

**Biodiversity Duty:  
Phase 1 Habitat Survey of  
Big Pit**



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## Introduction

Biodiversity is a core component of sustainable development, underpinning economic development and prosperity, and has an important role to play in developing locally distinctive and sustainable communities. 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. The Duty aims to raise the profile and visibility of biodiversity, clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making. The Duty is set out in Section 40 of the Natural Environment and Rural Communities Act (NERC) 2006 which states: *“Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity”*.

As part of the museum's response to the legislation, biodiversity audits are being carried out at its sites. In this report, a Phase 1 habitat survey of the National Museum Cardiff is presented. The Phase 1 habitat survey technique is the standard system for classifying and mapping wildlife habitats (including urban areas) in Britain (Nature Conservancy Council 1989; Wyatt 1991). The aim of the survey is to provide information about the nature, location and extent of semi-natural habitats to direct decision making and conservation effort effectively. Sites are mapped reasonably rapidly by visiting each parcel of land and mapping the vegetation, usually at the scale of 1:10,000, according to about ninety specific habitat types using standard colour codes. More detailed notes ("target notes") are made on areas of interest. The surveys can then be used to determine areas for more detailed survey, to indicate areas of value for nature conservation, and to provide a simple baseline for monitoring change in the future.

## Methods

The museum grounds were mapped on 1 April 2009 in dull weather following the Phase 1 survey manual (Nature Conservancy Council 1989) with the help of aerial photographs.. Additional notes were made on 8 May 2009. The area surveyed is shown in Figure 1.

Figure 1. Area surveyed. The site boundary is shown in solid red. Places mentioned in the text are also shown.

## Results

The following habitats were present (Figure 2):

### 1. Habitats Present

#### A.1.1.1 Broad-leaved semi-natural woodland

A small area of woodland is present on Coity Tip, dominated by grey-leaved willow. It is secondary woodland and is species poor, without a typical woodland ground flora.

#### A.2.2 Scattered Scrub

There are several areas around Coity Tip where scrub is colonizing the heath and grasslands. Other than the willow scrub around the pond, most is still scattered and open. The main species are hawthorn, broom, rowan, willow and birch.

Gorse scrub (western gorse) is scattered around the Old Coity Tip and Coity Tip.

#### B.1.1 Unimproved Acid Grassland

On the more acidic, dry areas of the tips, species-poor acid grassland with matt grass, wavy hair-grass and sheep's fescue has developed, often in association with heathland.

#### B.5 Marshy Grassland

The two main marshy grassland types are purple moor-grass flushes, especially on the western edge of the site, and soft rush flushes.

#### D.1.1 Dry acid dwarf shrub heath

The dry heathland on the tips is dominated by heather, or by heather mixed with large patches of bilberry.

#### D.2 Wet dwarf shrub heathland

The main area of wet heathland occurs above and west of the wood on Coity Tip, where purple moor-grass, heather and a small amount of cross-leaved heath occur.

#### G.1 Standing Water

One permanent pond occurs at the north-east corner of Coity Tip and supports a range of wetland plants. Another small pond on the top of the tip may not hold water all year.

One small seasonal pond was found at the southern end of the wood, with tadpoles but no wetland plants.

#### G.2 Running water

Three moorland streams drain eastwards from the hills into the site, eventually merging into one stream along the west side of Coity Tip, thence into the pond, and thence south into a culvert and off-site. The streams are probably seasonal and subject to small flash-flooding, and support no obvious aquatic plants.

#### I.2 Artificial Rock Exposure

A few rocks are scattered around the tips, but do not form outcrops of any significance for vascular plants. Areas of the tip spoil (I.2.2) have bare ground with very little vegetation.

#### J.1.2 Amenity/Restored grassland

The area around Big Pit itself, the car parks and the pony paddock are all restored amenity grassland with bents, crested dog's-tail, perennial rye-grass and fescues. Amongst these, Bird's-foot trefoil locally is abundant.

Although there are areas of grassland developing over the introduced limestone ballast/rubble, no typical calcareous grassland has yet developed, and these areas are included in the restored grassland category.

