Case study: Tata Steel, Scunthorpe

For over 150 years, the 12km² Scunthorpe Steelworks has extracted iron ore and processed steel, creating one of the most diverse and ecologically important brownfields in the region. Cyclical disturbance and abandonment, with extraction and introduction of materials such as blast furnace slag have created a fine-scale habitat mosaic. The unique conditions support unusual communities of flora and fauna, including nationally scarce invertebrates, many of which are uncommon in the region. The diversity of habitats, combined with the large size of the site and an absence of management have helped create a regionally important wildlife resource.

Iron ore extraction and steel processing for 150 years has led to a complex mosaic of different substrates, soil characteristics and successional stages across the site. Cycles of disturbance and abandonment have produced a diverse range of successional states from early successional communities and bare ground, to established scrub and secondary woodland. Complex topography and underlying substrates including calcareous blast furnace slag and acidic sands, has led to a diverse grassland mosaic of different community types developing across the site. The combination of previously disturbed and now abandoned land, with newly created disturbance from extraction and introduction of waste materials, has ensured a dynamic mosaic of habitats and successional stages.

The site also includes valuable remnants of heathland and its characteristic species. The North Lincolnshire region used to be dominated by Cover Sands Heath, however, only patches of acid grassland and heathland remain across the landscape.

Buglife habitat work undertaken

- Sections of sandy cliffs in an ephemeral wetland area were re-faced using an excavator, to create vertical faces to provide nesting habitat for aculeate Hymenoptera.

Key species of the site

- Butterflies: Grayling (*Hipparchia semele*), Wall (*Lasiommata megera*).
- Flies: soldierfly *Oxycera morrisii,* long-legged fly *Dolichopus migrans*, picture-wing flies *Merzomyia westermanni* & *Tephritis cometa*, cranefly *Nephrotoma crocata*, snail-killing fly *Tetanocera punctifrons.*
- Bees & wasps: Hill cuckoo bee (*Bombus rupestris*), spider-hunting wasp *Aporus unicolor*, digger wasp *Crossocerus distinguendus*, *Nomada lathburiana.*
- Red-belted clearwing moth (*Synanthedon myopaeformis*).

The picture-winged fly (*Merzomyia westermanni*) © Steven Falk

Bare ground scrape with bee bank created using arisings © Clare Dinham

Key features for invertebrates

- Bare ground and herb-rich early successional vegetation, with pockets of dry heath and tall ruderal vegetation providing basking sites and forage for bees, wasps, butterflies and flies.
- Lichen and bryophyte heath on free-draining, nutrient-poor stony soils support active beetles and spiders.
- Mosaic of unimproved species-rich neutral, acidic and calcareous grasslands, providing diverse forage for butterflies, bees and flies.
- Wet, marshy grasslands, ephemeral wetlands and brackish lagoons support a diverse fly and moth assemblage.
- Scrub and scrub edge providing sheltered areas.

Hill cuckoo bee (*Bombus rupestris*) © Steven Falk

- Three bare ground scrapes were created in the ephemeral wetland area, to expose the underlying sandy substrates, with arisings used to create a bee bank in the periphery of the wetland. This has encouraged a mosaic of early successional vegetation and bare ground to provide basking sites and nesting sites for ground-nesting species. Deeper scrapes will hold water throughout the year, diversifying the habitats on site.
- Scrub clearance of Silver birch (*Betula pendula*) and Willows (*Salix* spp.) was undertaken in a number of areas where open habitats were being invaded. This includes the ephemeral wetland and 50% of the scrub from a 2.5 ha area of lichen heath. Scrub was also cleared from a railway cutting and surrounding tracks and rides, to restore warm, sunny and sheltered open areas. Much of the felled material was removed from the site, with the brash left as scattered habitat piles for a range of wildlife.
- Silver birch, brambles (*Rubus fruticosus* agg.) and Snowberry (*Symphoricarpos albus*) scrub was thinned and cleared to encourage a remnant patch of heathland to thrive.
- Bracken dominated areas were cleared by herbicide spraying and an excavator used to expose the underlying sands, with the bracken piled into mounds. This area has subsequently re-vegetated with species such as Viper's bugloss (*Echium vulgare*), Weld (*Reseda luteola*) and Mullein (*Verbascum Thapsus*).

Monitoring and management

INCA (Industry and Nature Conservation Association) will advise Tata on the need for re-scraping and other management activities, as and when they are required.

Deep scrape holding water © Clare Dinham

Creating new bare scrapes on low nutrient substrate © Clare Dinham

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