

**Biodiversity Duty:
Vascular Plant Survey of
Big Pit: National Coal Museum**



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**National Museum Wales
23 September 2009**

Introduction

From 1 October 2006, all public authorities in England and Wales have a duty to have regard to the conservation of biodiversity in exercising their functions (Section 40 of the Natural Environment and Rural Communities Act 2006). As part of the Museum's response to this legislation, biodiversity audits are being carried out at a series of its sites.

In this report, a vascular plant list is presented from a survey of the grounds of Big Pit: National Coal Museum in 2009.

Methods

Vascular Plants were surveyed at Big Pit on 1 April 2009 whilst doing the Phase 1 habitat survey, and on two separate occasions on 7 May and 18 September 2009. The area surveyed is shown in Figure 1. A few specimens of taxa difficult to identify were collected for later determination. Obviously planted taxa were not recorded, with a few exceptions. Nomenclature follows C.A. Stace (1997), *New Flora of the British Isles*, Cambridge University Press. *Taraxacum* voucher specimens were identified by A. J. Richards.

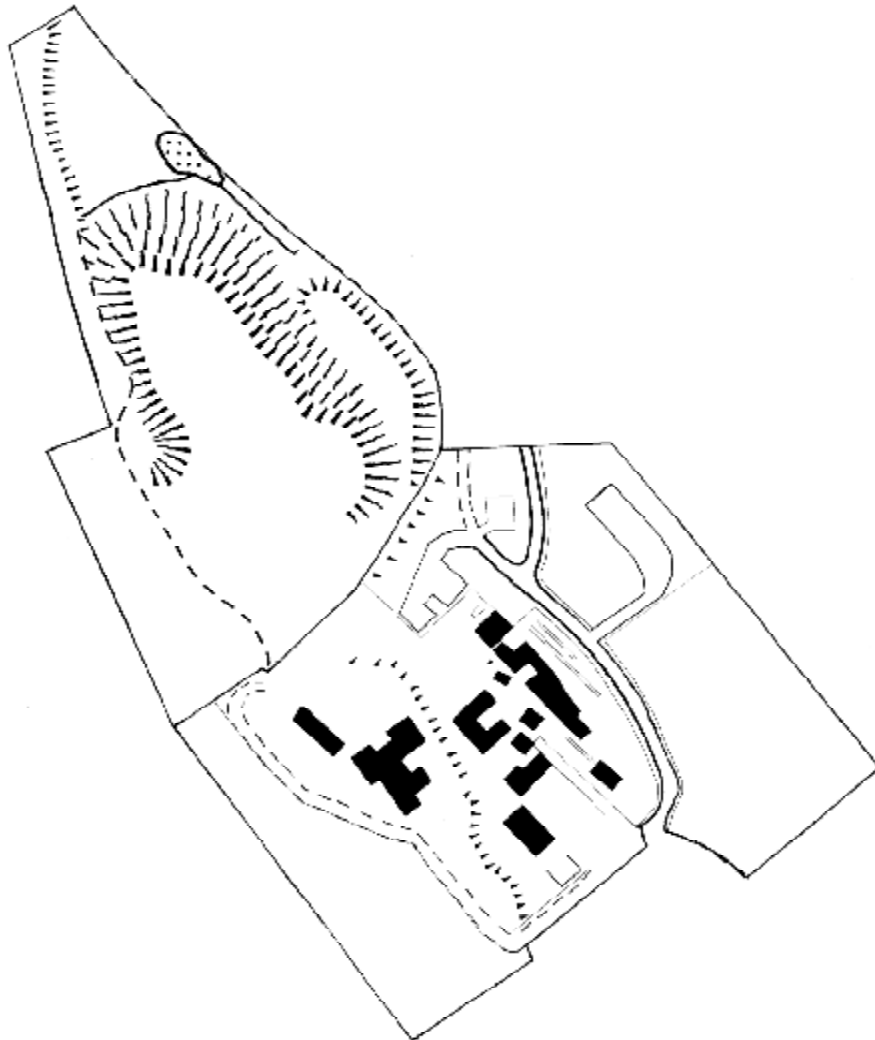


Figure 1. Boundary of area surveyed, Big Pit.

