Monitoring

Monitoring in May and July 2008 found abundant new growth within the translocated hedgerow and the ash tree stump which was translocated as part of the hedgerow (Figures 4 and 5),



Figure 4. New growth from translocated stump at Lightmoor in May 2008



Figure 5. Translocated hedge with protective fence and showing new growth in July 2008

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although there was evidence of die-back in holly which can be hard to establish once moved. In August 2009, there was extensive new growth on nearly all of the woody plants within the hedge (species include hazel, common hawthorn, holly, blackthorn, ash, field maple, dog rose).

The holly showed die-back in 2008 but in 2009 there was healthy re-growth with an average annual growth of 200 mm in 2009. The old hawthorns with large horizontal stems were showing severe die-back in 2009, but the younger hawthorns show healthy growth. Further monitoring will be undertaken to see if the older hawthorns show re-growth in future.

The success of the 2007 translocation resulted in another hedge translocation in late 2009 using the same methodology ; this demonstrates that the earlier translocation brought tangible benefits to the overall development.

Case study 2 : British Library book depository, Boston Spa

Background

The British Library receives around three million new items every year, requiring 12 km of new shelving and the site of the British Library Book Depository in Boston Spa, Yorkshire required an extension to cope with future rich storage. An existing earth bank supporting species-rich grasslands with abundant orchids (pyramidal orchid, common spotted orchid, bee orchid) was within the footprint of the proposed extension and the planning authority. Leeds City Council, required the retention of this valuable ecological feature.

The solution was to translocate the species-rich grassland to two new landscape bunds constructed using limestone spoil excavated from the foundations of the new building. The bunds are located close to other areas of species-rich grassland that are being retained on the site that are part of the Thorp Park trading estate site of ecological or geological interest, a non-statutory site on importance for nature conservation.

The retention of approximately 8000 m^3 of soil on site saved some £ 250,000 in landfill costs, contributed to a reduction in lorry movements through the nearby villages and reduced the overall carbon footprint of the development.

Method

The species-rich grasslands covered an area approximately 130 m in length by 10 m wide on a steep north-east-facing slope. There were two distinct grassland communities – short open grassland covering around 900 m^2 that was typical of calcareous soils and taller grassland covering around 400 m^2 that was more characteristic of natural soils. The receptor sites were the north-east face of the main landscape bund (the same aspect as the donor site) and the south-east face of the adjoining bund (as an additional site). The landscape bunds were designed with a surface layer of at least 1 m of limestone over the materials used to construct the bund in order to mimic ground conditions at the donor site. The bunds were graded to give 1:2 slopes and were not covered with topsoil or treated in any other way.

The translocation involved carefully excavating turfs that were 1 x 0.5 m and 300 mm deep using a tracked 360° excavator with a modified bale-cutting bucket (turf box cutter) (Figure 6).



Figure 6. Removing 1 x 0.5 x 0.3 m turfs from the Boston Spa site with a modified bale-cutting bucket in spring 2006

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The turfs were either placed directly by the excavator onto the toe of the south-east face of the bund that was very close to the donor site (Figure 7) or placed on a flatbed trailer for



Figure 7. Placing turfs on the new landscape bund at Boston Spa

transport to the other bund where they were placed at the base of the north-east face by a telehandler fitted with a wide bucket (Figure 8).



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Figure 8. Turfs were also transporated by a flat-bed traller and placed by telehandler

Each turf was carefully placed to ensure a tight fit with the adjacent turfs and was pressed down by the bucket to expel air from between the turfs and the underlying substrate. Turf off-cuts and soils from the donor site were used to fill any gaps between turfs and along the four external sides of the translocated turfs. Voids between or under the turfs were not permitted because the air spaces would cause drying out of the fragile grassland root system.

Rain during the latter part of the translocation operation caused some problems with vehicle movements on site but meant that watering of the turfs immediately after translocation was not required. The translocation works took about 3 weeks to complete in late February to March 2006. Initial inspections of the translocated turfs in May and June 2006 found that key species such as cowslips and pyramidal orchids were already flowering.

The tops and slopes of the bunds that did not have translocated turfs were not topsoiled or seeded. Once the surface soils have weathered, natural colonization and natural succession will produce orchid-rich and diverse grasslands of high nature-conservation value because of the proximity of a good seed source in the translocated turfs and the other adjacent species-rich grasslands that were retained in situ.

Monitoring

The species-rich grasslands on the site, both the translocated grasslands and other areas of species-rich grasslands are subject to a 10 year monitoring and management schedule with reports submitted to Leeds City Council as required by planning conditions. The success of the translocation and the continuing habitat management is measured against targets such as presence and abundance of key plant species, the ratio of herb species to grass species, the sward structure and height, and the extent of bare ground.

Monitoring the translocated grasslands in June 2008 found that many of the targets had already been reached just 2 years after translocation. There was very little slippage of turfs or gaps between the turfs and the species-rich grassland was flowering well and contained pyramidal orchids, common spotted orchids and cowslips (Figures 9 and 10).



Figure 9. Translocated grassland on the main Boston Spa landscape bund in June 2008



Figure 10. Wild flowers flourishing in the translocated grassland in June 2008

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Bee orchids were not recorded in the translocated turfs in June 2008 ; however, only one bee orchid was found in all of the species-rich grasslands elsewhere on the British Library site and their absence in the translocated turfs in 2008 may have been due to weather conditions rather than the translocation process.

The initial monitoring results provide a basis for cautious optimism about the final outcome although it is too soon to say that the vegetation on the receptor site is the same as the original vegetation of the donor site.

Cause study 3 : i54 strategic employment site, Wolverhampton

Background

i54 Wolverhampton is a 90 ha site to the south of junction 2 on the M54. Since 2002, the site has been subject to an extensive programme of preparation works by Advantage West Midlands and its joint venture partner Wolverhampton City Council, including removal of contaminated soil, earthworks to form development platforms, the construction of a site spine road and footpaths / cycleways, and the provision of drainage and landscaping. A new access from the M54 is proposed.