

DAVID CLEMENTS ECOLOGY LTD

**SIRHOWY HILL WOODLANDS INCLUDING CARDIFF POND,
BLAENAU GWENT, SOUTH WALES**

ECOLOGICAL MANAGEMENT PLAN

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1.0 INTRODUCTION

1.1 This document has been prepared by David Clements Ecology Ltd (DCE) on behalf of Blaenau Gwent County Borough Council (BGCBC) and Tredegar Development Trust. It sets out an ecological management plan for an area of land known locally as the Sirhowy Hill Woodlands, at Tredegar in the county borough of Blaenau Gwent. This area is managed as a community woodland project and the land is mainly owned by the council, although it also includes two relatively small areas which are in private ownership.

1.2 Location & Context

1.2.1 The location and context of the site is shown on Plans 1 and 2. The site is located on the northern border of the former county of Gwent and straddles a mountain ridge at the head of two steep-sided valleys of the Ebbw and Sirhowy rivers. The site is divided into two separate areas by the Man Moel Road, which crosses the site near the mid-point, running from northwest to southeast. The area north of the road, which is about 28ha in extent and managed by BGCBC, is known as the ‘Sirhowy Hill Woodlands North’ whilst the southern area, which covers about 50ha and is managed by Tredegar Development Trust, is known as ‘Sirhowy Hill Woodlands South’. Two small parcels of land in the Sirhowy Hill woodlands south area are in privately owned by Pit Cottage and Newbridge Construction. Land ownership and management details are shown on Plan 3.

1.3 Geology and Soils

1.3.1 The sites lies within the South Wales coalfield at an altitude of between about 320m AOD to the south, rising to about 395m AOD at the highest point near the centre of the site. The solid geology is dominated by the Westphalian Coal Measures which are overlain by Upper Carboniferous sandstones, the latter of which are locally exposed at the surface throughout the southern part of the site.

1.3.2 The site was extensively mined for coal in the past, and free-draining colliery shales arising from coalmining spoil now cover the majority of the site. There are few areas of native soil remaining.

1.4 Public Access and Use

1.4.1 There is an extensive network of maintained paths extending throughout the site, and the whole of the site is open to public access, including by wheelchair and pushchair. The site is very well used by local residents for passive activities such as dog-walking and informal recreation. Public rights of way within the site are shown on Plan 10.

1.4.2 The site also suffers from some abusive activities, including widespread littering and fly-tipping. There is also some use of the site for unauthorised mountain-biking and scrambling.

1.5 **Boundaries**

- 1.5.1 The majority of the site is enclosed by either post-and-wire or post-and-rail fences, almost all of which are in good condition. Internal fences are present to demarcate various compartments, mainly for forestry purposes.
- 1.5.2 The main entrances into the site lie at the end of public roads and are completely open, allowing easy access onto the site. There are no kissing-gates or stiles, therefore whilst the site is readily accessible to wheelchairs and pushchairs, it is also prone to fly-tipping and access by motorcycles etc.

1.6 **Statutory Nature Conservation Designations**

- 1.6.1 The site does not contain or lie adjacent to any statutory nature conservation sites, such as Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) or Local Nature Reserves (LNRs). However, the site has been identified by BGCBC as a potential Local Nature Reserve (LNRs) for possible designation in the future (D Beeson *pers comm*).

1.7 **Non-Statutory Nature Conservation Designations**

- 1.7.1 The whole of the Sirhowy Hill Woodlands site has been proposed as a Sites of Nature Conservation Importance (pSINCs) by BGCBC (D Beeson *pers comm*). Two other pSINCs border the site, comprising Mynydd Manmoel pSINC and Waun y Pound pSINC. These sites have been proposed for designation by BGCBC for their dwarf-shrub heathland, purple moor-grass mires, rush pastures and blanket bog habitats. These sites are shown on Plan 2.
- 1.7.2 SINCs comprise one of a category of nature conservation designations which are recognised throughout the UK under a wide range of differing titles, and which are collectively known as 'Wildlife Sites'. Wildlife Sites comprise so-called 'third tier' sites, generally ranked below sites which are of international or national significance, but considered nevertheless to have substantive nature conservation value in the sub-national (ie regional, county or district) context.
- 1.7.3 They are usually designated at the county or county-borough (district) level by the relevant local planning authority, and are recognised as a planning constraint in the relevant statutory development plan. The framework for the identification and designation of 'Wildlife Sites' is set out in various UK Government and Welsh Assembly documents, including *Planning Policy Wales* (2002) and *Technical Advice Note (Wales) 5: Nature Conservation & Planning*.
- 1.7.4 Guidelines and criteria for the identification of SINCs in South Wales are set out in SWWSP (2004) and Clements & Pryce (2000). A list of SINCs in the Blaenau Gwent administration area have been provisionally identified and are in the process of being designated. Following designation they will then be subject to formal adoption. Once adopted, such sites will be subject to regular monitoring and review.

