A Summary of Our Findings:

Over a period of 30 years a vast amount of data has been collected and much of this is available in the papers which Professor Martin Haigh has published. It must be emphasised that these are academic papers which have been peer-reviewed, involve the collaboration of researchers from several other countries but are perhaps unique in the level of involvement of volunteers from all walks of life and from many parts of the world. One of the most recent of these papers is available online and provides valuable information about our findings:

Haigh, M.; Woodruffe, P.; D’Aucourt, M.; Alun, E.; Wilding, G.; Fitzpatrick, S.; Filcheva, E.; Noustorova, M. Successful Ecological Regeneration of Opencast Coal Mine Spoils through Forestation: From Cradle to Grove. Minerals 2020, 10, 461. <https://doi.org/10.3390/min10050461>

Some of the important points discussed in the paper include:

* An evaluation of a community-oriented, low-cost means of geoecological regeneration, the “Cradle for Nature” strategy, which uses mosaic tree planting to foster positive natural ecological processes*.*
* While the autocompaction of minestones quickly raises soil densities to levels hostile to plant growth, forestation helps moderate soil densities.
* Weathering concentrates metals in minestones, but 14 years of forestation reduced the loadings of five metals by 35–52%
* Twenty years of forestation doubled soil organic carbon to >7%; increased bacilli from 7% to 46%; actinomycetes from 10% to 26%; and soil microbe counts 12–15 times, especially in tree plantings treated with fertiliser.
* Soils under trees also supported a significantly greater earthworm biomass than under grass but, while open-canopy plantings had increased ground flora biodiversity, closed-canopy plantings had lower diversity and biomass.
* Following closure to grazing, ground biomass increased sevenfold.
* Young trees act as bird perches and significantly increase seed fall. Small mammal biomass and biodiversity increases after tree planting and higher predators appear.
* Varteg’s constructed forest provides an effective “cradle” for an emergent geoecological system and its habitat mosaic maximises biodiversity

This paper also cites others which can provide additional details of various aspects of the work.

Also published in 2020 was a second paper of a more general nature in which the concept of using the information gleaned over many years to help in the reclamation of other parts of the South Wales coalfield, so creating a wildlife corridor across the southern part of the country, was discussed.

Haigh, M., Woodruffe, P. & D’Aucourt, M. 2020. A new wildlife corridor for the South Wales Coalfield: Repurposing Wales’ opencast coal-lands. Conservation Land Management (NHBS) 18(4), 16-23. This paper is available as a back issue from Natural History Book Store (NHBS) email: [enquiries@britishwildlife.com](mailto:enquiries@britishwildlife.com) Further information can also be obtained by contacting the authors directly at cradlefornature@gmail.com