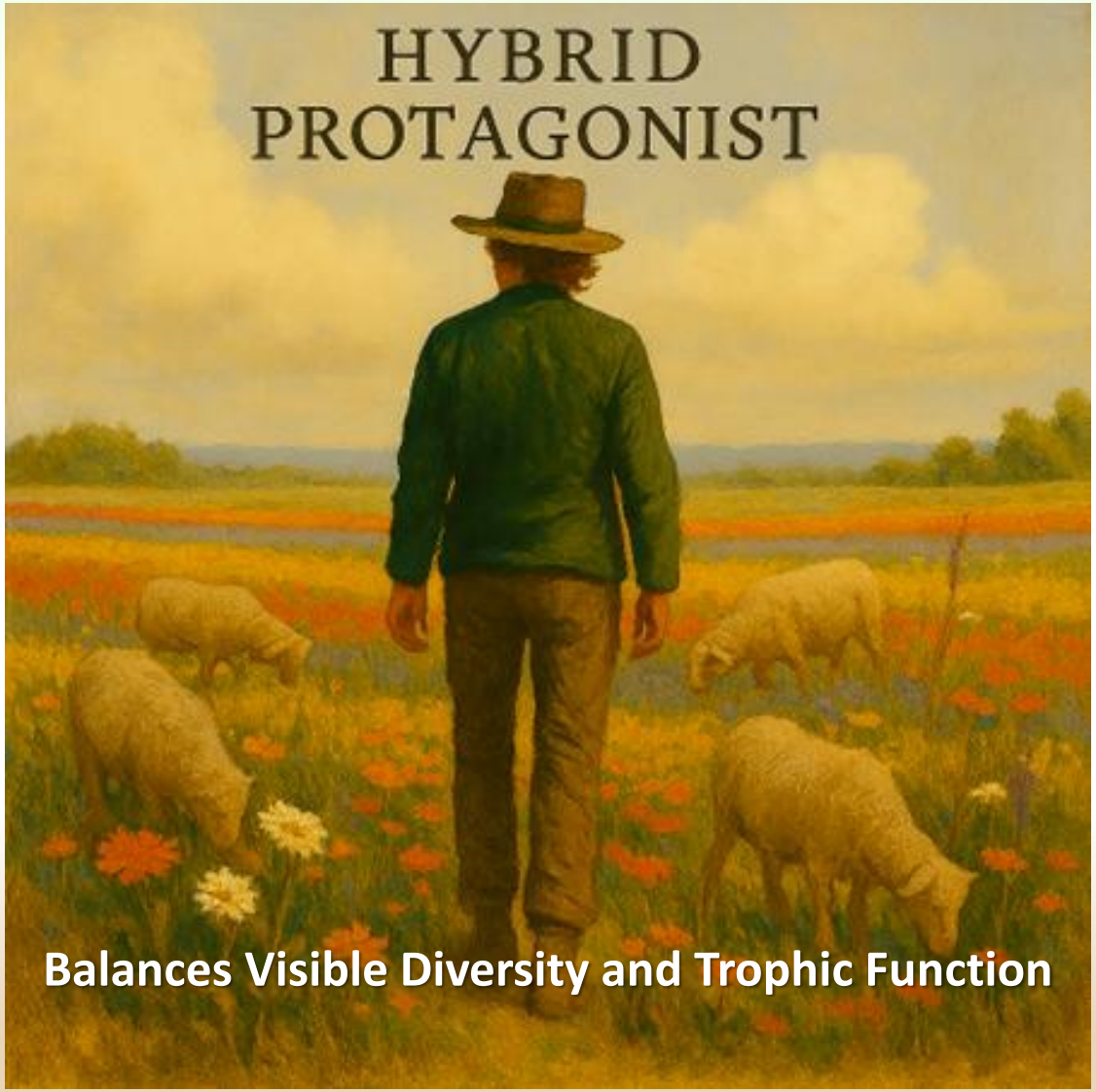

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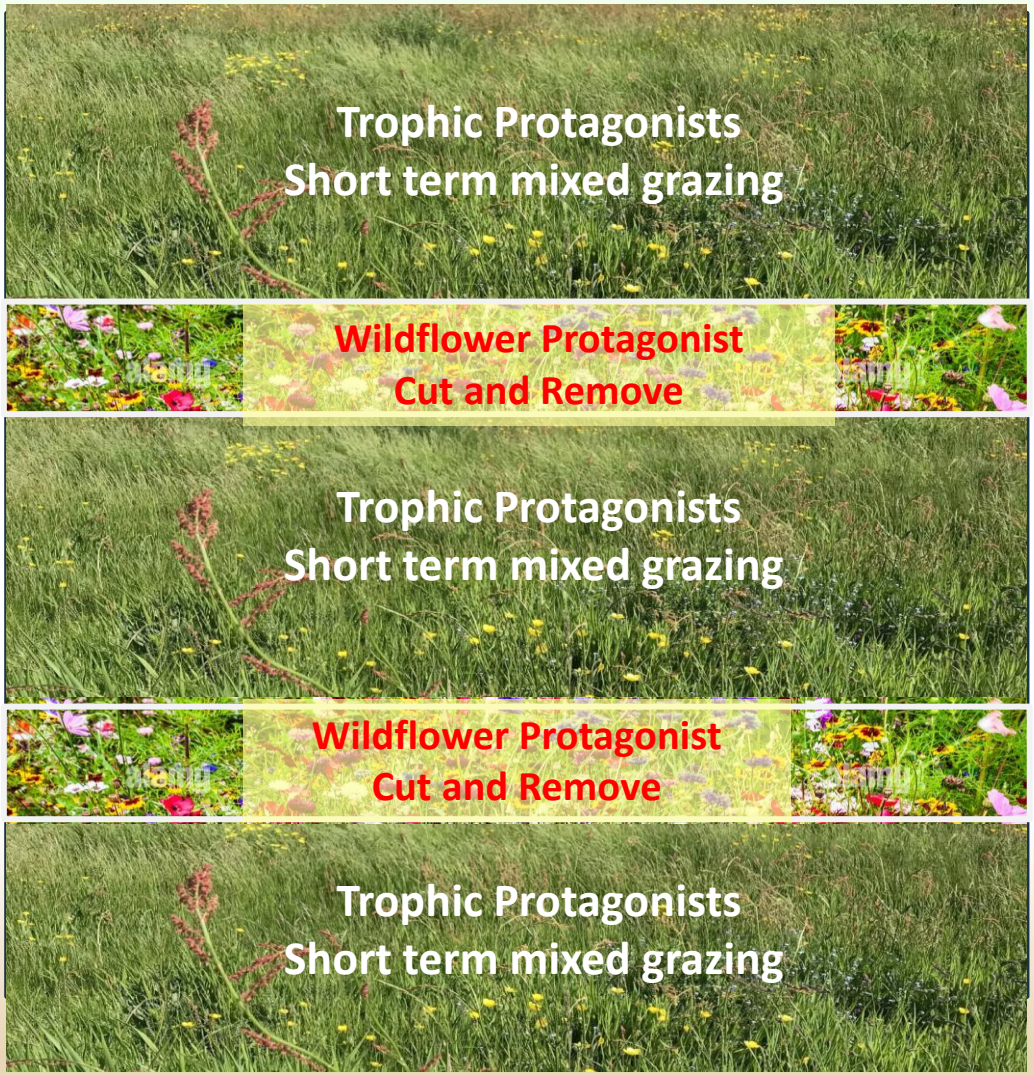

What Do You Think It Looks Like?

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Thank You!

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