

CHANGING CHALK

SUSSEX LOCAL WILDLIFE SITES INITIATIVE

A summary of the results of condition assessments
carried out on 26 sites



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Part of

Changing Chalk
connecting nature, people and heritage

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INTRODUCTION

Background

Changing Chalk is a National Trust-led partnership project funded by the National Lottery Heritage Fund with the aim of restoring calcareous grassland, engaging local communities and conserving the heritage of this rare and important habitat within the project area, which covers the South Downs between the River Adur and Eastbourne.

Local Wildlife Sites

The Sussex Local Wildlife Sites (LWS) Initiative is a Changing Chalk partner organisation. It was established in 2018 to administer and co-ordinate the LWS system for Sussex. The LWS designation is non-statutory and is afforded to sites that “*contain features of substantive nature conservation value*” (Defra, 2006).

As part of the Changing Chalk project the Sussex LWS Initiative surveyed and reviewed 30 LWS containing calcareous grassland from across the project area (see map in Appendix 1) between 2022 and 2024. The LWS that were surveyed and reviewed for Changing Chalk largely comprised fields of pastoral farmland, but also included nature reserves, golf courses and even a suburban cemetery.

Condition Assessment of Calcareous Grassland

As part of the survey process an assessment of the condition of the calcareous grassland within each LWS was also carried out. This provided a more detailed and objective assessment of the state of the calcareous grassland within each LWS. It also highlighted if conservation work was required to improve its condition and help inform our Changing Chalk partner organisations about where resources would be required to restore calcareous grassland.

The condition assessment methodology followed that used for the Nature Improvement Area (NIA) project. The NIA project was carried out from 2012 to 2014, and it also gathered condition assessment data on calcareous grassland for many of the same LWS that have been assessed for Changing Chalk. Where historic NIA data existed for an LWS it enabled a comparison of calcareous grassland condition to be made and any changes in condition over time to be determined.

This report provides a summary of the findings of the condition assessments of calcareous grassland that were carried out by the Sussex LWS Initiative as part of the Changing Chalk project.

METHODS

Habitat Survey

Each LWS was subject to a standard LWS survey, which entailed a walkover of the site to classify and map the extent of all habitats present, including calcareous grassland, in accordance with the UKHab classification. The UKHab classification defines calcareous grassland as “*vegetation dominated by grasses and herbs on shallow, well drained soils which are rich in bases (principally calcium carbonate) formed by the weathering of chalk and other types of limestone or base-rich rock*” (UKHab, 2023).

Condition Assessment of Calcareous Grassland

Areas of calcareous grassland identified during the survey were then subject to a condition assessment. The condition assessment uses a number of habitat attributes to describe the condition of calcareous grassland. For a given area of calcareous grassland, the recorded value of each attribute is compared against a target range for that attribute. See the table below for the attributes and their target ranges. Should any attributes be outside of their target range then the calcareous grassland is considered to be in unfavourable condition.

Habitat Attribute	Target Range of Attribute
Change in extent over time	No significant reduction in extent of calcareous grassland (e.g. through scrub encroachment).
Number and abundance of positive indicator species	At least four positive indicator species* are frequent and at least three positive indicator species* are occasional throughout the sward. *(Bird’s-foot Trefoil, Burnet-saxifrage, Clustered Bellflower, Common Agrimony, Common Knapweed, Common Rockrose, Cowslip, Devil’s-bit Scabious, Dropwort, Dwarf Thistle, Eyebright, Fairy Flax, Field Scabious, Gentian, Greater Knapweed, Hairy Violet, Harebell, Hawkbit, Hoary Plantain, Horseshoe Vetch, Kidney Vetch, Lady’s Bedstraw, Marjoram, Meadow Vetchling, Milkwort, Mouse-ear Hawkweed, Ox-eye Daisy, Salad Burnet, Saw-wort, Small Scabious, Squinancywort, Thyme, Wild Basil)
Sward height	Short, species-rich swards (NVC community CG2) are 2-10cm in height. Upright Brome and/or Tor Grass dominated swards (NVC communities CG3/4/5) are 2-15cm in height.
Proportion of herbs to grasses within the sward	Cover of 30-90% herbs within the sward.
Cover of negative indicator species	No negative indicator species* more than occasional throughout the sward, with no negative indicator species* singly or together more than 5% cover. *(Broad-leaved Dock, Curled Dock, Common Nettle, Creeping Thistle, Creeping Thistle, Spear Thistle, Woolly Thistle, Ragwort)
Cover of scrub in the sward	No more than 5% scrub cover within the sward (stable blocks of mature scrub are not counted within the interest feature).
Cover of Tor-grass or False Brome	No more than 10% cover of Tor-grass or False Brome.
Area of bare ground	No more than 10% bare ground with no patches greater than 0.05ha (approximately 20m x 20m).
Extent of layer of litter within the sward	No more than 25% of the sward has a layer of litter.