1.8 Past Management

- 1.8.1 The majority of the site was historically worked for coal, both as patched mines and from deep mines, whilst the remainder of the site was used as a depository for steel industry waste, together with a household refuse tip. The refuse and shale tips were closed in 1973-74 and subsequently landscaped as open grassland with small-scale tree planting, although the majority of the grass species which were sown failed to take. More extensive tree planting has subsequently been carried out on the site since the early 1980s, in an attempt to afforest the site.
- 1.8.2 The majority of Sirhowy Hill was planted in phases between 1985 and 1990, predominantly with common alder (*Alnus glutinosa*), grey alder (*Alnus incana*), Italian alder (*Alnus cordata*), Norway spruce (*Picea abies*) and various pines (*Pinus* spp), willows (*Salix* spp) and poplars (*Populus* spp). Subsequent planting with broadleaves has taken place in selected areas, with species including sessile oak (*Quercus petraea*), beech (*Fagus sylvatica*), birch (*Betula* spp), common hawthorn (*Crataegus monogyna*) and rowan (*Sorbus aucuparia*).
- 1.8.3 Two Woodland Grant Schemes (WGSs) were implemented in the period 1993-1998. The first was intended to create a 'school study area', with mixed broadleaved trees planted and access facilities improved. However, a high proportion of this planting failed due to the unsuitable tree species chosen for the site and poor plant-handling. The species which suffered highest mortality were small-leaved lime (*Tilia cordata*), horse chestnut (*Aesculus hippocastanum*) and wild cherry (*Prunus avium*).
- 1.8.4 A second WGS involved the planting of parts of the site which had been excluded from the original reclamation phase. A mixture of alder, European larch (*Larix decidua*), sycamore (*Acer pseudoplatanus*), wild cherry and ash (*Fraxinus excelsior*) were planted at a stocking density of 2500 trees/hectare. The majority of these trees established reasonably well, although wild cherry has since grown poorly.
- 1.8.5 Further management work was undertaken as part of a third Woodland Grant Scheme in the period 1999 to 2003. This included the thinning of stands dominated by Japanese larch (*Larix kaempferi*) and non-native broadleaved species, and selective thinning of pines and replacement with broadleaf plantings.
- 1.8.6 Several marginal species were planted in Cardiff Pond in 2004, including common reed which has failed to establish, as part of a habitat creation scheme. The marginal vegetation on the southern and western banks of the pond is currently moderately species-rich, suggesting that this habitat creation scheme was a success.
- 1.8.7 Pond creation has been attempted within the site in the past but has largely failed as the site is generally free-draining and the newly created ponds have failed to retain water.

1.9 Present and Future Management

- 1.9.1 A current Woodland Grant Scheme is in operation. Recent work has involved further thinning within the larch and pine plantations, with cut timber being retained on the site as deadwood habitat. Work proposed for the future includes the removal of the majority of the pines from areas of dry heathland habitats.

1.9.2 Extensive work on the site is currently being carried out as part of a grant from Cydcoed which runs until April 2007. This will deliver an extensive programme of site management work on the site over the next two years, including access improvements and boundary fencing, as well as promoting community involvement in the site.

1.10 **Personnel and Staffing**

1.10.1 Management of the Sirhowy Hill Woodlands North is undertaken by BGCBC, whilst management of Sirhowy Hill Woodlands South is co-ordinated by the Tredegar Community Woodlands Project. The main aim of the project is to involve the local community in looking after their local woodlands, and improving access. This project is run by the Tredegar Development Trust in partnership with Blaenau Gwent County Borough Council Regeneration Department. A Project Manager was in place from January 2004 until December 2005, but funding for this post is no longer available.

1.10.2 The Tredegar Community Woodlands Project Steering Group comprising representation from Tredegar Development Trust and BGCBC oversees management of the Sirhowy Hill Woodlands site. Ecological support and advice is provided by the BGCBC Biodiversity Project Officer (Deborah Beeson).

1.11 **Layout of the Management Plan**

1.11.1 The remainder of this document is set out in two parts: firstly, it sets out the results of a detailed ecological survey and assessment of the site which was carried out in 2005; and secondly, it sets out a recommended management strategy for the whole site.

