



The Wiltshire Chalk Grassland Project

Abstract

The RSPB has been working with landowners in Wiltshire to maintain and restore chalk grassland habitat, much of which was lost during and after the last world war. Wiltshire hosts 75% of chalk grassland remaining in the UK today.

Introduction

Wiltshire is characterised by chalk grassland studded with flowers and butterflies with skylarks singing overhead, but little of this nationally important habitat remains. With as many as forty plants per square metre, chalk grassland is on a par with the rainforests in terms of the number of species of flora and fauna it supports. From meadow ants to orchids to the rare stone-curlew, chalk grassland is host to many rare and threatened species that are adapted to nutrient-poor, chalky soils.

Since the last war, around 80% of the UK's chalk grassland has been lost to arable farming. Remaining patches are often on steep slopes, and through neglect, are lost through invasion of scrub and coarse grasses. The herb-rich grassland is semi-natural, traditionally maintained by sheep grazing. Changes in farming throughout the last century and more recently, Foot and Mouth, have threatened the existence of chalk grassland; the best remaining sites are now largely maintained by rabbit grazing.

By re-introducing grazing to restore neglected sites, important wildlife can be maintained. In rural areas, the use of grazing animals is important, both to the local economy and to maintain the aesthetic value of grassland sites for the benefit of the local community.

By working together with landowners, farmers, graziers and local people, through partnership in the Wiltshire Grazing Project RSPB aims to protect Wiltshire's heritage grasslands and the rare species that depend on them.

Importance and Characteristics

Chalk grassland, also known as calcareous grassland, contains an exceptional diversity of rare plants. Not only does this habitat contain species that are tolerant to the nutrient poor soil but also, as it has dramatically declined in recent years, calcareous grassland holds many increasingly rare and threatened species.

The soil underlying calcareous grassland is shallow, free-draining and very poor in nutrients. These conditions restrict the growth of competitive species but favours many lime-loving species. The special herb-rich flora supports a huge number of invertebrates

such as ants and butterflies, as the thin soils heat up quickly, especially on south-facing slopes that are tightly grazed or patches of bare ground.

Several declining species of farmland bird inhabit chalk grassland, such as the stone-curlew and skylark. Many nationally rare butterflies, such as Adonis blue and silver-spotted skipper, depend on flowers and grasses only found on chalk downland, such as horseshoe vetch and sheep's fescue, and are now confined to the few remaining areas. Due to habitat fragmentation, many of the characteristic downland species are vulnerable to local extinction.

Extent of Chalk Grassland in the UK

Two bands of chalk underlying the downland turf stretch across England from north-east to south-west. In 1966, a survey of the extent of chalk grassland in the UK established a total of 43,546 hectares. A repeat survey in 1980 found that 21% of this had been lost.

Today, the UK holds just 39,500 hectares of chalk grassland. Of this, 75% is found in Wiltshire, which hosts some of the best sites in the country; Parsonage Down, Porton Down and Salisbury Plain which at 13,000 hectares is the largest expanse of chalk grassland found in north-west Europe.

Causes of Decline

Much chalk grassland in the UK was lost through ploughing during the wars. However, this habitat has experienced serious further decline since the end of the Second World War with the intensification of agricultural practices. Both the need to supply the nation with food and later, the Common Agricultural Policy (CAP), encouraged farmers to produce arable crops on a large scale to the detriment of many habitats and wildlife.

The change in agriculture from haymaking to silage production and from spring sown to autumn sown crops led to a loss of arable plant species. In addition, the use of pesticides, artificial fertilizer and slurry rendered the land unsuitable for breeding birds, as stubbles that had provided an important food source during the winter were no longer available. This, along with lower numbers of invertebrates due to overgrazing and increased nutrients, has led to the decline in many farmland bird species.

Enrichment of the soil can make chalk grassland more suitable for invasive grasses which could not normally grow in chalky soils. These coarser grasses form dense clumps, forcing out other species of more important conservation interest. Due to reversion to arable land, many of the unimproved chalk grassland sites are now in small, isolated areas such as steep hillsides where farm machinery cannot reach. Along with tree planting, this leads to a decline in the specialist flora and fauna found in this habitat. Eventually, if left unmanaged, scrub species invade the grassland choking out the finer flora until succession reverts the grassland to woodland.

Protection and Action

A UK Biodiversity Action Plan (BAP) was formulated in 1995 as a framework for action across the country to protect and maintain the remaining calcareous grassland habitat and its species. From this came a Habitat Action Plan with the following objectives:

- to arrest the depletion of unimproved lowland calcareous grassland throughout the UK
- to restore all Sites of Special Scientific Interest (SSSI) to favourable condition by 2010
- to restore all other remaining sites by 2015
- to attempt to re-establish 1000 hectares of grassland by 2010

The letter target has already been exceeded as currently 8,400 hectares has been re-created.

