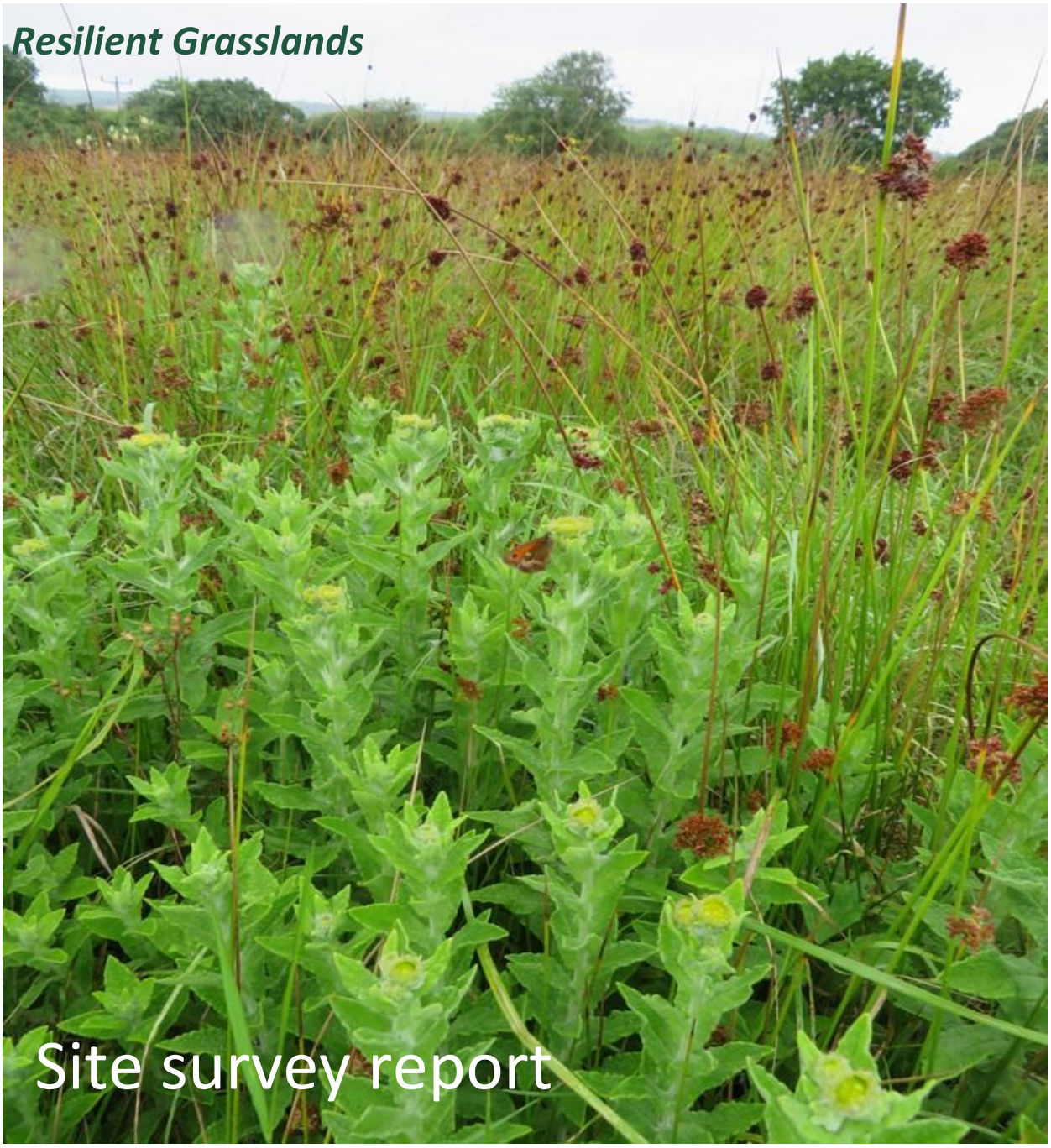
Plantlife The global voice for wild plants and fungi

Glaswelltiroedd Gwydn

Resilient Grasslands



Site survey report

Hope Gardens, Cilgerran Pembrokeshire SA43 2TF

Mae'r ddogfen yma hefyd ar gael yn Gymraeg.

Site name:

Hope Gardens

Landowner: Mark and Catrin Dellar

Grid reference: SN195425

Acreage: c. 2 ha (4.6 acres)

Date of visit: 24 July 2024

Surveyors: Sheena Duller and Bryony Jenkins

Ordnance survey map:

Land Boundary

Site description

The site is a field surrounding the community allotments and Hope Garden, just south of the village of Cilgerran, Pembrokeshire. The land is a damp, heavy clay soil and historically has predominantly been used as grazing pasture.