2.0 ECOLOGICAL SURVEY

2.1 Approach and Methods

- 2.1.1 The site was surveyed at various times during the period September to November 2005, and was subject to the Extended Phase 1 survey methodology as recommended by the Institute of Environmental Assessment (IEA 1995).
- 2.1.2 Extended Phase 1 survey is based on the Phase 1 Habitat Survey developed by the former Nature Conservancy Council (1990), a nationally-accepted and standard method for the rapid survey and appraisal of ecological habitats which is based primarily on the recording of vegetation and its classification into defined habitat categories. Dominant and conspicuous flora species are recorded and ‘target notes’ are prepared for any features of particular interest.
- 2.1.3 The extended methodology also requires the recording of conspicuous fauna species such as birds, herptiles (ie amphibians and reptiles), mammals, and invertebrates such as butterflies and dragonflies, paying particular attention to the presence (or possible presence) of any rare or protected species.
- 2.1.4 As part of the present study, the habitats of the site were also characterised against the descriptions provided by the UK National Vegetation Classification (NVC) as set out by Rodwell (1991 *et seq*).
- 2.1.5 Specific surveys for fauna included a ‘refugium survey’ for reptiles (see eg Griffiths & Inns 1998). A number of artificial refugia, in this case 80cm-square carpet tiles, were laid out in suitable locations across the site in early September and were subsequently checked at regular intervals throughout September and October 2005. Reptiles preferentially and habitually use such refugia for activities such as warming-up, basking and roosting, and can more readily be observed and recorded by these means than by simple searching alone.
- 2.1.6 Surveys of aerial bat activity were carried out on 6 October 2005 in warm, still and humid conditions, by two experienced surveyors using electronic bat detection equipment which included Pettersson D200 heterodyne bat detectors and an Eco-Tranquility time expansion detector. Signals from the latter were recorded to minidisc for subsequent analysis using the BatSound 3.1 software as required. Survey was carried out from approximately 20 minutes before dusk until well after dark, over a period from about 5.30pm to 8.30pm.
- 2.1.7 The surveys were undertaken outside of the optimal survey period for many species of flora and fauna, with many species having died back or having become inconspicuous at this time. It is considered unlikely that the seasonal constraint significantly affected the accuracy of the assessment in this instance, but it is nevertheless necessary to emphasise that the present assessment conclusions are qualified.

2.2 Data Trawl for Existing Records

- 2.2.1 In addition to original survey, a data trawl was carried out in order to obtain access to any existing information about the site which may be held by nature conservation bodies in the region. The bodies contacted included:

- Blaenau Gwent County Borough Council (BGCBC)
- Countryside Council for Wales (CCW)
- Gwent Wildlife Trust (GWT)
- Royal Society for the Protection of Birds (RSPB)
- South East Wales Biological Records Centre (SEWBRc)
- Gwent Badger Group
- Gwent Bat Group
- Gwent Ornithological Society (GOS)

2.2.2 A summary of the CCW Phase 1 survey data for this area is shown at Plan 3, extracted from data which was compiled for the whole of Gwent in the period 1988 - 1991 by the former Nature Conservancy Council. Other sources include previous surveys carried out by Winder (1996; 1998).

2.2.3 Notable species which are known from previous records to occur in the vicinity of the site include the plant marsh stitchwort (*Stellaria palustris*), bog pincerwort (*Cephalozia macrostachya* – a liverwort), snipe and bullhead (SEWBRc *pers comm*).

2.3 Vegetation and Habitats

2.3.1 The results of the present survey of vegetation and habitats are shown at Plan 4, and are described briefly below. Lists of the species recorded from the site are given at Appendix 1.

Notable Species

2.3.2 No nationally rare or scarce species were recorded by the present survey. However, eleven species were recorded which are regarded as being local or uncommon in the Gwent region. These comprised southern marsh-orchid (*Dactylorhiza praetermissa*), star sedge (*Carex echinata*), yellow sedge (*Carex viridula* ssp *oedocarpa*), bilberry (*Vaccinium myrtillus*), heath milkwort (*Polygala serpyllifolia*), heath speedwell (*Veronica officinalis*), sneezewort (*Achillea ptarmica*), western gorse (*Ulex gallii*), early hair-grass (*Aira praecox*), heath-grass (*Danthonia decumbens*) and crowberry (*Empetrum nigrum*). The latter is listed as a contributory species within the *Guidelines for the Selection of Wildlife Sites in South Wales* (SWWSP 2004), being recorded in only 26 10km squares within Wales to date.

2.3.3 Two other local species, common spotted-orchid (*Dactylorhiza fuchsii*) and meadow thistle (*Cirsium dissectum*), were previously recorded on the site by J Winder in 1998 but were not refound during the present surveys.

Invasive Non-native Species

2.3.4 Two highly invasive non-native species were recorded within the site, comprising New Zealand pigmyweed (*Crassula helmsii*) and Japanese knotweed (*Fallopia japonica*). These are both wetland species.