Results

The species recorded are listed in Table 1.

TABLE 1. VASCULAR PLANTS RECORDED AT BIG PIT 2009.

Alien species not native in the British Isles or introduced at this site are marked with an asterisk *.

Latin name	Vernacular name	Notes
<i>Acer pseudoplatanus</i> *	Sycamore	1 tree in north side of Coity Tip
<i>Achillea millefolium</i>	Yarrow	Rare in central grassland
<i>Achillea ptarmica</i>	Sneeze-wort	Coity Tip pond grassland
<i>Agrostis canina</i> s. s.	Velvet Bent	Coity Tip pond grassland
<i>Agrostis capillaris</i>	Common Bent	Abundant in grassland
<i>Agrostis stolonifera</i>	Creeping Bent	
<i>Agrostis vinealis</i>	Brown Bent	Occasional in damp grassland
<i>Aira caryophyllea</i>	Silver hair-grass	Rare on anthill, Coity Tip
<i>Alchemilla filicaulis</i> subsp. <i>vestita</i>	Lady's Mantle	By stream, Coity Tip
<i>Alisma plantago-aquatica</i>	Water-plantain	several plant in main pond
<i>Alnus cordata</i> *	Italian Alder	Occasional colonists
<i>Alnus glutinosa</i>	Alder	Several trees in pony paddock, saplings scattered around.
<i>Alopecurus pratensis</i>	Meadow Foxtail	Grassland near Fan House
<i>Anagallis arvensis</i>	Scarlet Pimpernel	Rare near café
<i>Anaphalis margaritacea</i> *	Pearly Everlasting	One patch near big pond on Coity Tip
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	Common throughout Site
<i>Aquilegia vulgaris</i>	Columbine	One garden plant established NW of Fan House
<i>Arctium minus</i> subsp. <i>nemorosum</i>	Burdock	Several plants in rough grass near Fan House, one on Coity Tip
<i>Arenaria serpyllifolia</i>	Sandwort	Rare on walls and Coity Tip
<i>Arrhenatherum elatius</i>	False Oat-grass	Frequent
<i>Athyrium filix-femina</i>	Lady Fern	Banks by Fan House
<i>Atriplex patula</i>	Orache	Seedling on damp soil near Fan House
<i>Atriplex prostrata</i>	Spear-leaved Orache	Rare on dumped soil near Fan House
<i>Bellis perennis</i>	Daisy	Short grassland round Big Pit
<i>Betula pendula</i>	Silver Birch	Occasional on Coity Tip
<i>Betula pubescens</i>	Downy Birch	Coity Tip, local colonist
<i>Blechnum spicant</i>	Hard Fern	Rare by moorland stream
<i>Bromus hordeaceus</i>	Lop-grass	Rare by lower visitor car park
<i>Buddleja davidii</i> *	Butterfly Bush	Rare shrub below railway engines
<i>Calluna vulgaris</i>	Heather	Abundant on tip slopes, sparse on other slopes
<i>Capsella bursa-pastoris</i>	Shepherd's Purse	Rare by track
<i>Cardamine flexuosa</i>	Wavy Bittercress	Rare on mine well by shop
<i>Cardamine hirsuta</i>	Hairy Bittercress	Rare by buildings
<i>Cardamine pratensis</i>	Cuckoo Flower	Occasional throughout site
<i>Carduus nutans</i>	Melancholy Thistle	Rare near Fan House
<i>Carex binervis</i>	Green-ribbed Sedge	Rare by old Coity Tip
<i>Carex flacca</i>	Camation Grass	Frequent throughout site

