

THE TRANSLOCATION AND ENLARGEMENT OF BUTTERFLY HABITAT, THE EXTENSION TO BRUSSELTON WOOD AND THE INCREASED PUBLIC ACCESS TO THE AREA AT THE SOUTHFIELD SURFACE COAL MINE

As part of the planning process for the Southfield Surface Coal Mine near Shildon, County Durham, a number of issues were identified as being important to the ecological and environmental enhancement of the site and the surrounding area both during and post mining. These issues included increasing the area of woodland habitat, increasing the public access to the area, creation of wetlands and enhancement of watercourses, removing land from intensive agriculture and creating species rich hay meadows as well as the enlargement and translocation of a butterfly habitat currently home to among others the rare Dingy Skipper butterfly.

A number of these requirements were implemented prior to the site commencing whilst others obviously had to form part of the restored landform. UK Coal in co-operation with Durham County Council and the Forestry Commission designed 61ha of new native deciduous woodland to complement the existing Brusselton Wood alongside the enhancement of existing scrub and 2ha of regenerated woodland habitat. Of this 37ha were planted prior to the site starting. These habitats have been managed and now form part of a changing landscape more in line with the ecological aims of both Durham County Council and Darlington Borough Council. The footpath / bridleway network has been increased by over 3km and another 1.4km of existing footpaths have been upgraded to bridleway to allow the general public greater access and views into the countryside and new wildlife habitats. Over 20ha of species rich hay meadows have been designed to replace intensively farmed agricultural fields in order to encourage wildlife, birds and invertebrates back into the area. Even the arable fields with the best and most versatile soils were designed to have enhanced conservation headlands as standard.

One area of dereliction existed around the old Brusselton Colliery Yard which formed an eyesore to passing members of the public travelling along Dere Street, the old Roman road. It was decided that this area should be cleaned up and presented in a way that did not attract the significant quantities of fly tipping it had been experiencing for years. The simple concept of cleaning up the area was complicated by the fact that part of the area was home to significant numbers of butterflies including the rare Dingy Skipper. Ecological surveys identified the important aspects and the task was undertaken to come up with a solution which satisfied both the general public and the butterfly population of the old Brusselton Colliery. Up to 60% of the identified habitat would be removed by the mining operation, the remaining area, which had been subject to years of fly tipping needed to be given a facelift that could still be used by Dingy Skipper butterflies. After a great deal of thought and discussion with butterfly groups a plan was devised which proposed we translocate part of the habitat to an area of UK Coal owned agricultural land to the west which offered a similar aspect to the south west. The receptor site then had to be prepared prior to the donor site being disturbed. This work included removing all the agricultural soils and landscaping the substrate to create a series of micro habitats ready to receive the translocated shales and turves from the donor site. Timing of this translocation was critical because the turves and shales had to be moved when it was deemed they were most liable to contain larvae. This aspect of the operation was important because the success of the translocation would depend upon the newly hatched butterflies

accepting the newly formed habitat as home. Such importance was placed on this assumption that the actual commencement of mining operations within the butterfly habitat were delayed until the timing of the translocation was deemed to be appropriate. The translocation exercise began with a hydraulic excavator bucket being modified to allow 1.5 x 1.0m turves to be excavated and transported to the receptor site. Whilst this operation was ongoing the top 150mm of shales were removed from the donor site and carefully used to replace the agricultural soils that had been removed from the receptor site. These shales now formed the top surface of the micro habitats onto which were strategically placed the translocated turves to form a mosaic of suitable butterfly habitats. The undisturbed area of the donor site was then carefully tidied up removing the remnants of the fly tipping whilst still retaining the sparsely vegetated and non vegetated open areas necessary for the butterflies to bask and enjoy the warm north eastern sunshine. As part of the mining operation all the surface substrates were kept separate in order that they may form the surface material of the reinstated butterfly habitat. The restored landform mimicked the micro habitats of the original and to date has been successful in retaining the butterflies and invertebrates that inhabited the area pre-mining. Another issue considered as important to the establishment of the new butterfly habitat was the creation of a new micro-profiled woodland edge linking the two sites through a series of glades; this was done as part of the woodland enhancement of the area. Results to date indicate that both sites are thriving with breeding populations of invertebrates and butterflies, including the rare Dingy Skipper, being recorded. This habitat creation has resulted in the general public having uninterrupted access into over 6ha of butterfly habitat an increase of 3ha on that which existed previously.

As part of the planning for the extension to the woodland coverage in the area it was necessary to implement the development in phases, the first of which took place prior to the commencement of the mining operations with the remaining areas being completed as the restoration of the mining site allowed. The first phase of this 61ha woodland extension provided over 37ha of new native woodland to complement the existing Brusselton Wood County Wildlife Site. All the planting stock used was of local provenance and as part of the woodland management of Brusselton Wood two areas linking the existing and the new woodlands are being actively managed to encourage natural regeneration. New farm woodland planting has also been undertaken around the boundary of the site which when combined with phases 2 & 3 of the scheme will provide valuable wildlife links around the periphery of the site whilst being a robust long term habitat in their own right. Proposed planting along the riparian zones of Bolam Beck and Hill Top Beck will also enhance the watercourse ecologically. Tree planting, management and habitat creation along these watercourses is aimed at facilitating the movement through and establishment of water vole in this newly created landform.

Community access is encouraged in all areas planted to date with improved access planned as part of the long term management of the area. New footpaths and routes through the woodlands have been established in addition to the existing definitive rights of way. The rides and glades which make up these routes are managed to promote overall species diversity and maintain species richness for the future.