Grassland Management

Chalk grassland is a semi-natural habitat, it has to be managed. If neglected, the grassland becomes invaded by coarse, rank grasses that out-compete the finer grasses. Small herbs become choked and eventually disappear along with the invertebrates that depend on them, such as many of the blue butterflies. Without any management scrub species are able to establish. As the scrub canopy closes in, the grass underneath is lost as the soil becomes enriched by leaf litter.

Grazing

The best kind of management for grasslands is extensive grazing. By maintaining low stocking rates; one animal per hectare, invasive plant species will be controlled whilst maintaining the invertebrate fauna that depend on the grasses. The aim is for a mosaic of longer and shorter grass that will benefit different forms of wildlife.

Different animals create different types of micro-habitat. Cattle will pull grasses up as they graze, creating a tussocky structure; sheep will create a tightly grazed turf, as will ponies and rabbits. Some animals are more selective than others of different herbage and this trait can be used when managing for a particular species. Animal hooves create areas of bare ground that are so important to invertebrates and also to types of plant that require bare ground to germinate.

There are other factors to consider when applying conservation grazing. Areas can be grazed extensively all through the year, however, grazing during spring and summer may prevent plants from establishing. Flower heads may be eaten so preventing the seed source establishing and, in the winter, soil may become poached by hooves.

A rule of thumb: the stocking rate should be dictated by the number of animals the area can support during the winter when available vegetation is low. This way both animal welfare and the grassland interest will be maintained. Conservation grazing is becoming increasingly used to maintain wildlife sites, for more information see WIGI (Wiltshire Interactive Grazing Initiative).

Importance of Scrub

Although looked upon as an invader of important grassland sites and both costly and time-consuming to control, the individual species collectively known as 'scrub' are important habitats in their own right. For example, Juniper associated with chalk grassland, can support over 18 different species of invertebrate! However, the 'problem' species are usually hawthorn, blackthorn, privet, wayfaring tree, gorse and dogwood.

When managing scrub, we should consider that tiny beasts that creep, crawl and fly need food and somewhere to shelter. Opening-up dense scrub areas can be beneficial to both invertebrates and birds that use the edges of scrub, but take care to sculpt winding paths to ensure that warm, sheltered areas are created - not wind tunnels. Often the very same habitat that supports so many different butterfly and other invertebrate species can be barren, simply because it is too exposed. An extra few degrees can make a huge difference.

Grazing animals can also help to manage scrub. Some animals are better at browsing than others, but most will nibble down developing scrub seedlings. Investigate which animals are best for your site. Aim to have a mix of scrub in succession present. From bramble that is at ground level to more mature bushes that have trunks.

A rule of thumb: carry out an invertebrate survey before you clear fell scrub. Also, annual removal of a little scrub at different stages of development saves a lot of hard work in the long-term whilst maintaining that vitally important habitat and food source for birds!

Arable Reversion to Grassland

Chalk grassland can be restored through reversion of arable fields. There are payment incentives available to landowners for arable reversion through the Countryside Stewardship Scheme (CSS) and Environmentally Sensitive Area scheme (ESA).

Stewardship applications score higher if arable reversion is planned in an area where it will buffer or link existing downland, as this will then enhance and expand the total area of this habitat nationally. Buffering is useful as a barrier between the unimproved downland and arable fields and the treatments that they may receive.

Wiltshire is rich in archaeology having many tumuli (burial mounds) and iron-age hill forts, such as Figsbury Ring and Old Sarum. Arable land adjacent to these historic grassland monuments is ideal for reversion as the unimproved grassland of these sites is then protected from improving chemicals. Fields in areas that are difficult to cultivate, or that historically provide poor yield or are perhaps frequently used by the public due to footpaths may make excellent sites for reversion to permanent grassland.

A rule of thumb: first of all carry out a soil test to determine the level of nutrients in the soil. The level of nutrients will determine which method of reversion to opt for. If the nutrient levels are low and the land is adjacent to chalk grassland, natural regeneration

with annual topping to deter seeding of problem weeds may be ideal. If nutrients are high, a crop may need to be planted to remove the nutrients, followed by a hay cut, removing the cuttings, and extensive grazing. When nutrient levels have been lowered, seeding may take place using local provenance seed.

Notes

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Flora Local website: <http://www.floralocale.org>

DEFRA website: <http://www.defra.gov.uk>

Government UK Biodiversity Action Plan website: <http://www.ukbap.org.uk>

Contact: Tracé Williams
Chalk Grassland Project Officer
01722 427230
e-mail: trace.williams@rspb.org.uk