<i>Carex hirta</i>	Hairy Sedge	Coity tip, old railway
<i>Carex nigra</i>	Black Sedge	Rare on Coity Tip
<i>Carex ovalis</i>	Brown Sedge	Pony Paddock
<i>Carex panicea</i>	Carnation Sedge	Open damp grassland
<i>Carex pilulifera</i>	Pill Sedge	Coity Tip, rare
<i>Carex viridula</i>	Yellow Sedge	Ditch side, Old Coity Tip, Coity tip pond
<i>Carlina vulgaris</i>	Carlina Thistle	Locally abundant on tips and railway sidings
<i>Centaurea nigra</i>	Knapweed	Scattered in rank grass
<i>Cerastium diffusum</i>	Sea Mouse-ear	Two plants on limestone rubble track near Fan House; a surprising record.
<i>Cerastium fontanum</i>	Mouse-ear	Rare
<i>Cerastium glomeratum</i>	Sticky Mouse-ear	Open ground
<i>Chamerion angustifolium</i>	Rosebay Willowherb	Frequent on waste ground and tips
<i>Cirsium arvense</i>	Creeping Thistle	Occasional in rank grass
<i>Cirsium palustre</i>	Marsh Thistle	Frequent in damp grass
<i>Cirsium vulgare</i>	Spear Thistle	Rare
<i>Clematis vitalba</i>	Old Man's Beard	Rare near Fan House
<i>Conium maculatum</i>	Hemlock	One plant behind cafe
<i>Cornus sanguinea</i>	Dogwood	1 shrub near Fan House
<i>Coronopus didymus</i>	Swinecress	Dumped soil near Fan House
<i>Cotoneaster integrifolius</i> *	Entire-leaved Cotoneaster	Occasional by stream, Coity Tip
<i>Cotoneaster microphyllus</i> *	Wall Cotoneaster	One shrub by stream, Coity Tip
<i>Crataegus monogyna</i>	Hawthorn	Occasional
<i>Crepis capillaris</i>	Smooth Hawk's-bit	Rare on railway sidings
<i>Crepis vesicaria</i>	Beaked Hawk's-beard (?)	Rare on railway sidings
<i>Cynosurus cristatus</i>	Crested Dog's-tail	Frequent in restored grass
<i>Cytisus scoparius</i>	Broom	Occasional, especially on banks on Coity Tip
<i>Dactylis glomerata</i>	Cock's-foot	Occasional in rank grass
<i>Dactylorhiza praetermissa</i>	Southern Marsh Orchid	Rare by large pond, Coity Tip
<i>Danthonia decumbens</i>	Heath-grass	Coity Tip
<i>Deschampsia cespitosa</i>	Tufted Hair-grass	Locally dominant in rank or damp grassland
<i>Deschampsia flexuosa</i>	Wavy Hair-grass	Acid grass and heath
<i>Digitalis purpurea</i>	Foxglove	Several places on Coity Tip
<i>Dipsacus fullonum</i>	Teasel	Rare on dumped soil near Fan House
<i>Dryopteris affinis</i>	Scaly Male-fern	By stream, Old Coity Tip
<i>Dryopteris dilatata</i>	Broad Buckler-fern	Rare in woodland
<i>Dryopteris filix-mas</i>	Male Fern	Rare in woodland and on streamside
<i>Eleocharis palustris</i>	Common Spike-rush	Pond
<i>Elodea nuttallii</i> *	Nuttall's Pondweed	Pond
<i>Elytrigia repens</i>	Couch Grass	Rank grassland near Fan House
<i>Empetrum nigrum</i>	Crowberry	Occasional, on stream bank, Old Coity Tip and Coity tip
<i>Epilobium brunnescens</i>	New Zealand Willowherb	By building, rare
<i>Epilobium ciliatum</i> *	American Willowherb	By buildings
<i>Epilobium hirsutum</i>	Great Willowherb	Rare near Fan House
<i>Epilobium montanum</i>	Broad-leaved Willowherb	Rare near Fan House