The condition assessment involved a structured walk across areas of calcareous grassland, with 10 stopping points. Positive indicator species were recorded within a metre of the surveyor at each of the stopping points. Species were recorded as rare if they were present at one to two stopping points, occasional if present at three to four stopping points and frequent or more if present at five or more stopping points. The other habitat attributes were assessed and recorded during the structured walk.

RESULTS

Calcareous Grassland Habitat

Of the 30 LWS that were surveyed, 28 contained at least a reasonable amount of calcareous grassland, i.e., grassland covering more than just a few square metres in area.

Calcareous grassland is a habitat of international¹ and national² importance as well as being an iconic and defining feature of the ancient landscape of the South Downs. It is a habitat that is renowned for being particularly rich in plant species. The surveys were only a walkover and so the list of plant species recorded at each site cannot be considered comprehensive. However, an average of 62 vascular plant species was recorded from the calcareous grassland within each LWS, with the highest count for any LWS being 84 species.

Calcareous grassland is also a habitat that supports many notable and rare plant species. These include species listed on the Red Data List for Great Britain, species that are rare (recorded in 1-15 hectads) or scarce (recorded in 16-100 hectads) in Great Britain, and species that are rare or scarce in Sussex (SBRs, 2018). Notable and rare species were recorded from 19 of the 30 LWS that were surveyed. The most frequently occurring species were Round-headed Rampion *Phyteuma orbiculare* and Hound's-tongue *Cynoglossum officinale*. Other notable and rare plant species included Bastard-toadflax *Thesium humifusum*, Basil Thyme *Clinopodium acinos*, Autumn Lady's-tresses *Spiranthes spiralis*, Red Star-thistle *Centaurea calcitrapa* and Knapweed Broomrape *Orobanche elatior*.

Condition of Calcareous Grassland

Condition assessments were carried out at 26 of the 30 LWS that were surveyed, where there was sufficient calcareous grassland for a meaningful assessment to be made. However, in many cases more than one assessment was required at each LWS due to differing land ownerships or separate grazing units. In total 54 units of calcareous grassland (CG) were assessed across the 26 LWS. The table below provides a summary of the number of individual units and entire LWS containing calcareous grassland in favourable condition, where all attributes were within their target range, and the number of individual units and entire LWS containing calcareous grassland in unfavourable condition, where one or more attributes were outside of their target ranges.

Condition	Individual Units of CG	Entire LWS
Favourable	8	3
Unfavourable	46	20

Where the calcareous grassland was in unfavourable condition one or more attributes were outside of their target ranges. The following table summarises how frequently each parameter was noted to be outside of its target range across all individual units of calcareous grassland and all 26 LWS.