The area contains good quality Marshy Grassland habitat that is broadly consistent with the Section 7 Priority Habitat 'Purple Moor-grass and Rush Pasture'. It has a high structural diversity and a comprehensive survey carried out by WWBIC has provided an excellent species list. Plant species that were highlighted include Ragged Robin, Common Fleabane, Marsh Ragwort, Wild Teasel and Square-stalked Willowherb. In the western end of the field there is also wild angelica and meadow sweet.

Satellite map:


Marsh ragwort


Flea bane


Ragged Robin

General Management advice for grassland

In all types of grassland it is generally considered that under-grazing (or infrequent mowing) is more damaging to the plant species composition than overgrazing. Controlling grazing pressure is key to good management and helps to avoid dominance by more aggressive species and ultimately encroachment by scrub and brambles. Mowing can be used as a management tool to replace, or partially replace grazing, and is particularly beneficial for increasing the plant species diversity if the clippings are removed, or ideally hay made from the herbage.

Often habitat management is focussed on above ground activities like grazing and cutting regimes, but soil conditions are equally as important and shouldn't be overlooked. Soil compaction or structure damage whether from machinery or poaching by animals will affect the species composition of the sward, usually leading to increases in weeds such as Creeping buttercup, Docks and Thistles.

The soil pH describes how acid or alkaline your soil is. Influenced by underlying geology, soil texture, organic matter levels, historic management (lime applications) and rainfall. The pH of the soil has a bearing on what species and communities of wildflowers will naturally grow at that location. Therefore, it is important to know the pH and chemistry of the soil as this will dictate the species most suited to that location. The pH will also influence the availability of the major soil nutrients (Nitrogen, Phosphate, Potassium) and trace elements.

UK soils are rarely outside the range of pH 4-8. Very low soil pH's are often associated with wet peaty soils and very high pH where chalk is the underlying geology.

pH	Description	Notes
4-5	Very Acid	Because of geology or high levels of peat, limited rage of acid loving plants
5-5.5	Acid-neutral	Increasing number of plant species in this range
5.5-6.5	Neutral	May be natural, or controlled by application of lime
6.5+	Calcareous	Because of geology, soil overlying limestone rock or chalk

Soil chemistry is also important and will influence the species composition of the sward

Phosphorus (P)
Phosphorous is an important plant nutrient for root growth, absorbed in small amounts. It is typically applied in fertiliser to agricultural land, to increase its fertility. Grasses are better at taking-up phosphorous than wildflowers. It is not soluble and does not leach from soils unless very high levels are reached. It is difficult to reduce phosphorous levels quickly.

Potassium (K)
Important for leaf growth and plant architecture, high levels benefit the more aggressive plants and they then shade out the more interesting species. Soil reserves can drop quickly if repeated hay cuts are made without manure or fertiliser applications.

Nitrogen (N)
Very soluble and readily leached from the soil, grasses (ryegrass in particular) and some weeds (Yorkshire fog, creeping buttercup) respond well to nitrogen and grow strongly outcompeting other species. Because it is readily taken up or leached it is difficult to accurately measure.

P and K levels are usually converted into an index, where 0 is very low and 3+ is in excess of crop demand. Their availability and plant uptake is controlled by the pH of the soil.

Index		
0	Suitable for wild flower rich grassland	Likely to have good diversity already
1	Good for wild flower rich grassland restoration/creation	Wild flower establishment should be successful
2	Possible for limited number of nutrient tolerant wildflowers	Reduce levels through repeated cropping
3	As above but increasing difficulty	
4+	Too high for species rich grassland restoration	Drastic measures such as topsoil stripping, deep ploughing

Modern farms have much to gain from traditional farming methods – managing grassland to encourage wildflowers improves the health of livestock on land that is difficult to manage intensively. On the more marginal land reducing dependence on chemicals and other inputs will cuts costs and improve the margins per acre. Species rich fields have healthier soil and are more resilient to both drought and flooding.

Marshy grassland
This is the dominant type of grassland at the site. A marshy, tussocky grassland type found on poorly draining acidic soil, often there is a shallow peaty layer up to 50cm deep, (the classification changes to Deep Peat above 50cm). It is a very common and recognisable habitat across Wales, often with big tussocks of Purple Moor-grass (*Molinia caerulea*) dominating large areas. Willow and other shrubs sometimes invading from the edges.

In healthy Rhôs pasture you would expect to see Purple Moor-grass and rushes interspersed with wildflowers such as Ragged-robin and Devil's-bit Scabious.