<i>Epilobium obscurum</i>	Short-fruited Willowherb	Coity Tip, rare
<i>Epilobium palustre</i>	Marsh Willowherb	Coity Tip pond
<i>Epilobium parviflorum</i>	Hoary Willowherb	Entrance to coach park
<i>Equisetum arvense</i>	Field Horsetail	By stream, Coity Tip
<i>Erica tetralix</i>	Cross-leaved Heath	Rare west of wood
<i>Erigeron acer</i>	Blue Fleabane	Old railway tracks and Coity Tip
<i>Eriophorum angustifolium</i>	Cottongrass	Moorland slopes
<i>Erophila verna sensu stricto</i>	Common Whitlowgrass	Frequent on open ground
<i>Eupatorium cannabinum</i>	Hemp Agrimony	By stream, Coity Tip and near Fan House
<i>Euphrasia</i> sp.	Eyebright	Grasslands around site
<i>Fagus sylvatica</i>	Beech	One sapling, Old Coity Tip
<i>Festuca ovina</i>	Sheep's-fescue	Acid grassland
<i>Festuca rubra</i>	Red Fescue	Frequent in restored grassland
<i>Filago minima</i>	Lesser Cudweed	Rare on rubble, Coity Tip
<i>Fragaria vesca</i>	Strawberry	Scattered on open rubble edges
<i>Fraxinus excelsior</i>	Ash	One young tree, Old Coity Tip, occasional saplings
<i>Galium aparine</i>	Goosegrass	Rare in wood
<i>Galium palustre</i>	Marsh Bedstraw	By large pond, Coity Tip
<i>Galium saxatile</i>	Heath Bedstraw	Acid grassland, Coity Tip
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	Rare near buildings
<i>Geranium robertianum</i>	Herb Robert	Occasional on rubble
<i>Glyceria fluitans</i>	Sweet-grass	By large pond, Coity Tip
<i>Hieracium</i> sp.	Hawkweed	Rare by Fan House
<i>Holcus lanatus</i>	Yorkshire Fog	Frequent in grassland
<i>Hydrocotyle vulgaris</i>	Marsh Pennywort	By large pond, Coity Tip
<i>Hypericum androsaemum</i>	Tutsan	Rare near Fan House
<i>Hypericum maculatum</i>	Square-stalked St John's-wort	Occasional around Big Pit
<i>Hypericum perforatum</i>	Perforate St John's-wort	Old railway tracks
<i>Hypochaeris radicata</i>	Cat's-ear	Occasional on drier banks and grassland, and old railway lines
<i>Ilex aquifolium</i>	Holly	1 shrub on old Coity Tip
<i>Impatiens glandulifera</i>	Himalayan Balsam	By buildings
<i>Inula conyza</i>	Ploughman's Spikenard	Calcareous rubble by Fan House
<i>Iris pseudacorus</i>	Yellow Flag	1 clump west of stream, Coity Tip
<i>Juncus acutiflorus</i>	Sharp-flowered Rush	Wet places, Coity Tip
<i>Juncus articulatus</i>	Articulated Rush	By small pond, Coity Tip
<i>Juncus bulbosus</i>	Bulbous Rush	Coity Tip pond
<i>Juncus conglomeratus</i>	Compact Rush	Rare near Fan House
<i>Juncus effusus</i>	Soft Rush	Locally frequent in damp moorland
<i>Juncus inflexus</i>	Hard Rush	South end of tramway, ditches near magazine
<i>Juncus squarrosus</i>	Heath Rush	Rare, Coity Tip
<i>Juncus tenuis</i> *	Slender Rush	Coity Tip, damp hollow
<i>Larix decidua</i> *	Larch	1 small sapling near old Coity Tip
<i>Lathyrus pratensis</i>	Meadow Vetchling	Occasional in grassland
<i>Leontodon autumnalis</i>	Autumn Hawkbit	Occasional in grassland
<i>Leontodon hispidus</i>	Rough hawk-bit	E side of Coity Tip by fence
<i>Leontodon saxatilis</i>	Lesser Hawkbit	Occasional in grassland
<i>Ligustrum ovalifolium</i> *	Garden Privet	1 Bush near Fan House