Habitat Parameter	Individual Units of CG	Entire LWS
Change in extent over time	5	4
Number and abundance of positive indicator species	11	8
Sward height	18	14
Proportion of herbs to grasses within the sward	7	5
Cover of negative indicator species	8	7
Cover of scrub in the sward	30	19

¹ Habitat listed under Annex 1 of the Habitats Directive

² Habitat of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities Act (2006)

Habitat Parameter	Individual Units of CG	Entire LWS
Cover of Tor-grass or False Brome	25	15

Change in Condition Over Time

For 22 of the 26 LWS that were assessed it was possible to compare the results of the current condition assessment with the historic data from the NIA project to determine if there had been any changes in the condition of the calcareous grassland since 2012-2014. Consequently, each site was assigned one of five 'condition over time' descriptions, as follows:

Favourable maintained

The calcareous grassland had been described by the NIA project as being in favourable condition (all attributes within their target range), and it was still in favourable condition when the Changing Chalk assessment was carried out (all attributes still within their target range).

Favourable recovered

The calcareous grassland had been described as being in unfavourable condition (some attributes outside their target range), but was now in favourable condition (all attributes now within their target range).

Unfavourable recovering

The calcareous grassland had been described as being in unfavourable condition (some attributes outside their target range) and was still in unfavourable condition, but one or more attributes were now within their target range.

Unfavourable no change

The calcareous grassland had been described as being in unfavourable condition (some attributes outside their target range) and it was still in unfavourable condition, with the same attributes outside their target range.

Unfavourable declining

The calcareous grassland had been described as being in unfavourable condition (some attributes outside their target range) and it was still in unfavourable condition, but even more attributes were now outside their target range). This description was also applied where there was significant reduction in the extent of calcareous grassland within the LWS (>10%).

The change or otherwise in the condition of the calcareous grassland across the 22 LWS where there was historic data is summarised in the table below. It is not possible to present this data for each entire LWS because it can vary between individual units within an LWS.

Change in Condition over Time	Individual Units of CG
Favourable maintained	1
Favourable recovered	1
Unfavourable recovering	11
Unfavourable no change	12
Unfavourable declining	6

Comparison of Condition with Habitat Management

The condition of a unit of calcareous grassland and any changes in its condition over time can be compared to the known management of the unit (see table below).

Change in Condition over Time	Habitat Management		
	CG Units with Grazing	CG Units with Scrub Management	CG Units with No Management
Favourable (no historic data)	6	0	0
Favourable maintained	1	0	0
Favourable recovered	1	0	0
Unfavourable (no historic data)	13	2	4
Unfavourable recovering	11	1	0
Unfavourable no change	8	1	4
Unfavourable declining	3	1	3

DISCUSSION

Discussion of Results

Condition of Calcareous Grassland

Of the 26 LWS that were subject to a condition assessment of their calcareous grassland, only three were entirely in favourable condition, and of the 54 individual units of calcareous grassland that were subject to a condition assessment, only eight were in favourable condition. Most LWS (20) were entirely in unfavourable condition, and of the 54 individual units of calcareous grassland, most (46) were in unfavourable condition.

For the calcareous grassland that was in unfavourable condition, the habitat parameters that were most frequently outside of their target range were:

- cover of scrub in the sward (19 entire LWS and 30 units of CG); and
- cover of Tor-grass or False Brome (15 entire LWS and 25 units of CG).

A relatively high cover of scrub in the sward and/or cover of Tor-grass are both attributable to under grazing of calcareous grassland, or to a lack of grazing entirely.

Change in Condition Over Time

Of the 31 individual units of calcareous grassland where it was possible to compare the current condition assessments with the assessments from the NIA project in 2012-2014 to determine changes in condition over time, only two were in favourable condition, with most units (29) being in unfavourable condition. Overall, more units were unfavourable, either no change (12) or declining (6), than were favourable (2) or unfavourable recovering (11). Although this paints an overall unfavourable picture, the fact that 11 units were unfavourable recovering means they could be considered to be moving towards favourable condition.

It would appear from these results that, overall, the condition of calcareous grassland across the project area has suffered a decline since 2012-2014.

Comparison of Condition with Habitat Management

Most of the 54 units of calcareous grassland that were assessed were being actively managed through grazing with sheep, cattle or ponies (43). All units of calcareous grassland that were in favourable condition (8) were being actively managed. However, for units of calcareous grassland that were in unfavourable condition some were managed (35), while others were unmanaged (11). Of the 12 units that were 'unfavourable no change', eight were being managed, but for the six units that were 'unfavourable declining' this dropped by half to only three that were being managed.

