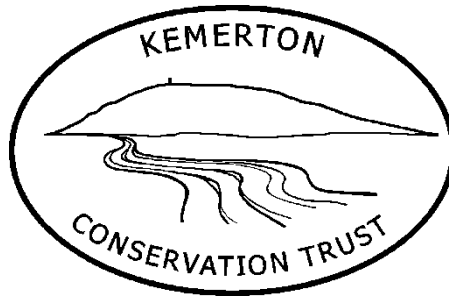


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Restoration of The Ash Bed Project – Final Report 1st September 2014

Project Background

The Ash Bed is a remnant of old coppiced ash woodland on Bredon Hill. This woodland was actively managed for over two hundred years but no coppicing has been done in the last 50 years, so the habitat had become overgrown and in need of work. As the woodland is primarily ash, there were also concerns about the potential effect of the newly discovered Ash Dieback Disease.

The ground flora was fairly sparse both as a result of shading out and because of the grazing by deer and rabbits. In addition, the local shoot moved its pheasant release pens to a section of woodland that abuts this strip in early 2013. The Trust wanted to monitor the effects the deer, rabbits and pheasants might have on the understory of the Ash Bed, particularly on the native bluebells which were found there.

In April 2013, the Trust received £500 towards the project from a generous donor who prefers to remain anonymous. The Trust provided the balance of funds required and manpower in the form of our warden John Threadingham and volunteer labour from our work party group to assist with the project.

Project Aims

The main aim of the project was to restore the Ash Bed through targeted coppicing and thinning of existing trees and the planting of a range of new shrubs and trees to improve the biodiversity (and to protect against total loss of habitat if Ash Dieback Disease takes hold in the area).

The secondary aim was to carry out a year long trial to monitor the effects of grazing on the ground flora of the woodland and to try to establish which animals were causing the most damage. The data gathered would then be used to help with woodland management in the Ash Bed and other areas in future years.

Overview of Works

The project began in June 2013 with the marking out of six 5x2m plots in the woodland; three were enclosures with a post and wire fence and three were simply marked out with no fence. The plots were carefully chosen to allow close comparison between the

exclosures and the non-exclosures over the course of the experiment. **Please see Appendix A for a map showing the trial plots.** Initial photos were taken of all six plots in July 2013 and the vegetation present identified, noted and an estimate of ground cover made. This was the baseline for the experiment.

From February 2014 to July 2014, the plots were photographed once a month and the number of species and percentage of ground cover noted for each plot every visit.

Clearance of overgrown shrub started in December 2013, with selected hawthorn and elder removed or cut back to allow in more light. Coppicing of a number of mature ash and sycamore was then completed in February 2014, as winter storms prevented the work being done earlier. The coppicing opened up the canopy over plots 1-4 to allow a lot more light into the woodland floor.

In March, we planted 25 oak, hazel and holly in the Ash Bed and guarded the coppice stools to prevent the regrowth from being grazed off. Our volunteers assisted with the shrub planting and guarding, and stacked the brash from the earlier clearance and coppicing work into habitat piles for birds and invertebrates.

The final element of the project involved setting up two trail cameras in the Ash Bed and leaving them onsite for a week on two separate occasions in June and July to monitor which animals were grazing the woodland and what they were grazing on.

The Grazing Trial

The grazing trial sought to measure the effect of grazing animals on woodland flora. In order to do this, three fenced exclosures were built in the woodland, along with three identically-sized unfenced plots, and all six plots were monitored for a year. Both number of species and percentage of ground cover was recorded as a baseline in July 2014 and then every month from February 2014 to July 2014 with the exception of April when circumstances resulted in a missed visit. The methodology involved photographing each plot and identifying plant species from the photographs. An estimate of ground cover was also made using the photographs. This method was chosen to minimise the time required for monitoring as the project had limited resources. The plot monitoring was carried out by our Support Coordinator Kate Aubury as a volunteer. **See Appendix B for the monitoring results & analysis.**

A secondary aim of the trial was to identify which animal species were responsible for the grazing, how much grazing occurred and what each species was grazing on. The trail cameras were used to gather information on this aspect of the trial.

On number of species identified in each plot in total over the course of the monitoring, every plot saw an increase from the baseline recorded in July 2013. The average increase across all the plots was 383.33%. However, the average increase across the exclosures only was significantly higher at 477.77%.

On the number of species present in July 2014 in comparison to July 2013, i.e. a comparative record for the same time of year, the unfenced plots averaged an increase of 4 species whilst the exclosures averaged an increase of 5. The discrepancy of plot 2 recording 2 less species can be explained by the dominance within the plot of a grass species which had effectively out-competed other species.

On percentage of ground cover, there was also an increase across the board (with the exception of plot 1 which remained unchanged) from the initial visit to the final visit. However, again, there was a greater increase in the exclosures of 33.33% on average as opposed to only 22% on average for the unfenced plots.

The initial baseline survey was conducted before any coppicing and thinning work was undertaken, with the follow-up monitoring occurring after completion of this work. It is clear, looking at the results, that the opening up of the canopy had a marked effect on the amount of vegetation in every plot, regardless of whether it was fenced or not. It is therefore difficult to separate the effect of the coppicing and thinning from the effects of the grazing and ideally longer-term monitoring would be carried out to get a clearer picture.

One effect of the addition of more light was to encourage the arrival of non-woodland species, which would likely not survive in future years as the canopy closed over again. The initial baseline survey included species which are typical of woodland, including bluebell, false brome, nettle and violet sp. but later surveys included annuals such as sow-thistle, which seeded from the nearby arable field, and dandelion. These plants do not like shade so would not normally colonise woodland. The bare earth and coppicing allowed them to seed this year but it is unlikely they would reappear next year.