Plantation Woodlands

- 2.3.5 Large areas of the site are dominated by planted woodlands, with trees ranging in size from just over 1m in height in compartments which have only recently been planted, to fully mature trees of over 10m in height.
- 2.3.6 Coniferous species include Sitka and Norway spruces (*Picea sitchensis* & *P. abies*), lodgepole pine (*Pinus contorta*), European and Japanese larches (*Larix decidua* & *L. kaempferi*). Deciduous species include non-native trees such as horse chestnut (*Aesculus hippocastanum*), Norway maple (*Acer platanoides*), sycamore (*Acer pseudoplatanus*), Italian alder (*Alnus cordata*), grey alder (*Alnus incana*) and garden cotoneaster (*Cotoneaster* sp). Native broadleaves include field maple (*Acer campestre*), alder (*Alnus glutinosa*), silver birch (*Betula pendula*), dogwood (*Cornus sanguinea*), hazel (*Corylus avellana*), common hawthorn (*Crataegus monogyna*), beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), holly (*Ilex aquifolium*), sessile oak (*Quercus petraea*), dog rose (*Rosa canina*), goat willow (*Salix caprea*), grey willow (*Salix cinerea*), garden apple (*Malus domestica*) and rowan (*Sorbus aucuparia*).
- 2.3.7 Approximately half of the woodland within the site is coniferous, with coniferous species such as larch or Sitka spruce forming over 90% of the canopy. The remaining woodland is mixed, supporting both broadleaved and coniferous species. Some of the mixed woodlands support mainly coniferous species, whilst others support predominantly broadleaved species with just a scattering of conifers. Understorey development is very variable but generally patchy, and the ground flora varies between neutral grassland, acid grassland and heathland or grass-heath.
- 2.3.8 Areas with a neutral ground flora support grasses such as Yorkshire fog (*Holcus lanatus*), common bent (*Agrostis capillaris*), timothy (*Phleum pratense*), tufted hair-grass (*Deschampsia caespitosa*), crested dog's-tail (*Cynosurus cristatus*), common couch-grass (*Elytrigia repens*) and cock's-foot (*Dactylis glomerata*). Hard rush (*Juncus inflexus*), soft rush (*Juncus effusus*) and hairy sedge (*Carex hirta*) are all frequent, and scaly male-fern (*Dryopteris affinis*) and male-fern (*Dryopteris filix-mas*) both occur at low densities.
- 2.3.9 Other broadleaved herbs include colt's-foot (*Tussilago farfara*), dandelion (*Taraxacum officinalis* agg), agrimony (*Agrimonia eupatoria*), self-heal (*Prunella vulgaris*), creeping buttercup (*Ranunculus repens*), hoary willowherb (*Epilobium parviflorum*), creeping thistle (*Cirsium arvense*), marsh thistle (*Cirsium palustre*), common bird's-foot trefoil (*Lotus corniculatus*), common ragwort (*Senecio jacobaea*), cuckooflower (*Cardamine pratensis*) and yarrow (*Achillea millefolium*). Bramble (*Rubus fruticosus* agg), honeysuckle (*Lonicera periclymenum*), creeping soft-grass (*Holcus mollis*) and ground-elder (*Aegopodium podagraria*) occur in the taller, more established areas of woodland.
- 2.3.10 In some areas the ground flora is more acidic in nature, supporting acid grassland and heathland species such as ling heather (*Calluna vulgaris*), bilberry (*Vaccinium myrtillus*), mouse-eared hawkweed (*Pilosella officinalis*), sheep's-sorrel (*Rumex acetosella*), hawkweed (*Hieracium* sp) and the moss *Rhytidiadelphus squarrosus*. Areas dominated by lichens, including *Cladonia* and *Peltigera* species, also occur locally.

Heathland/Grass-Heath

- 2.3.11 Heathland and grass-heath occurs throughout the site both as a field layer under planted woodlands, and as an open habitat in mosaic with acid grassland. The heathland habitats are typically quite open, with plants of ling heather and bilberry scattered amongst grassland habitats supporting common bent, sheep's fescue (*Festuca ovina*), heath-grass (*Danthonia decumbens*), wavy hair-grass (*Deschampsia flexuosa*), mat-grass (*Nardus stricta*), sweet vernal-grass (*Anthoxanthum odoratum*), very occasional tussocks of purple moor-grass (*Molinia caerulea*) and the diminutive early hair-grass (*Aira praecox*). Sedges are poorly represented, with green-ribbed sedge (*Carex binervis*) being the only species recorded. A wood-rush species, either field wood-rush (*Luzula campestris*), or more likely heath wood-rush (*L. multiflora*), was also frequent. Broadleaved herbs include heath bedstraw (*Galium saxatile*), heath milkwort (*Polygala serpyllifolia*), sheep's-sorrel, tormentil (*Potentilla erecta*), common cat's-ear (*Hypochaeris radicata*) and locally, heath speedwell (*Veronica officinalis*). Western gorse (*Ulex gallii*) and crowberry (*Empetrum nigrum*) also occur very locally.
- 2.3.12 The bryophyte layer in these areas is patchy but often species-rich, including *Dicranum scoparium*, *Hypnum jutlandicum*, *Pleurozium schreberi*, *Polytrichum juniperinum*, *Polytrichum formosum*, *Rhytidiadelphus squarrosus* and *Ptilidium ciliare*. *Cladonia* and *Peltigera* lichens are frequent.
- 2.3.13 Ferns including hard-fern (*Blechnum spicant*) and male-fern are frequent in this vegetation type towards the southernmost part of the site, but are generally absent elsewhere.
- 2.3.14 This vegetation is represented within the NVC as a mosaic of the **H12 *Calluna vulgaris* - *Vaccinium myrtillus* heath**, **U4 *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland** and **U1 *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland**.
- 2.3.15 The heathland areas support seven of the eleven local plant species recorded, comprising early hair-grass, heath-grass, bilberry, heath speedwell, heath milkwort, western gorse and crowberry. Sixteen of the recorded species are listed as being indicative of species-rich heathlands and acid grassland mosaics in the *Guidelines for the Selection of Wildlife Sites in South Wales* (SWWSP 2004). These comprise ling heather, early hair-grass, heath-grass, wavy hair-grass, sheep's fescue, heath bedstraw, hawkweed, heath wood-rush, mat-grass, mouse-eared hawkweed, tormentil, sheep's-sorrel, bilberry, heath speedwell and the mosses *Pleurozium schreberi* and *Polytrichum formosum*.

