



New Meadow Solutions

Sue France

Pictorial Meadows / Green Estate

In 'natural' and managed landscapes, meadows come about through some limiting feature such as :

- fertility
- temperature
- water content
- hay cutting
- mowing
- stock grazing

All of these prevent succession and encourage diversity in non-woody species

To create successful new meadow like landscapes we have to maintain an alternative range of limiting factors

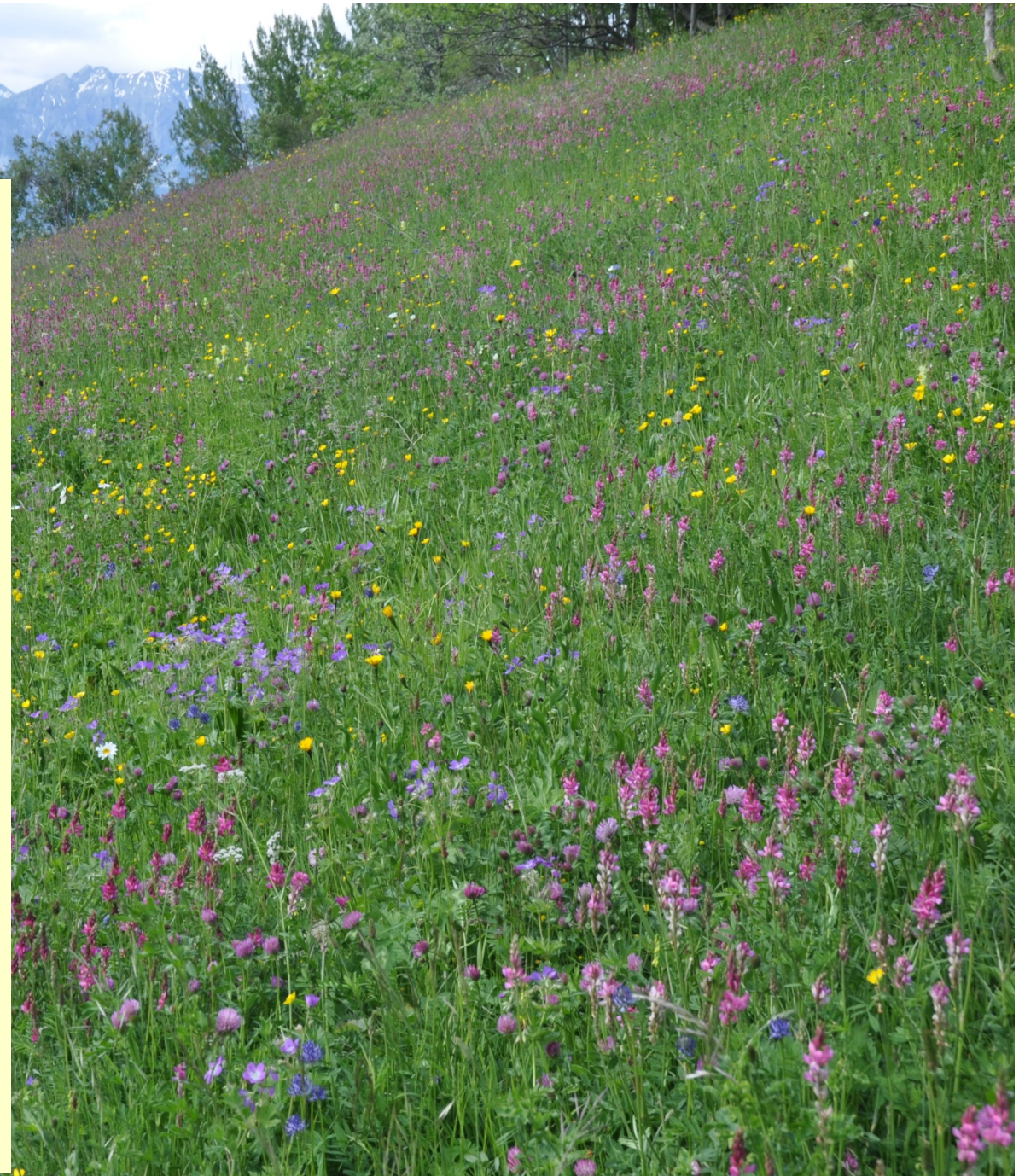


Photo : courtesy of James Hitchmough

Why is such a simple idea so difficult to get right?

Meadows are actually very complex plant communities

Marketing doesn't help – we are encouraged to think of these as both natural, easy and management free

We are not used to managing plant communities that change dynamically year on year

Little research had been done to determine factors affecting successful establishment and survival.

Traditional 'conservation Wildflower' meadow mixes were never designed for their visual impact.

The quality of the commercially available 'wildflower' seed mixes has been very variable and not subject to regulation

The inevitable impact of normal and high fertility soils is more robust growth and a significant increase in competition – especially from grasses



Sheffield Meadow Research

The University of Sheffield has had a significant research focus for the past 15 + years on designed and sustainable landscapes achieved through seed

Years of controlled research into suitability of single species then mix development.

