

A botanical survey of fly ash pits at Radley

The gravel pits at Radley were filled with pulverised fuel ash (PFA), piped as slurry from Didcot Power Station until about 2008. West of the Oxford - Didcot railway line are three pits, each sealed from surrounding land by Kimmeridge clay bunds topped by tracks. Since filling some areas have been covered with soil from various sources as part of the restoration plan, while some remain uncovered. All have been colonised by a wide variety of plants.

This summer, seven members of Abingdon Naturalists Society spent a few days surveying two of the three pits and their surrounding clay bunds.



For the survey, the site was divided into eighteen pit or bund areas in which plant abundance was designated on the DAFORN scale. A total of 726 records were made of 164 species. Nine of these are either on the Oxfordshire Rare Plants Register 2015 (RPR) or have Near Threatened (NT) or Nationally Scarce (NS) status:

Lesser Centaury	<i>Centaureum pulchellum</i>	RPR	pits, bunds
Common Cudweed	<i>Filago vulgaris</i>	RPR, NT	bunds
Marsh Pennywort	<i>Hydrocotyle vulgaris</i>	RPR, NT	pits
Field Scabious	<i>Knautia arvensis</i>	NT	bunds
Narrow-leaved Bird's-foot trefoil	<i>Lotus tenuis</i>	RPR	pits, bunds
Ragged Robin	<i>Lychnis flos-cuculi</i>	NT	pits
Corn Mint	<i>Mentha arvensis</i>	NT	pits, bunds
Annual Beard Grass	<i>Polypogon monspeliensis</i>	NS	pits, bunds
Brookweed	<i>Samolus valerandi</i>	RPR	pits, bunds

In general, the bunds were much more diverse than the pits. Some plants we found surprised us. For example Yellow-wort, usually a calcareous grassland species, was frequent on pits and bunds.

Lesser Centaury and Annual Beard Grass are hardly known from the rest of Oxfordshire yet were often recorded in our survey. Notably, three species: Lesser Centaury, Common Centaury and Yellow-wort belong to the gentian family. That may be a clue to their colonisation of the site, as all have dust-like seed, carried easily on the wind. Other frequent fly ash colonists: the Marsh Orchids and Marsh Helleborine also have powdery seed, capable of being transported long distances in air currents.

Soil type is another factor and some species suited to calcareous soils were found where limestone rubble had been imported to cover the tracks on the bunds. PFA itself has a high pH and high salt content when deposited, but these will reduce over time through leaching by rainwater.

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*Graham Bateman, Michael Bloom, Jo Cartmell, Caroline and Nigel Gregory, David Guyoncourt, Vivienne Summers. Also John Killick identified some of the plants we collected.