Dry Acid Grassland

- 2.3.16 Dry acid grassland is present mainly as a field layer in the planted woodlands. Three NVC communities were recorded within the site, mainly comprising **U1 *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland** and **U4 *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland**, together with a very small area of **U5 *Nardus stricta* - *Galium saxatile* grassland**.
- 2.3.17 The U1 *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland has a sward composed of abundant sheep's fescue with frequent common bent and heath grass, together with many patches of bare spoil and bryophytes. Frequent sheep's sorrel is the principal marker of this community, and is the most frequent broadleaved herb. Ling heather, heath bedstraw, mouse-eared hawkweed, common cat's-ear and tormentil are

among the relatively narrow range of desiccation-tolerant forbs that occur frequently. The mosses *Dicranum scoparium*, *Polytrichum formosum* and *Rhytidiadelphus squarrosus* are frequent throughout the majority of this vegetation within the site, whilst *Cladonia* and *Peltigera* lichen species are locally dominant. U1 grassland is characteristic of base-poor, oligotrophic and summer-parched soils in the warm and dry lowlands of southern Britain. This community mainly occurs within the site on sloping ground underneath woodland and scrub canopy.

- 2.3.18 Parts of the site with deeper soils tend to support U4 *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland. U4 grassland has a short, closed sward dominated by sheep's fescue, common bent and sweet vernal-grass. Red fescue (*Festuca rubra*), mat-grass, purple moor-grass, heath-grass and heath rush (*Juncus squarrosus*) all occur occasionally. Heath bedstraw and tormentil are both frequent, but few other broadleaved herbs are present. The mosses *Hylocomium splendens* and *Rhytidiadelphus squarrosus* both occur frequently.
- 2.3.19 Mat-grass, tufted hair-grass, wavy hair-grass, occasional purple moor-grass, bilberry and ling heather also occur in addition to the species listed above in certain locations around the site, and represent the **U4e *Vaccinium myrtillus* - *Deschampsia flexuosa* sub-community**. This sub-community occurs in areas parts of the site where siliceous sandstone rock is very close to or exposed at the surface.
- 2.3.20 Some areas of the U4 grassland within the site support frequent Yorkshire fog and a range of other mesophyte plant species including yarrow (*Achillea millefolium*), daisy (*Bellis perennis*), self-heal, crested dog's-tail, common mouse-ear (*Cerastium fontanum*), common cat's-ear and bird's-foot trefoil. The presence of these species is indicative of the **U4b *Holcus lanatus* - *Trifolium repens* sub-community** which typically occurs at lower altitudes between 100m and 250m. It occurs within the site in areas of deeper, more enriched soils.
- 2.3.21 A very small area of U5 *Nardus stricta* - *Galium saxatile* grassland is present within the site. Dense tufts of mat-grass dominate the vegetation, with sheep's fescue, common bent and wavy hair-grass growing as associates. Tormentil, heath rush and ling heather are present at low densities.
- 2.3.22 The dry acid grasslands support three of the eleven recorded local plant species, comprising heath-grass, bilberry and heath speedwell. They also collectively support eleven species which are listed as being indicative of species-rich acid grasslands in the *Guidelines for the Selection of Wildlife Sites in South Wales* (SWWSP 2004). These comprise ling heather, bilberry, heath-grass, sheep's fescue, heath bedstraw, heath rush, mat-grass, mouse-eared hawkweed, sheep's-sorrel, tormentil, heath speedwell and the mosses *Dicranum scoparium* and *Polytrichum formosum*.