Aim was to establish high impact, long flowering meadow like schemes designed to be largely established through seed and managed largely by mowing

Whether a species was native or not was much less important than having a good ecological fit.



Emergence of Commercially Available 'High Impact Meadows'

- Carefully formulated seed mixes designed for very high visual impact
- Very good for urban wildlife
- Non invasive
- Very long season of visual interest + provision of 'succession flowering '
- Affordable and Reliable seed
- Minimal maintenance and relatively simple cultivation





Successful Annual Meadows based on this research and approach have now become widespread









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So... 10 years of practice with annual meadows What are the Pitfalls?

- Poor preparation and poor sowing technique can really reduce successful germination
- Every year and every site is different. There is always an element of unpredictability
- Annual Meadow Management techniques definitely favour build-up of ephemeral and annual weeds
- Each species performs differently in response to weather and soil
- Very long season flowering with perfect composition throughout needs 'normal conditions' – we seem to be having less and less of these now



Understanding Comparator Costs

What are you comparing with ?

- General rule of thumb with **annuals** – They make significant savings over any formal floral scheme but are more expensive than gang mown grass. Exception to this rule is where you have high numbers of annual cuts or you are undertaking multiple road closures for grass cutting (ie on central reservations in which case there are notable savings).
- **Average cost per year for annuals is £1 per meter square**

Perennial Costs

- We don't have all the answers yet
- Establishment costs are much higher. From £15 to £20 a metre square for the critical first year – but lots of variable
- Good if you have capital rather than revenue budgets
- In theory running costs lower than annuals but requires timely operations, skill and different machinery

Other Factors

- Unmown grass generates complaints. Flowers generate compliments
- Be smart and design to budget –Smaller areas of high impact placed at the front allows much larger areas of lower input to be managed behind.
- Don't underestimate reactive costs caused by antisocial activities and flytipping– We have contracts where annual reactive clearance and skip bills have reduced four fold because of the local value and presence of flowers over rank grass

Perennial Meadows from Seed

We have worked with long season Perennial Meadows now for around 15 years. As with the annuals we have been looking for high impact, long season flowering on normal fertility soils.

Our goal has been to achieve a wide range of ecologically-stable mixes and exciting new vegetation forms with the least input (money, skills and time) as possible.

Through this we have come to understand many of the reasons for 'meadow' failure and many critical factors of successful establishment and long term management.



Whilst there has been a lot of learning, especially in the past 3 years, there are also many more variables to consider.

These schemes are looking more and more exciting and achievable but they will cost more than gang mown grass, require key staff to be trained and interested.

And also to undertake timely operations that will change dynamically in response to external factors such as weather.

More on Sheffield Research



Photo : courtesy of James Hitchmough



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Key Elements for Success to *Establish* Perennial Meadows

- Seed mix has to be carefully formulated to produce the planned design in field conditions
- Seed must be clean, viable and true to type
- Ground must be clean of perennial weeds
- Autumn sowing ensures a greater % of seed to successfully germinate in year 1
- Annual weed control in the first growing season is critical. Mulching is the least labour intensive, and hand weeding is recommended.
- We aim for around 150 + emergent young plants per metre square with a good complexity of designed species. By year 2/3 you are looking to sustain about 50 desirable plants per metre square
- Irrigation in spring and early summer of Year 1 is critical in dry years to get all species to both germinate and establish a good root system
- We strongly recommend two cuts in the establishment year (early and mid summer) to knock back annual weed competition, encourage basal shooting and reduce the shading effect to slower emerging species
- An assessment should be made of the density and complexity of the meadow species in late summer. If its not right at this stage it wont get better by magic.

YEAR 1 CRITICAL...YEARS 2 + 3 PERSEVERE

Key Elements for Success to *Maintain* Perennial Meadows

- In theory established meadows will need one cut and collect a year. Exact timing will depend on appearance and balance between public and wildlife needs.
- In some years a mid season cut might be necessary or desirable – it all depends on the meadow itself, rainfall, temperature, fertility and sunshine. Once established the species recover rapidly from this treatment and it can transform an over vigorous sward into a neat late flowering meadow
- Over the years, soil fertility will inevitably decline and cut and collect could be replaced just with a double cut



- Burning after cutting in late winter has a value on some meadows especially prairie and the lower fertility brick rubble mixes
- An annual early season graminicide and a spot spray quickly and effectively combats perennial weed competition in high fertility soils

Designing with perennials has only really just started

- Bio regions
- Habitats
- Colours
- Massing
- Seasonality
- Bulbs
- Stitch Planting







Photo : courtesy of Nigel Dunnett











Photo : courtesy of James Hitchmough

Impacts of Fertility



Seed or Turf?



Native Versus Exotic?