#### J.1.3 Ephemeral/Short Perennial Vegetation

The areas used by vehicles by the railway track sections are largely bare with short grasses at edges.

### 2. Target Notes

1. Footpath between boundary fence and security fence SO/2385.09859

Rank unmanaged grass either side of footpath with *Agrostis capillaris*, *Cynosurus cristatus*, *Dactylis glomerata*, *Deschampsia cespitosa* and *Festuca* sp. with a few herbs such as *Carex panicea?*, *Juncus effusus*, *Lotus corniculatus*, *Pilosella officinarum*, *Plantago lanceolata*, *Senecio jacobaea*, *Taraxacum* sp. and numerous mosses.

## 2. Old Coity Tip SO/2374.0863

An area of old mining activity with uneven ground, now unmanaged and reverting to moorland. The steep east facing edges of the tip have well-developed heathland dominated by heather 30-50cm tall, with patches of lichen (*Cladonia*) and mosses. Nice habitat. Some open ground. A very few shrubs (rowan, holly, broom, gorse).

The top is about 50% heather cover, 30% bilberry and 20% grass over abundant lichen.

The tip edges have unmanaged rank damp acid grassland mixed with rushy grassland and patches of heather and bilberry.

The area to the SW by the fence corner has dominant purple moor-grass on the peat, with soft rush at its base, and to the west some cottongrass patches.

By the old storage tank there is a patch of bramble and some western gorse scrub.

The old setting lagoon has dry acid grassland dominated by bents.

The ditches draining the tip have rushes and occasional willows.

The old tip is bounded on the east side by the security fence and on the remainder by the boundary fence with open grazed moorland beyond. Rabbit grazing noted along bottom edge by road.

## 3. Area west of Fan House SO/2368.0876

An area of rank grassland with a multitude of old metal work, pipes, bricks etc.

Grassland documented by Tufted hair-grass, bents, cock's-foot grass, with occasional woody plants (dog rose, willow, gorse) and herbs such as broad-leaved docks, brambles, burdock, soft-rush, colt's-foot, thistles, etc. Generally low interest botanically. Shorter areas have plenty of signs of rabbits grazing. Along the lower edge there are limestone chippings with calcicoles (hawkweed, ploughman's spikenard).

## 4. Area south of Fan House SO/2381.0863

Another area with many metal artefacts, mostly over spoil and consequently shorter vegetation. Disturbed and open with rosebay willowherb, St John's wort, etc. One alder tree to 5m tall.

Ranker grass on edges and on bank down to large barn, with crested dog's-tail, creeping bent, tufted hair-grass and fescues, and a few areas of more healthy grass with heather and mosses.

## 5. Stream SO/2362.0876

Small moorland stream trickling into site. Stream somewhat variable – dry after turning north (near Target note 10 below).

## 6. Moorland slope above wood SO/2361.0877

A gentle, damp slope with mixture of purple moor-grass flushes, heather and bilberry. Cross-leaved heath and mosses also present.

## 7. Seasonal pond SO/2364.0879

A shallow seasonal pond under willow. Tadpoles present.

## 8. Woodland SO/2359.0883

Young developing woodland/scrub to 8m tall, dominated by willows with birch, rowan, oak, hawthorn and bramble. Ground flora very poor, grass and sparse rushes with goosegrass, willowherb, lichens and mosses. Rosebay willowherb, broad buckler fern and male fern present.

## 9. Tip SO/2370.0890

Recently disturbed with open grassland and colt's-foot. Rubble and rubbish.

## 10. Tip depression SO/2365.0883

Shallow, seasonally wet hollow with rushes and reedmace. Currently dry, lots of algae.

## 11. Moorland stream SO/2358.0844

A small stream with running water in gully.

## 12. Moorland stream SO/2353.0892

A third moorland stream with running water. Rushes and purple moor-grass on either side.

13. Open grassland, Coity Tip SO/2359.0893

Short, open grassland with range of species, overall acid but a few calcicoles such as Bird's-foot trefoil and carline thistle.

14. Coity Tip

Developing heathland on NW side, with c. 50% heather cover and 50% grass. Willow, birch and gorse scrub present.