This grassland offers numerous benefits to both wildlife and farming – the wet soils retain water, which helps reduce flooding, as well as providing summer grazing for cattle whilst other areas are shut off for hay/silage or during drought.

Neutral grassland
Whilst there is no Neutral grassland on this site, the surrounding fields would very likely have been maintained at a higher pH in the past, and there are remnants of neutral grassland in the area.

Neutral grasslands are found on free draining soils across Wales – and the traditional species diverse hay meadows are most often found on these neutral soils. However, because so much of Wales's geology is acid, neutral grassland is often only maintained through periodic liming.

When soil nutrient status is low neutral grassland is often rich in wildflowers which provide immense health benefits for all species of grazing livestock. They provide a balanced diet and have a higher nutritional value than poor quality grass, in particular Bent grass, (*Agrostis* species) and Yorkshire fog (*Holcus lanatus*) dominant swards. Modern agricultural methods, particularly reseeding with ryegrass and the extensive use of manures and fertilisers, whilst greatly increasing yield and forage quality, have largely eliminated wildflowers from our farms, so neutral meadows are now very rare.

Acid grassland
Acid grassland is the most common type of semi-natural grassland in Wales and is normally managed as permanent pasture, often in upland areas. It can host a range of different species if it isn't subject to artificial fertilisers or ploughed, this will include many of the rarer grassland fungi. Frequent applications of fertilisers without raising the pH will result in swards that are dominant in poor quality grasses and unfavourable for wildflower establishment, as the phosphate in the soil builds up. Sadly this is a common feature of Welsh grasslands and the resulting swards are poor for wildlife **and** production.

Grassland Fungi
Grassland fungi are good indicators of surviving fragments of ancient meadows and pastures. They have a wide tolerance of soil pH, with only a few species being specific in their requirements.

Grassland fungi are generally found in dry undisturbed soils and tightly grazed (or mown) swards. Low soil nutrient status, no soil damage and good grazing management is key. Grassland fungi are not necessarily associated with high plant species diversity, meaning that often good fungi grasslands are overlooked because they may be low in plant diversity.


Blackening Waxcap


Pink Waxcap


Splendid Waxcap


Earth tongue


Golden Spindles


Smokey Spindles


Crimson Waxcap

Almost all plants require some sort of fungal association to efficiently utilise soil nutrients, some are more specific than others.

The fungi hyphae break down the soil nutrients into soluble chemical form which are shared with the plant, and in return the fungi are supplied with sugars formed by the plant's photosynthesis process. Waxcaps (and associated species) are adapted for growth in very low nutrient soils and are able to access Nitrogen (N) locked up in soil organic matter. Additional N through slurry and fertiliser allows microbes adapted to take up of more accessible nutrients to outcompete and exclude the grassland fungi.

Management advice - Action Plan

- Make a late summer hay cut, as cutting and removing vegetation is the best method of increasing diversity and reducing the dominance of the grasses and rushes.

- Mown paths through the longer grass will develop a mosaic of sward heights which will encourage a greater diversity of plants

- Where possible grazing the aftermath growth is beneficial, cows are the best graziers they leave a mosaic of sward lengths, but any grazing is better than none. Appreciate that this may not be compatible with the allotments or garden.

- Target species to spread would be;
  - Yellow rattle; as a hemi-parasite it depresses grass growth opening the sward to allow other broadleaved plants to establish.
  - Devils bit scabious, the food plant of Marsh fritillary butterfly caterpillars, also provides nectar later in the summer when other flowers have finished flowering.
  - Species can be established on a small scale by hand harvesting the seed and scratching into the soil in existing sward, starting at path edges where competition with grasses is less.

Yellow rattle

Devil's bit scabious

Further general information can be found in the Plantlife website resources pages

www.plantlife.org.uk/learning-resource/managing-meadows/

www.plantlife.org.uk/get-to-know-waxcaps

We are delighted that your land is part of the Glaswelltiroedd Gwydn project. Thank you for contributing to securing the future of species rich grassland in Wales, and the benefits to nature, carbon storage and agricultural resilience that this will bring.

This document is also available in Welsh.

Mae'r ddogfen yma hefyd ar gael yn Gymraeg

Plantlife is the global charity working to enhance, protect, restore and celebrate the wild plants and fungi that are essential to all life on earth. With two in five plant species at risk of extinction, biodiversity loss is now the fastest it's ever been – which means our work has never been more vital. We champion and accelerate conservation action, working at the heart of a global network of individuals and organisations, to influence and inspire landowners and land managers, public and private bodies, governments and local communities. As time begins to run out, we are using our position as the global voice for wild plants and fungi to bring lasting and positive change to our natural world – for everyone's sake.

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