This would appear to provide evidence showing that for calcareous grassland to be in favourable condition it requires active management, while a lack of management can result in calcareous grassland losing condition and becoming unfavourable.

Application of the Results from the Condition Assessments

The results of the condition assessment for each LWS were compiled into a short report, which also included broad habitat management recommendations if the condition of the calcareous grassland was unfavourable. Management recommendations for a LWS varied, depending on the particular habitat attributes that were outside of their target range, but they included:

- introduce or reintroduce grazing;
- increase stocking density and/or duration of grazing;
- graze with cattle in spring to reduce cover of Tor-grass;
- graze with Exmoor ponies to reduce young scrub; and
- cut and remove scattered scrub in sward.

These condition assessment reports were shared with staff from Changing Chalk partnership organisations in order to help determine what action would be required, and where, to conserve and restore calcareous grassland, and whether this should be carried out through advice to landowners/managers or direct habitat management.

Given the apparent decline in the condition of calcareous grassland across the project area since 2012-2014 there is an ongoing requirement for focussed effort and targeted management to reverse this decline and achieve the Changing Chalk aim of restoring calcareous grassland, even beyond the term of the project.

The Sussex LWS Initiative intends to return to as many of the LWS surveyed for Changing Chalk as possible in the future, and to continue to monitor the condition of the calcareous grassland using the same methodology, in order to be able to ascertain if calcareous grassland is declining in condition and to identify the potential reasons why, so that we can advise landowners or managers accordingly.

Comments on the Condition Assessment Methodology

From experience of carrying out the condition assessments it became apparent that the methodology has a number of limitations.

The parameters for certain attributes can be difficult to adequately determine, such as the difference between scrub in the sward and established scrub, while the quantitative assessment of the parameters of certain attributes can also be difficult to confidently determine, such as the layer of litter. Further clarification on the field methodology, and particularly on how to record the parameters for each attribute, could be provided to minimise any variation in the results between surveyors.

The methodology represents only a broad-brush approach to assessing the status of calcareous grassland and does not take into account the specific habitat requirements of individual faunal or floral species that may be present on a site. For sites that are known to support particularly notable species, the condition assessment methodology could be tailored by adjusting the target ranges of certain attributes that are known to be important for the target species.

The assessment also favours calcareous grassland with a short, herb- and species-rich sward, although this does not necessarily represent the starting point for all calcareous grassland across the South Downs. And a variety of sward types across a site will provide a wider range of habitat conditions suitable for supporting a greater diversity of faunal and floral species. The target range of certain attributes could be reviewed, such as that for cover of scrub in the sward.

Despite the limitations described above, the condition assessment methodology, if repeated over time, does provide a useful means of highlighting to a landowner or manager when an area of calcareous grassland is in a declining state. And where this is known to be due to a specific change in management, the decline can be readily remedied.

CONCLUSION

As part of the Changing Chalk project, the calcareous grassland at 26 LWS from across the project area was subject to a condition assessment. This provided an objective and standardised means of determining the state of the calcareous grassland at each site, helping in turn to inform where advice and resources were required to aid the conservation of this important habitat.

The results of the condition assessments show that appropriate grazing is essential for maintaining calcareous grassland in favourable condition.

The results also show that there has been an overall decline in the condition of calcareous grassland across the project area since 2012-2014 as a result of under grazing or a lack of grazing.

The actions taken by the Changing Chalk project, together with ongoing effort and targeted management, should reverse this decline and achieve the Changing Chalk project aim of restoring calcareous grassland.

REFERENCES

Defra (2006) *Local Sites – Guidance on their Identification, Selection and Management*

UKHab Ltd (2023) *UK Habitat Classification Version 2.0* (at <https://www.ukhab.org>)

Sussex Botanical Recording Society (2018) *The Flora of Sussex*, Pisces Publications

APPENDIX 1

Map Showing Location of LWS that were Surveyed and Condition Assessed for Changing Chalk