

Colliery Spoil Tips

Biodiversity

BRIEFING PAPER



Great Western Colliery ©Adrian Meredith

For more than a century, the environment of the south Wales valleys and the fortunes of the people who lived here were shaped by coal mining. The scars of heavy industry were everywhere and black tips of coal waste brooded ominously over the valleys.

The Aberfan disaster of 1966 was the tragic and belated catalyst for a series of environmental improvement schemes. In the years that followed, many spoil tips were cleared amid fears of similar tragedies lying in wait. Those deemed stable remained, left undisturbed to naturally revegetate over time. The legacy of coal mining still lives on as the unique sense of place, in the tell-tale patterns of settlement and as a dwindling resource of old re-vegetated colliery spoil tips. These tips are a tangible link with the past. They are unique landscape features and sites of high biodiversity significance. Despite this, they are readily overlooked and undervalued. The purpose of this briefing note is to raise awareness of the biodiversity value of old re-vegetated coal tips.

What is a colliery spoil tip?

Centuries of intensive mining activity ultimately generated excessive quantities of waste matter. Coal was hauled from the ground by generations of fathers and sons and the spoil heaped and mounded on the valley sides. After decades of weathering, the black bare spoil gradually developed thin soils and slowly the tips vegetated. Today, these tips form diverse and intricate habitats. Heathland, flower-rich grasslands, species-rich lichen and moss communities, scrub, wet woodland, calcareous seepages, wet flushes

and seasonal pools have clothed the once bare ground. The intricate topography of mounds and hummocks has created a great diversity of micro-habitats, and these are responsible for much of the unique biodiversity of these sites.

What species are found?

Colliery spoil tips are highly complex habitats of varied topography, aspect, substrate composition, hydrology, pH, and levels of disturbance. This variation is evident both within single tip systems, and across different sites. These diverse factors result in the formation of complex habitat mosaics in close proximity, providing ideal habitats for invertebrates, many of which require two or more habitats to complete their lifecycle.



Heathland Coal Tip ©Liam Olds

The edaphic conditions typical of most colliery spoil tips (acidic, nutrient-poor, free-draining, sometimes toxic spoil) are extremely limiting to plant growth. These stressed conditions prevent dominant plant species (i.e. grasses) from taking over. This subsequently slows vegetation succession, allowing a strong assemblage of nectar-rich, stress tolerant annuals to establish. These provide abundant forage for a range of pollinating insects including bumblebees, honeybees, solitary bees, hoverflies, beetles, butterflies and moths.

Did you know?

Over 90 different bee species have been recorded on coal tips in recent years. This equates to almost half the Welsh bee fauna or a third of the UK fauna.



Stressed ground conditions also result in plentiful bare ground. This is of particular importance, creating warm microclimates in which thermophilic (warmth-loving)

invertebrates can bask. This bare ground also provides invertebrates with burrowing and ground nesting opportunities, and provides foraging areas for visual predators such as spiders and ground beetles. The common, but none-the-less impressive, Green tiger beetle is a regular sight in areas of open bare ground.



Devil's matchstick ©Veronika Brannovic

The complex chemistry and topography of colliery spoil tips has encouraged unique floristic assemblages. This includes luxuriant stands of heather and bilberry, thickets of spring flowering gorse, and on the thinnest soils, an abundance of grasses and herbs. Characteristic coal spoil species include carline thistle, pearly-everlasting, centaury, cudweeds, sandworts, fairy flax, and a wide diversity of lichens and mosses. Lichen-heath encrusted with *Cladonia* is a particularly important habitat.

The diverse micro-habitats produce a wealth of rare and unusual Fungi species. Breath-taking examples of the rare Cobalt Crust (*Terana caerulea*) can be found throughout the woodlands and scrub. Internationally threatened Waxcaps, Corals and Earth-tongues are scattered throughout the grasslands, heaths and wooded areas.

Sylark and meadow pipit are the typical coal spoil birds with stonechat, linnet and long-tailed tit nesting in gorse bushes. Green woodpeckers are also a familiar sight where they can be seen using their strong beak to dig into ant colonies. The warm, sunny slopes support excellent reptile habitat where common lizard and slow worm are abundant. Adders can also be seen basking on occasion. Pools offer breeding habitat for frogs, toads, palmate newts and dragonflies. Areas of deep grass and heath support voles and mice, which in turn attract hunting buzzard, kestrel, red kite and barn owl.

What are the threats?

Colliery spoil tips are undervalued and misunderstood. As a legacy of a previous age, there is often a desire to sweep away the signs of a sometimes painful past. They face increasing threats from:

- Development (housing/industry)
- Re-working to extract useable coal
- Inappropriate 'restoration' (land reclamation schemes)
- Inappropriate management
- Natural succession

Only now is the cultural, historical, landscape and biodiversity significance of these sites becoming recognised.

Why conserve colliery spoil tips?

- They are part of our cultural identity as South Walians, relics of a bygone era where coal mining dominated the landscape and lives of our ancestors.
- They provide a tangible link to the past.
- Being largely open-access, they provide areas for recreation, bringing physical and mental health benefits to local communities.
- They provide access to fossils and minerals.
- By linking-up with traditional habitats they act as stepping-stones in the environment, allowing species to move freely across the landscape.
- They provide a must-needed refuge for a range of rare and scarce species, especially invertebrates which are rapidly declining from our modern impoverished landscapes.
- They are in decline and worthy of protection.

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