<i>Linum catharticum</i>	Fairy Flax	Occasional in open places
<i>Lolium perenne</i>	Perennial Rye-grass	Frequent in restored grassland
<i>Lotus corniculatus</i>	Bird's-foot Trefoil	Frequent in restored grassland
<i>Lotus pedunculatus</i>	Greater Bird's-foot Trefoil	Rare in wet grass, Coity Tip and near Fan House
<i>Luzula campestris</i>	Field woodrush	Common in grassland
<i>Luzula multiflora</i>	Heath Woodrush	Rare, Coity Tip and near fan House
<i>Matricaria recutita</i>	Scented Mayweed	Rare on dumped soil near Fan House
<i>Medicago lupulina</i>	Black Medick	Coity Tip, and waste ground
<i>Melilotus altissima</i> *	Tall Melilot	Rare by engines
<i>Mentha spicata</i> *	Spear Mint	Grassland near Fan House
<i>Mimulus moschatus</i> *	Musk	Coity Tip pond
<i>Molinia caerulea</i>	Purple Moor-grass	Locally dominant in wet grassland
<i>Mycelis muralis</i>	Wall Lettuce	Rare near building
<i>Myosotis arvensis</i>	Field Forget-me-not	Occasional
<i>Myosotis sylvatica</i> var. <i>culta</i> *	Garden Forget-me-not	Bank by large pond, Coity Tip
<i>Nardus stricta</i>	Matt-grass	Coity Tip
<i>Oenanthe crocata</i>	Hemlock Water-dropwort	Pond
<i>Oenothera</i> sp. *	Evening Primrose	Rare near Fan House
<i>Ononis repens</i>	Creeping Restharrow	Coity Tip several places
<i>Origanum vulgare</i>	Wild Marjoram	Calcareous rubble, railway area
<i>Pastinaca sativa</i>	Wild Parsnip	Amongst objects near magazine
<i>Persicaria hydropiper</i>	Water-pepper	Coity Tip pond, rare
<i>Persicaria maculosa</i>	Redshank	Rare on dumped soil near Fan House
<i>Phyllitis scolopendrium</i>	Hart's-tongue Fern	Rare near Fan House, and near magazine
<i>Picea sitchensis</i> *	Sitka Spruce	Rare tree on Coity Tip
<i>Pilosella officinarum</i>	Mouse-ear Hawkweed	Frequent on calcareous rubble
<i>Pinus contorta</i> *	Lodgepole Pine	Rare colonist or planted in pony paddock
<i>Plantago lanceolata</i>	Ribwort Plantain	Occasional in short grass
<i>Plantago major</i>	Greater Plantain	Rare on trampled ground
<i>Poa annua</i>	Annual Meadow-grass	Occasional
<i>Poa compressa</i>	Flat-stalked meadow-grass	Coity Tip
<i>Poa humilis</i>	Spreading Meadow-grass	Pony Paddock
<i>Polygonum arenastrum</i>	Equal-leaved knotweed	One plant near café
<i>Polygonum aviculare</i>	Knotweed	Rare on dumped soil near Fan House
<i>Polypodium</i> sp.	Polypody	Rare on wall by engines, out of reach
<i>Polystichum aculeatum</i>	Hard Shield-fern	Rare on calcareous rubble near Fan House
<i>Potamogeton natans</i>	Broad-leaved Pondweed	Coity Tip pond
<i>Potentilla anserina</i>	Silverweed	Bank by Coach Park
<i>Potentilla erecta</i>	Tormentil	Frequent in acid grass
<i>Potentilla reptans</i>	Creeping Cinquefoil	Rare in grassland
<i>Primula veris</i>	Cowslip	One clump SE of Old Coity Tip
<i>Primula vulgaris</i>	Primrose	Bank by Fan House
<i>Prunella vulgaris</i>	Self-heal	Old railway track
<i>Pteridium aquilinum</i>	Bracken	E. side of Coity Tip