Damp Acid grassland

- 2.3.23 An extensive area of damp acid grassland is present towards the western boundary of Sirhowy Hill. Tussocks of soft rush, hard rush, heath rush and compact rush (*Juncus conglomeratus*) occur frequently, along with the grasses Yorkshire fog, velvet bent (*Agrostis canina*), common bent, timothy and cock's-foot. Star sedge (*Carex echinata*), oval sedge (*Carex ovalis*) and carnation sedge (*Carex panicea*) are all frequent.

- 2.3.24 Broadleaved herbs include lesser spearwort (*Ranunculus flammula*), meadow buttercup (*Ranunculus acris*), creeping buttercup, ribwort plantain (*Plantago lanceolata*), meadow vetchling (*Lathyrus pratensis*), white clover (*Trifolium repens*), red clover (*T. pratense*), marsh thistle, common knapweed (*Centaurea nigra*), yarrow, broad-leaved dock (*Rumex obtusifolius*), common sorrel (*Rumex acetosa*), common ragwort, self-heal, dove's-foot crane's-bill (*Geranium molle*) and southern marsh-orchid (*Dactylorhiza praetermissa*). The latter occurs frequently throughout this area. Bryophytes include *Aulacomnium palustre*, *Calliergon cuspidatum* and *Rhytidiadelphus squarrosus*. Grey willow is scattered throughout the area.
- 2.3.25 The vegetation does not fit readily within the National Vegetation Classification, although it has some similarities to both the **M23b *Juncus effusus* - *Galium palustre* rush pasture** and **U6 *Juncus squarrosus* - *Festuca ovina* grassland** communities.
- 2.3.26 A very small area of the site is dominated by purple moor-grass, and grades into marshy grassland habitats (see below). Very few other species are present in this area except for occasional broad buckler-fern (*Dryopteris dilatata*), tormentil and greater bird's foot trefoil (*Lotus pedunculatus*). This vegetation conforms to a very species-poor form of **M25 *Molinia caerulea* - *Potentilla erecta* mire**.

Marshy Grassland

- 2.3.27 Small areas of marshy grassland occur within the site and are dominated by soft rush with occasional jointed rush and compact rush. Yorkshire fog and velvet bent are the most frequent grasses with purple moor-grass and tufted hair-grass both occasional. There is also a range of commonly associated broadleaved herbs. Amongst the taller species, marsh thistle is the commonest, with common sorrel and wild angelica (*Angelica sylvestris*) both frequent and meadowsweet (*Filipendula ulmaria*) occasional. Two sprawling species, marsh bedstraw (*Galium palustre*) and greater bird's-foot trefoil, are both prominent. Smaller species include water mint (*Mentha aquatica*), lesser spearwort, creeping buttercup, meadow buttercup and cuckooflower (*Cardamine pratensis*).
- 2.3.28 An area of species-rich marshy grassland borders the northern edge of Pond 2 (see plan 4). Soft rush and jointed rush dominate the vegetation, although sedges are well represented and include star sedge, oval sedge and yellow sedge. Broadleaved herbs in this area include marsh thistle, opposite-leaved golden-saxifrage (*Chrysosplenium oppositifolium*), lesser spearwort and southern marsh-orchid.
- 2.3.29 These marshy grasslands conform to the **M23b *Juncus effusus* sub-community** of the **M23 *Juncus effusus/acutiflorus* - *Galium palustre* rush pasture** community of the NVC. This community is characteristic of moist, moderately acid-to-neutral peat and mineral soils.
- 2.3.30 The marshy grasslands and damp acid grassland support three of the eleven recorded local species, comprising sneezewort (*Achillea ptarmica*), yellow sedge and star sedge. They also collectively support seventeen species which are listed as being indicative of species-rich marshy grasslands in the *Guidelines for the Selection of Wildlife Sites in South Wales* (SWWSP 2004). These comprise star sedge, yellow sedge, velvet bent, meadowsweet, marsh bedstraw, jointed rush, greater bird's-foot trefoil, purple moor-

grass, lesser spearwort, cuckooflower, glaucous sedge (*Carex flacca*), sneezewort, compact rush, heath rush, carnation sedge, southern marsh-orchid and tormentil.

