

# Cradle for Nature

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Creating a wildlife corridor for South Wales

## Our Vision for the future

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Creation of a mosaic of habitats: woodland, glades and moorland on upland ex-opencast coal land in South Wales that has remained unvegetated for decades.

Our research has shown that whilst tree planting fulfils many of the aims of our project, the greatest biodiversity is obtained when there is also variation in habitats.



Trees mid and centre left where our research site is situated on old opencast coal land

# Purpose



Various views of our research site



- To reduce erosion, improve drainage and 'grow' soil
- To hold water back to reduce flooding lower down the catchments
- To improve community well-being by involving local people in creating it, by allowing them access to enjoy it and view it for recreation, walking, cycling and learning about nature both as school children and adults
- To store carbon by planting trees while keeping grassland/open moorland plant species. Carbon will be sequestered in the tree mass, once it gets going but, in the meantime, the grasslands will photosynthesise, accumulate biomass and improve the organic content of the soil – so locking in carbon and helping the trees to get established
- To increase biodiversity
- To improve the landscape visually

# Who we are

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We are a group of volunteers led by the late Professor Martin Haigh of Oxford Brookes University. We have been involved in his academic research to find practical, sustainable ways of reclaiming old opencast coal land in south Wales.

# What we have been doing

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Since 1991 we have planted in excess of 10,000 trees on the poorly reclaimed hillside above Varteg, near to the Blaenavon World Heritage Site. A mix of native alder, pine, birch, willow, rowan and oak saplings were planted in stands using three methods to see what grew best: notch, pit, trench. Growth was measured after the first, second, third, fifth, 10<sup>th</sup> and 20<sup>th</sup> year.

We have also examined the presence and change in flora and fauna.



