

Case Study

Scrub clearance – seed sowing achieves better outcomes for chalk grassland restoration

Royal Botanic Gardens, Kew and Natural England

The Vision

Scrub poses a dilemma in chalk landscapes: it provides valuable habitat but can also encroach on species-rich grassland. Scrub is often cleared to maintain a balance, a costly operation which is often quickly followed by the regrowth of scrub and weeds.

This project investigated the ability of seed sowing to suppress scrub regeneration, promote the restoration of species-rich chalk grassland and reduce the need for labour-intensive management interventions.

Background

Work was carried out at three sites, working with the South Downs National Park Authority, Natural England and local farmers and graziers.

This allowed us to compare results at sites with different scrub types and growing conditions, and to trial seed sowing alongside conventional manual weeding and herbicide applications.



Trial plots after two years at Castle Hill NNR. Credit: Chris Cockel, RBG Kew

What we achieved

We have demonstrated that seed sowing following scrub removal can be a powerful tool for chalk grassland restoration, significantly reducing scrub and weedy regrowth while promoting characteristic chalk grassland species. We also found that the manual aftercare techniques and herbicide applications we tested had limited impact, with very similar results achieved with seed sowing alone.

The long-term benefits to nature are clear: species-rich grassland, sustainably grazed alongside areas of scrub and woodland, is at the heart of a complex and unique chalk ecosystem including plants, fungi, invertebrates, birds and mammals. Using seed also has benefits from a management perspective: bare ground is covered more quickly and weeds are suppressed, reducing impacts on the landscape; palatable grasses and broadleaved plants encourage early and sustained grazing; and the need for costly and labour-intensive follow-up treatments is reduced.

Our study combined widely available techniques with a controlled, replicated experimental design, careful data collection and robust statistical analysis to provide evidence-based, practicable and scalable recommendations for land managers and restoration practitioners.

How we did it

Study 1 explored the impact of sowing a chalk grassland seed mix following the clearance of mixed scrub at a site near Alfriston in East Sussex. A typical manual aftercare regime (hand weeding and brush cutting) was also trialled in combination with the sowing treatment.

Study 2 replicated the sowing treatment after the clearance of mixed scrub at Castle Hill NNR and dense gorse at Lullington Heath NNR. We also investigated the ability of a second seed mix augmented with fast-establishing,

palatable native species to promote grazing, with both mixes tested in combination with and without herbicide (glyphosate) application to cut stumps and root fragments.

In the first study, scrub was pulled using an excavator and land rake. At the more sensitive NNR sites, scrub was cut by chainsaw and stumps ground using a remote-controlled forestry mulcher.

Seed was brush harvested from local chalk grassland sites, supplemented with additional local-origin seed from the Millennium Seed Bank, and sown by hand.

Lessons learnt

We have learnt that seed can be a really effective tool for chalk grassland restoration, at least in areas of mixed deciduous scrub. None of our treatments worked well in the gorse-dominated site, however, where regrowth proved very difficult to overcome.

It was also interesting to find that the aftercare treatments and herbicide applications we tested were not effective. It would be useful to explore whether different intensity or timing of interventions could produce different results, allowing this work to be targeted for greatest impact.

We discovered the importance of consolidating and preparing the ground carefully before sowing to prevent seed being washed away. Early and sustained grazing has also been crucial, but access to the right grazing at the right time is a challenge shared by conservation land managers across the UK.

The keys to success were careful planning, strong partnerships with land managers and a flexible, adaptive management as the sites developed over time.

“ **A key principle of National Nature Reserves is to facilitate learning for the benefit of species and habitats. This study can help to ensure the best use of resources for land managers.** ”

James Glaysher, Reserves Manager, Natural England



Further information

The full research report can be found here:

[Chapman, Ted \(2026\) The changing chalk; seed sowing promotes calcareous grassland restoration following scrub clearance.](#)

The Changing Chalk Partnership

Led by the National Trust, Changing Chalk was a four-year partnership project from 2022 to 2026 working to reverse the ecological decline of chalk grassland in the eastern South Downs, bring histories to life, and connect local communities to the internationally significant landscape on their doorstep.

www.nationaltrust.org.uk/changing-chalk-partnership



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