Neutral Grassland

- 2.3.31 Herb-rich semi-improved neutral grassland is present next to Pond 2, and also locally elsewhere in small clearings in the woodland and scrub habitats. Fine-leaved grasses are frequent in these areas, including crested dog's-tail, common bent and red fescue as well as Yorkshire fog. Glaucous sedge is occasional. Broadleaved herbs are frequent, including fairy flax (*Linum catharticum*), sheep's sorrel, white clover, common bird's-foot trefoil, common mouse-ear, mat-grass, self-heal, autumn hawkbit (*Leontodon autumnalis*), greater plantain (*Plantago major*), common vetch (*Vicia sativa*) and red clover.
- 2.3.32 These grasslands conform to the **MG5 *Cynosurus cristatus* - *Centaurea nigra* grassland** community of the NVC. This is the most widespread and frequent form of species-rich neutral grassland in the UK, occurring on ground with at least moderately good drainage, and under management regimes which prevent the accumulation of nutrients.
- 2.3.33 Areas of rank neutral grassland are frequent in the Sirhowy Hill Woodlands North area (see Plan 4) and elsewhere beneath the woodland and scrub canopy. Coarse-leaved, tussocky grasses dominate the vegetation, with cock's-foot being the most frequent together with smaller amounts of false oat-grass (*Arrhenatherum elatius*), common couch-grass and Yorkshire fog. Tufted hair-grass and hairy sedge (*Carex hirta*) are both locally frequent as well.
- 2.3.34 Tall ruderal species occur frequently throughout this grassland type, including common nettle (*Urtica dioica*), rosebay willowherb (*Chamerion angustifolium*), broad-leaved dock and creeping thistle (*Cirsium repens*). Beneath these tall species there is often a layer supporting fine-leaved grasses and smaller broadleaved herbs, including red fescue, yarrow, dandelion, ribwort plantain, bird's-foot trefoil and common sorrel. The non-native garden plant fox-and-cubs (*Pilosella aurantiaca*) also occurs locally. *Rhytidiadelphus squarrosus* is the only frequent moss.
- 2.3.35 These grasslands conform to the **MG1 *Arrhenatherum elatius* grassland** community of the NVC, which is typical of neglected and unmanaged neutral sites.
- 2.3.36 Other circum-neutral grasslands within the site appear to be very weakly acidic, conforming to the **MG5c *Cynosurus cristatus* - *Centaurea nigra* grassland: *Danthonia decumbens* sub-community** of the NVC. These grasslands support an abundance of mesotrophic plant species including crested dog's-tail, common bent, cock's-foot, Yorkshire fog, common knapweed and bird's-foot trefoil, with the calcifuge species tormentil, heath-grass, heath bedstraw, bilberry and ling heather also present at low densities.
- 2.3.37 The neutral grasslands of the site support fourteen species which are listed as being indicative of species-rich marshy grasslands in the *Guidelines for the Selection of Wildlife Sites in South Wales* (SWWSP 2004). These comprise agrimony, common knapweed, heath-grass, eyebright (*Euphrasia* sp), common cat's-ear, rough hawkbit (*Leontodon hispidus*), fairy flax (*Linum catharticum*), common bird's-foot trefoil, field

wood-rush, mouse-eared hawkweed, tormentil, lesser stitchwort (*Stellaria graminea*), red clover and tufted vetch (*Vicia cracca*).

Species-Poor Semi-improved Neutral Grassland

- 2.3.38 An area of species-poor semi-improved neutral grassland is present near the centre of the site. Grasses dominate the sward in this area, with perennial rye-grass (*Lolium perenne*) and crested dog's-tail the most frequent species, together with red fescue and common bent occasional. Broadleaved herbs are limited in range and numbers, comprising mainly white clover, common mouse-ear, ribwort plantain and yarrow.
- 2.3.39 This community conforms to the **MG6 *Lolium perenne* - *Cynosurus cristatus* grassland** of the NVC. This community is characteristic of permanent pasture on moist but free-draining soils which have been subject to a fair degree of agricultural improvement which may have included re-seeding with perennial rye-grass.

Ephemeral/Short Perennial Vegetation

- 2.3.40 Ephemeral/short perennial vegetation lacking any clearly dominant species occurs in the northernmost part of the site. The vegetation is very open, consisting of a mixture of low-growing herbs less than 25cm in height, interspersed with taller herbs and perennial grasses. The grasses include common bent, perennial rye-grass, Yorkshire fog and crested dog's-tail. Low-growing herbs include red bartsia (*Odontites vernus*), creeping buttercup, red clover, white clover, jointed rush, toad rush (*Juncus bufonius*), self-heal, yarrow, dandelion, black medick (*Medicago lupulina*), thyme-leaved speedwell (*Veronica serpyllifolia*), colt's-foot, red goosefoot (*Chenopodium rubrum*), fat-hen (*Chenopodium album*), common field-speedwell (*Veronica persica*), thyme leaved sandwort (*Arenaria serpyllifolia*), cut-leaved crane's-bill (*Geranium dissectum*), lesser trefoil (*Trifolium dubium*), greater plantain, equal-leaved knotgrass (*Polygonum arenastrum*), procumbent pearlwort (*Sagina procumbens*), dove's-foot crane's-bill (*Geranium molle*), pineappleweed (*Matricaria discoidea*) and wall speedwell (*Veronica arvensis*). Taller-growing species include tufted hair-grass, Canadian fleabane (*Conyza canadensis*), creeping thistle, spear thistle (*Cirsium vulgare*) and bristly oxtongue (*Picris echioides*).
- 2.3.41 This community does not fit readily into the NVC, although has some similarities to the **OV21 *Poa annua* - *Plantago major*** and **OV22 *Poa annua* - *Taraxacum officinale*** communities.
- 2.3.42 Ephemeral/short perennial grasslands are also present on the edges of footpaths throughout the site.