Despite the light variable, it is clear from reviewing the analysis that grazing animals are affecting the quantity and variety of the vegetation within the woodland. One noticeable effect was the grazing of the tree and shrub seedlings; in May and June, a number of plots contained seedlings from various trees and shrubs including ash, sycamore, hawthorn and a prunus sp. It was noted during the final visit in July that in plot 3 (an unfenced plot), all of these seedlings had disappeared, presumably grazed off whilst still tender. This selective grazing of new seedlings will have a long-term effect on the regeneration of woodland and therefore guards or fenced –off areas will be required to ensure seedlings can develop. It was also noted that the bluebells in plot 6 (an unfenced plot) suffered from excessive grazing early in the season, which impacted on their flowering rate. **See the labelled photo in Appendix E for more details.**

The trail cameras were installed onsite over two weeks; one week in June 2014 and the other in July 2014. In week one, camera 1 overlooked the top half of plot 3 (an unfenced plot) whilst camera 2 overlooked the badger sett and a section of woodland edge. In week 2, camera 1 overlooked the bottom half of plot 3 (an unfenced plot) whilst camera 2 overlooked plot 2 (an exclosure). **See map in Appendix C for camera locations.**

The video footage from the two cameras was analysed and each trigger recorded on a spreadsheet. Every animal recorded and the time and date they were seen was input and any grazing within the plots was noted down. **See the spreadsheets in Appendix D for full details.** The final analysis reveals that the woodland is grazed by rabbit, roe deer, muntjac, fallow deer and pheasant. In week one, camera 1 recorded 36 separate triggers of rabbit grazing within plot 3, totalling 83.72% of the total. Roe deer came second with 9.3% and muntjac was third with only 6.98%. For camera 2, which was focussed on an area of shrubs and bare earth rather than ground flora, the grazing was split 50/50 between roe deer and muntjac. On week two, camera 1 recorded 3 separate triggers each for rabbit and fallow deer, totalling 37.5% of the total each, with pheasant responsible for the other 25%. Camera 2, which was overlooking an exclosure, recorded no grazing at all.

Analysis of the videos showed the rabbits and pheasants grazing on the woodland floor on grass and other low vegetation, whilst the various deer species primarily grazed at their shoulder height, eating the tops of the nettles, leaves off the elder and other higher vegetation. Based on the footage recorded, it would appear that rabbits pose the biggest problem to woodland regeneration when the plants are first emerging but deer will be an issue for shrubs and trees once they reach 0.5m or higher. This matches anecdotal evidence within our other woodlands that the deer target leaves and bark of young trees and shrubs whilst the rabbits focus on the vegetation on the ground. The cameras support the conclusion from the monthly monitoring that the post and rabbit wire fence exclosures acted as an effective barrier to prevent these animals from grazing on the vegetation within.

The Ash Bed is only a small remnant woodland, but there is a reasonable density of rabbits, deer and pheasants within the area. All three deer species were filmed in a small area over the course of the two weeks and rabbits were extremely common. The spreadsheet shows each 'trigger' as a separate entry, although in reality many of the triggers will have been the same animal grazing for a long period of time, but even so, it is apparent that the area is fairly heavily grazed.

In conclusion, the data from our trial shows that grazing by rabbits, deer and pheasants could have a significant effect on the regeneration of woodland such as the Ash Bed. Depending on the density of population, excessive grazing will prevent or hamper growth of both woodland flora and new tree and shrub seedlings. Fenced areas appear to be effective in stopping grazing so small plots could be used to allow plants to get a toehold within the woodland or a larger area could be deer and rabbit-proof fenced to allow faster regeneration. Where shrubs and trees are planted individually within the woodland use of deer and rabbit-proof guards will ensure they are able to grow undamaged. The Trust already guards young shrubs and trees as standard when planting in our woodlands, but we may consider larger fenced-off areas for those woodland where high densities of rabbits and deer are affecting new growth. The exclosures in the Ash Bed will be left in-situ for now and although the monthly monitoring has now finished, we will continue to monitor their effectiveness on an ad-hoc basis in the future.

Project Results

All works planned were carried out successfully within a twelve month period from July 2013-July 2014.

Although only just beginning to take effect, the coppicing and thinning of the woodland should allow some much needed light in to the woodland floor and encourage more ground flora to develop, especially within the fenced exclosures. The planting of additional native shrubs and trees should increase the biodiversity within the woodland and allow a shrub layer to mature, which will provide habitat for a number of bird species as well as various invertebrates.

Thanks to the generosity of our funder and the hard work of our warden John Threadingham, our Support Coordinator Kate Aubury and our band of work party volunteers, the project was completed on time and on budget and the information gathered will help inform future woodland management both at the Ash Bed and across our other woodlands too.

The Future

The Restoration of The Ash Bed Project has now officially finished and all funds have been spent. However, the exclosures will remain in situ for the foreseeable future and we will keep monitoring the development of ground flora and woodland regeneration within these plots on an annual basis. In addition, further targeted coppicing will be carried out in five years to ensure the woodland continues to flourish into the future.

A watching brief will be maintained on the progress and effects of Ash Dieback Disease and if it appears within our woodlands then further steps will be taken to diversify the tree species within the Ash Bed at that point.

Acknowledgements

Kemerton Conservation Trust would like to thank our generous project funder, who wishes to remain anonymous, without whom this work could not have been carried out.

We would also like to thank all those who assisted in the delivery of the project, particularly our hardworking volunteers.