Measuring height and diameter after 20 years



Our first saplings in 1991



Measuring height of a five-year-old silver birch

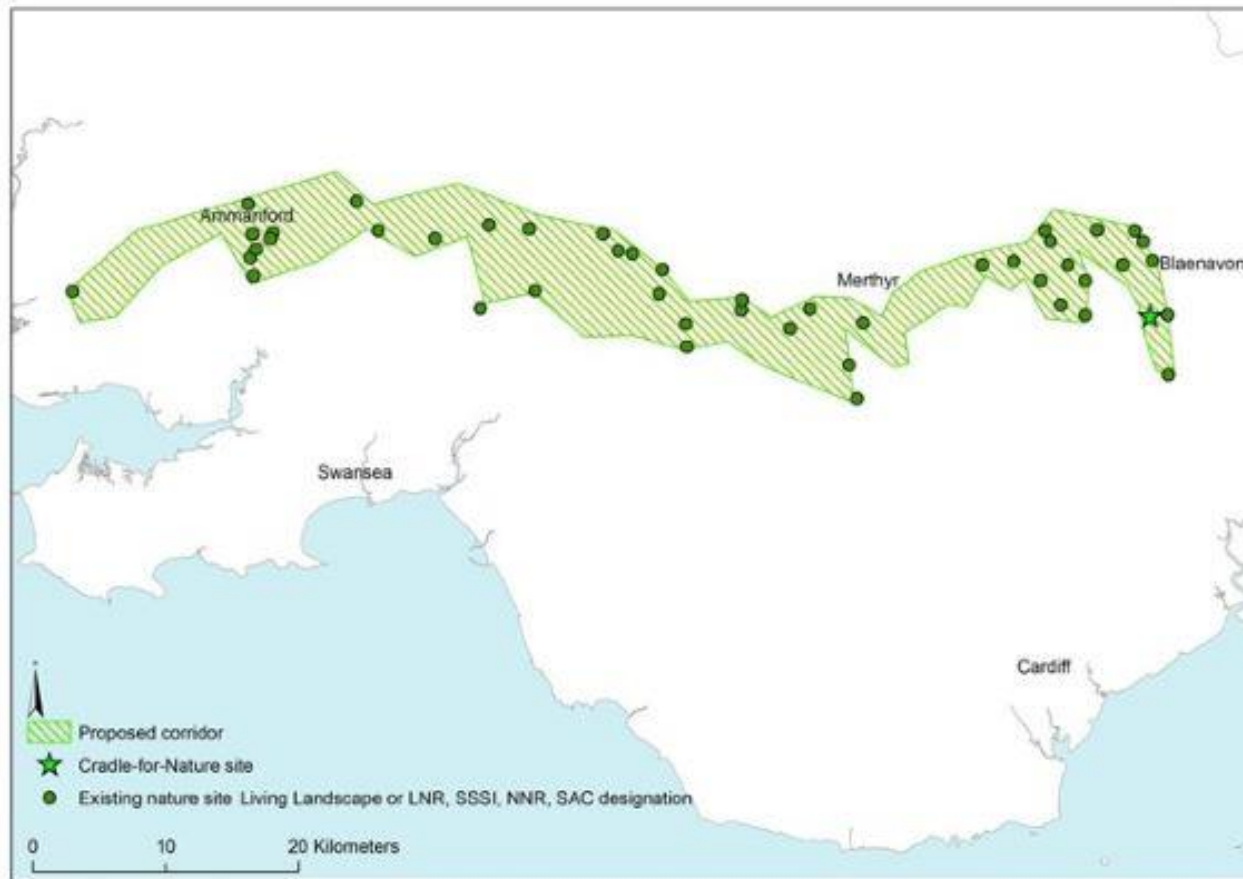
# Our research conclusions

- Alders grew quickly, adding organic matter and decreasing soil compaction
- There has not been the need for hard-engineering solutions to control erosion or runoff from the site and no ongoing maintenance required
- Around 20 years old there was self thinning of the alders and the oaks had space to reach into the canopy
- Trench planting gave the best survival and growth up to 10 years. By 20 years there was little difference in growth or continuing survival of the remaining trees
- The ground and weather conditions are critical to the success of particular plantings so our findings might not be applicable in less hostile areas
- Soil fauna developed over the years, including microbes and earthworms, leading to the revival of the ecosystem.



# Wildlife Corridor

Repurposing the old opencast coal lands along the heads of the valleys



The opencast region stretching 100km by about 8km forms a corridor of existing nature sites which act as refugia for various plants and animals. These could be connected by means of natural regeneration together with small-scale planting projects by local communities of environmental volunteers. The projects would target putting the 'right trees in the right places' for optimal use of habitats e.g. on steep spoil where agricultural uses would be difficult then trees could be planted.

# Biodiversity and Wildlife in the corridor

We are certainly not advocating planting trees on all the old opencast areas: there needs to be a variety of habitats from bare areas where cryptogamic soil crusts occupy a specialist niche, through moorland and grassland to connected native woodlands containing open glades.

Over time the diversity and biomass of fungi, mosses, bryophytes and flora would lead to increases in invertebrates, such as butterflies, and habitats suitable for many different vertebrates including birds and mammals.



Derelict opencast away from our site



Heather regeneration in fenced area



Vole



Grayling butterfly



Maturing woodlands



Ivy-leaved Bellflower



Buff-tip moth larvae feeding on our oaks

# How we plan to accomplish it



Collaborate with other groups/organisations including ecologists to help them find suitable parcels of land and the land ownership, and to encourage and assist local people to set up suitable projects large or small.

Our aim is to use our thirty years experience of working on reclaimed land to help others who are just starting their regeneration programme.

If you are interested in learning more about our research over the years, our ideas for the future, and to help us create a wildlife corridor, please see the website or email us.

Our website is <https://cradlefornature.org.uk>

Please contact us: [cradlefornature@gmail.com](mailto:cradlefornature@gmail.com)

The group has been involved for many years with several academic publications in connection with the land reclamation project near Varteg. Examples include:

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>

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