15. Stream SO/2355.0900

Stream running. Scattered willow, broom and gorse scrub along edges with ferns and marsh thistle.

16. Open spoil SO/2355.0902

Mixed spoil with very little vegetation cover. Some creeping bent, black medick, colt's-foot and mouse-ear hawkweed, about 5% cover.

17. Marshy grassland North of pond SO/2354.0918

A mosaic of purple moorgrass and soft rush patches on a gentle slope down to the road. On dry areas of disturbed ground there is gorse scrub and rowan, with occasional clumps of heather. Marsh thistle, cottongrass, docks, tufted hair-grass, southern marsh orchid also present.

The drier grassland patches have wavy hair-grass and tormentil, with occasional patches of bilberry.

18. Pond SO/2361.0917

A small permanent pond c. 30 x 8 m, fed by stream. Lesser spearwort, spike-rush, reedmace, ragged robin, soft rush, hemlock, water-dropwort, Nuttall's Pondweed, Water-plantain and sweet-grass present.

Oily scum on west side. A few small fish but no tadpoles seen 01/04/09 (have been seen in previous years).

On the north and west side the pond has willow scrub to 5 m tall.

19. Coity Tip, North end

Largely open grey spoil with minimal grass cover (20%).

20. Coity Tip, NE side SO/2364.0913

A steep slope dominated by heather with some open patches with mosses and lichens, about 30 cm tall, cover 80%. Some brown gorse and pine invasion.

21. Coity Tip SE side SO/2377.0897

The flatter areas of the SE corner of the tip have mixed open heather (50%) – grass (40%) cover with some bare spoil and lichens and mosses. Grass mainly matt grass. occasional carline thistle.

Locally birch, broom, gorse and pine colonization is occurring.

22. Visitor Car Park SO/2383.0890

Short, regularly mown neutral grassland around visitor car park. Banks and verges by the road have rank grassland. Moles present.

Bank up to tip on north side longer grass, with a little heather and broom at east end.

23. Coach Park SO/2390.0899

Neutral rank grassland over old tip, with crested dog's-tail, false oat-grass, Yorkshire fog, Knapweed. Bank round coach park area has broad-leaved dock.

24. Pony Paddock SO/2397.0876

Short neutral grassland established over old tip, usually pony grazed, currently no grazing. Fenced. Fairly uniform. Lots of moss. Creeping buttercup, creeping bent, nettle, sorrel. Alder, hawthorn, pine and rowan scrub in SW corner, open, 2-6m tall.

25. Railway lines above winding gear SO/2393.0870

Rank grass, short grass and open gravel/spoil with artefacts and old railway lines.

Rank grass to 20cm, with tufted hair-grass, fescues, common bent and mosses, occasional St John's-wort and wild marjoram.

26. Bank and Railway below winding gear SO/2395.0872

Steep bank 10m tall with rank grassland, rosebay willowherb stands and some scrub (hawthorn, broom, bramble, rowan).

Sidings open and disturbed with c. 70% cover, mainly short grass, mosses, self-heal, clover and occasional thistle.

Bank on east side of tracks rank grass with perforate St John's-wort.

27. Central grassland SO/2383.0779

Short, mossy grassland, re-sown on tip, trampled by visitors and rabbit-grazed, with perennial rye grass, crested dog's-tail, colt's-foot, white clover, yarrow, cat's-ear, bird's-foot trefoil. Some ranker areas with thistles and cock's-foot, perennial rye grass.

28. Small pond on top of tip SO/2362.0901

Pond c. 5 x 4 m, 0.5 m deep, with spike rush. Probably dries out in summer. No tadpoles seen.

Figure 2. Phase 1 habitat map. The site boundary is shown in solid red.

## **Discussion**

## **References**

- Nature Conservancy Council (1990). *Handbook for Phase 1 habitat survey - a technique for environmental audit*. England Field Unit, Nature Conservancy Council, Peterborough.
- Wyatt, G. (1991). *A review of Phase 1 habitat survey in England*. England Field Unit, Nature Conservancy Council, Peterborough.