<i>Quercus robur</i>	Oak	Rare colonist on Coity Tip
<i>Ranunculus acris</i>	Meadow Buttercup	Rare, pony paddock
<i>Ranunculus bulbosus</i>	Bulbous Buttercup	Occasional in lower grasslands
<i>Ranunculus ficaria</i> subsp. <i>ficaria</i>	Lesser Celandine	Rare on dumped soil
<i>Ranunculus flammula</i>	Lesser Spearwort	Pond
<i>Ranunculus omiophyllus</i>	Round-leaved water-crowfoot	Coity Tip pond
<i>Ranunculus repens</i>	Creeping Buttercup	Frequent in grassland
<i>Reseda luteola</i>	Weld	Rare near Fan House
<i>Ribes uva-crispa</i> *	Gooseberry	One bush near Fan House
<i>Rosa canina</i>	Dog Rose	Rare colonist
<i>Rubus fruticosus</i> agg.	Bramble	Occasional colonist
<i>Rumex acetosa</i>	Sorrel	Occasional in grassland
<i>Rumex acetosella</i>	Sheep's Sorrel	Old Coity Tip, Railway sidings
<i>Rumex crispus</i>	Curled Dock	Rare
<i>Rumex obtusifolius</i>	Broad-leaved Dock	Frequent weed in rank grass
<i>Sagina apetala</i>	Annual Pearlwort	Rare on wall
<i>Sagina procumbens</i>	Pearlwort	Open rubble
<i>Salix aurita</i>	Eared-willow	Coity Tip, by stream
<i>Salix caprea</i>	Goat Willow	Occasional, Coity Tip
<i>Salix cinerea</i>	Grey Willow	Frequent around site
<i>Salix fragilis</i>	Crack Willow	Sapling at entrance to Coity Tip
<i>Salix viminalis</i>	Osier	Coity Tip pond
<i>Sambucus nigra</i>	Elder	Rare shrub near Fan House, staff car park
<i>Sanguisorba minor</i> subsp. <i>muricata</i> *	Fodder Burnet	By path by pond, Coity Tip
<i>Sanguisorba officinalis</i>	Greater Burnet	Coity Tip pond grassland
<i>Scrophularia auriculata</i>	Water Figwort	Rare, near Fan House
<i>Scrophularia nodosa</i>	Figwort	Rare near magazine
<i>Senecio jacobaea</i>	Ragwort	Occasional in grassland
<i>Senecio vulgaris</i>	Groundsel	Rare by buildings
<i>Solanum dulcamara</i>	Woody Nightshade	Rare around Big Pit
<i>Sonchus asper</i>	Prickly Sowthistle	Scattered around site
<i>Sonchus oleraceus</i>	Sowthistle	Rare by buildings
<i>Sorbus aucuparia</i>	Rowan	Occasional colonist
<i>Sorbus intermedia</i> *	Swedish Whitebeam	Sapling amid seedling, Coity Tip
<i>Stachys sylvatica</i>	Hedge Woundwort	Rare near magazine
<i>Stellaria graminea</i>	Lesser Stitchwort	Bank near lower car park
<i>Stellaria media</i>	Chickweed	By buildings, rare
<i>Succisa pratensis</i>	Devil's-bit Scabious	Coity Tip pond grassland
<i>Taraxacum boeckmanii</i>	Dandelion	Grassland by shop (no specimens)
<i>Taraxacum pseudohamatum</i>	Dandelion	Occasional (no specimens)
<i>Torilis japonica</i>	Hedge Parsley	Bank near buildings
<i>Taraxacum alatum</i>	Dandelion	Damp grassland (NMW)
<i>Taraxacum argutum</i>	Dandelion	Grassland (NMW)
<i>Taraxacum atactum</i>	Dandelion	Coity tip grassland (NMW)
<i>Taraxacum dilaceratum</i>	Dandelion	Grassland (NMW)
<i>Taraxacum fulviforme</i>	Dandelion	Coity tip (NMW)
<i>Taraxacum hamatum</i>	Dandelion	Grassland (NMW)
<i>Taraxacum huijpersianum</i>	Dandelion	Coity tip, gully (NMW)
<i>Taraxacum laeticolor</i>	Dandelion	Coity tip, grassland (NMW)
<i>Taraxacum nordstedii</i>	Dandelion	Open grassland, frequent