Which meadows are really best for biodiversity?

This is actually a huge and very complex question and depends where the site is and what biodiversity you are seeking to enhance.

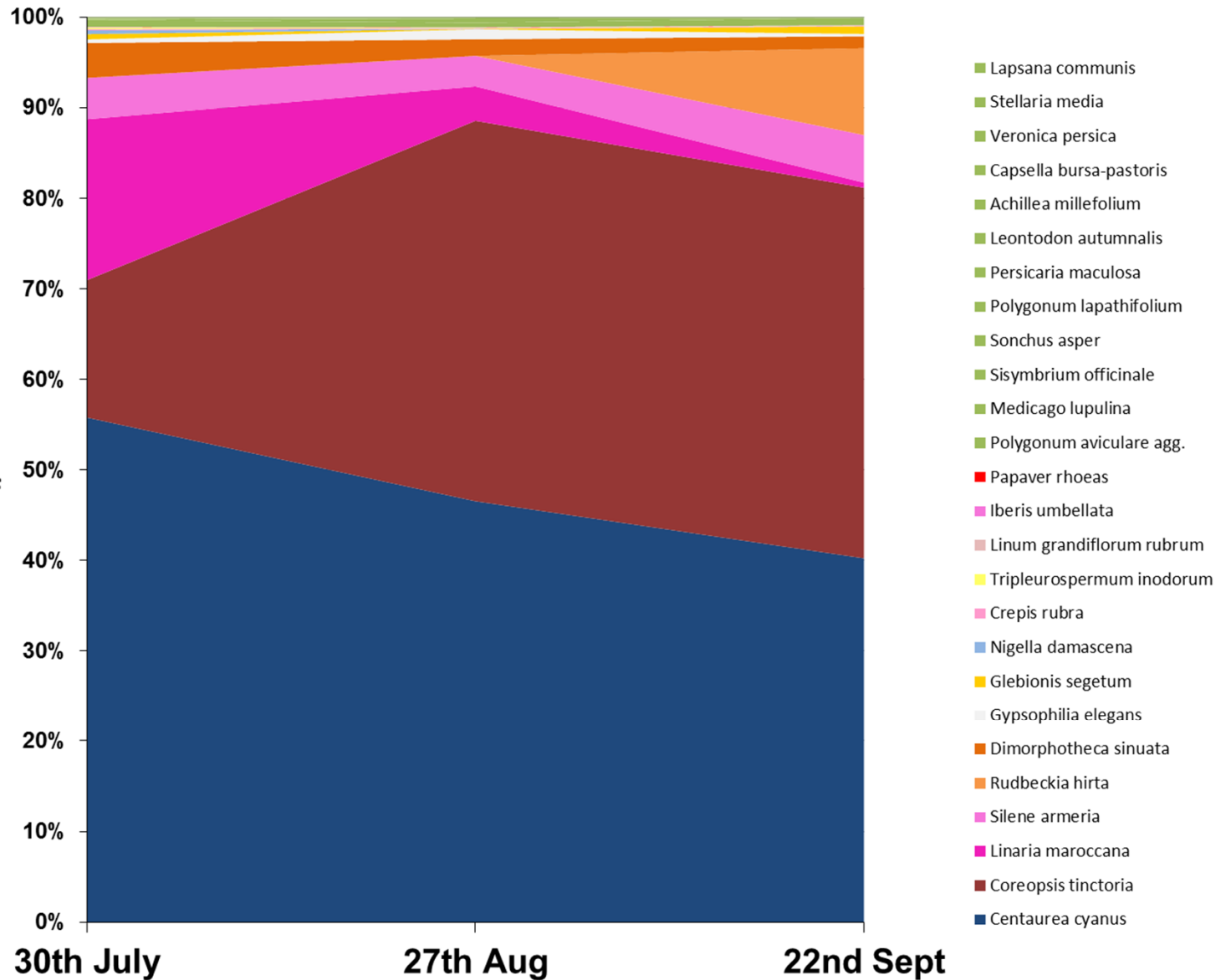
There is now evidence that 'non natives' can provide high quality resources for longer which in turn help to increase levels of pollinators and other fauna.



Enriched Short Annual mix

Mean percentage contribution of species to meadow nectar sugar mass production over the season

Mean percentage nectar sugar mass per metre squared of meadow



And finally, a little bit about us.

Pictorial Meadows is largely owned by Green Estate



GE started life 15 years ago as an 18 month grant funded project

Developing and delivering plans for **physical regeneration** across the Green space network

Finding diverse ways of **empowering and engaging** the broad community

Piloting and establishing initiatives that would **sustain the investment** when Grant funding finished



SIMON WHEATLEY/MAGNUM PHOTOS
Joyriders celebrate after burning a stolen car in Sheffield's Manor Estate, which has one of the highest crime rates in Europe.



We have established and manage green businesses



To help enrich our local parks, landscape and heritage.