		(NMW)
<i>Taraxacum piceatum</i>	Dandelion	Gulley, Coity tip (NMW)
<i>Taraxacum proximum</i>	Dandelion	Coity tip, gulley (NMW)
<i>Taraxacum scoticum</i>	Dandelion	Stony ground, Coity Tip (NMW)
<i>Taraxacum</i> sp.	Dandelion	Open grassland, related to <i>decipiens</i> , to recollect (NMW)
<i>Taraxacum subhamatum</i>	Dandelion	Grassland (NMW)
<i>Taraxacum unguilobum</i>	Dandelion	Grassland (NMW)
<i>Trifolium dubium</i>	Lesser Hop-trefoil	Rare by buildings
<i>Trifolium pratense</i>	Red Clover	Rare in grassland
<i>Trifolium repens</i>	White Clover	Frequent in grassland
<i>Tussilago farfara</i>	Colt's-foot	Locally frequent, especially by stream and in Coity Tip
<i>Typha latifolia</i>	Reedmace	Pond on Coity Tip and by stream
<i>Ulex europaeus</i>	Gorse	Occasional around site
<i>Ulex gallii</i>	Western Gorse	Locally frequent on tips
<i>Urtica dioica</i>	Nettle	Rare, Coity Tip and old walls
<i>Vaccinium myrtillus</i>	Bilberry	Locally frequent on tips
<i>Veronica arvensis</i>	Field Speedwell	Frequent on open rubble
<i>Veronica chamaedrys</i>	Germander Speedwell	Rare, pony paddock
<i>Veronica officinalis</i>	Heath Speedwell	Rare in wood
<i>Veronica serpyllifolia</i>	Thyme-leaved Speedwell	Frequent on open rubble
<i>Vicia hirsuta</i>	Hairy Vetch	Rare on bank by stream, Coity Tip, and pony paddock
<i>Vicia segetalis</i>	Common Vetch	Occasional in grassland
<i>Viola palustris</i> subsp. <i>palustris</i>	Marsh Violet	Rare in damp grass, Coity Tip
<i>Viola riviniana</i>	Common Dog-violet	Rare on dryer grassland

Discussion

A total of 229 species have been recorded to date, of which 21 (c. 10%) are not native to the British Isles. A significant number of species such as *Clematis vitalba* Old Man's Beard are native to the British Isles, but have been introduced to this site, perhaps with limestone ballast, dumped rubbish or in seed mixtures. A few species such as the hawkweeds and eyebrights will be checked when in appropriate condition to identify in 2010. Dandelions collected in May 2009 remain to be identified, and potentially include at least one rare species.

Overall the sites is surprisingly diverse with a nice flora on Coity Tip, and plants of open ground around the museum. Most of the plants are relatively common and widespread, and there are no species of particular conservation importance.

A few historical records, which may be at least partly from the museum grounds, are listed in Trevor Evan's recent Flora of Monmouthshire (Evans 2007). These are:

- *Carex arenaria* – Sand Sedge – railway siding (probably in the railway museum)
- *Carex disticha* – Brown Sedge – wet ditches
- *Erophila glabrescens*, Glabrous Whitlowgrass, track (possibly off the site)
- *Galium sternerii* – Limestone bedstraw – steep bank of furnace waste; this record is doubtful, and may refer to the common and widespread *G. saxatile*; it has previously been searched for and not refound.
- *Mimulus moschatus* - Musk – streamside (refound by pond)
- *Ribes sanguineum* – Flowering Currant – railway siding (probably in the railway museum)
- *Salix repens*, Creeping Willow – wet area

References

Evans, T. G. (2007). *Flora of Monmouthshire*. Chepstow Society, Chepstow.