Rock Habitats

- 2.3.43 Sandstone rocks are exposed towards the southern and eastern areas of the site. The vegetation of the cliff faces in these areas is very open and fragmentary. The most frequently occurring species are those that occur in the vegetation of the adjacent, less rocky ground, including bilberry, ling heather, sheep's fescue and an abundance of ferns including lady-fern (*Athyrium filix-femina*), scaly male-fern, male-fern and hard fern. Mosses, including *Polytrichum juniperinum*, and a colourful array of crustose lichens

cover the surface of the rocks. The vegetation cannot easily be accommodated within the NVC.

- 2.3.44 An extensive area of scree and small rocks is present just south of Man Moel Road. Heathland and acid grassland vegetation, as described in sections 2.3.11 – 2.3.22 above, have colonised the substrate in this area.

Naturalised Garden Plants

- 2.3.45 A small area of the site to the south is dominated by naturalised garden plants. Species present in this area include Canadian goldenrod (*Solidago altissima*), honesty (*Lunaria annua*), garden geranium (*Geranium* sp), snow-in-summer (*Cerastium tomentosum*), garden mint (*Mentha* sp), garden loosestrife (*Lysimachia* sp), broad-leaved everlasting pea (*Lathyrus latifolius*), garden spurge (*Euphorbia* sp) and a garden star-thistle (*Centaurea* sp). Native species present in this area include the grasses common bent, timothy, perennial rye-grass and red fescue, whilst broadleaved herbs include germander speedwell (*Veronica chamaedrys*), creeping thistle, perennial sow-thistle (*Sonchus arvensis*), mugwort (*Artemisia vulgaris*), scented mayweed (*Matricaria recutita*), black medick, red clover and great mullein (*Verbascum thapsus*).

Tall Ruderal Vegetation

- 2.3.46 Small areas of the site support tall ruderal vegetation dominated by rosebay willowherb, common nettle, thistles and docks (*Rumex* spp).

Ponds

- 2.3.47 Three ponds are present within the site.

Pond 1

- 2.3.48 This is a large, rectangular-shaped pond with a large amount of open water. Dense tussocks of soft rush surround the pond. Emergent species include jointed rush (*Juncus articulatus*), floating sweet-grass (*Glyceria fluitans*), yellow flag-iris (*Iris pseudacorus*), creeping bent (*Agrostis stolonifera*), cuckooflower, lesser spearwort and water crowfoot (*Ranunculus* sp). Aquatic species include Nuttall's pondweed (*Elodea nuttallii*), common duckweed (*Lemna minor*) and water milfoil (*Myriophyllum* sp). Grey willow (*Salix cinerea*) is frequent on the northeastern edge of the pond.

- 2.3.49 A thin strip of mesotrophic grassland surrounds the pond. Grasses dominate the vegetation, including crested dog's-tail, annual meadow-grass (*Poa annua*), perennial rye-grass and Yorkshire fog. Broadleaved herbs include creeping buttercup, white clover, ribwort plantain, colt's-foot, dandelion, creeping thistle and spear thistle.

Pond 2

- 2.3.50 This pond contains relatively little open water, being dominated by emergent vegetation including greater reedmace (*Typha latifolia*), branched bur-reed (*Sparganium erectum*), soft rush, jointed rush, common spike-rush (*Eleocharis palustris*), floating sweet-grass, creeping bent, great willowherb (*Epilobium hirsutum*) and hoary willowherb. Scattered bush of grey willow are intermittent. Aquatic species include broad-leaved pondweed (*Potamogeton natans*), Nuttall's pondweed, common duckweed, water starwort

(*Callitriche* sp) and the non-native and highly invasive New Zealand pigmyweed (*Crassula helmsii*).

- 2.3.51 Neutral grassland species form a narrow margin around the pond, including timothy, Yorkshire fog, red clover, cuckooflower, marsh thistle, meadow buttercup, ribwort plantain, common ragwort, sneezewort (*Achillea ptarmica*) and red bartsia.

Pond 3 (Cardiff Pond)

- 2.3.52 This is a very large, rectangular-shaped pond. It has a concrete lining on its northern and western sides which supports limited vegetation. The northern and eastern banks are soiled and support a thin band of emergent vegetation 1-2m in width, comprising jointed rush, meadowsweet, lesser spearwort, common water-plantain (*Alisma plantago-aquatica*), creeping bent, hoary willowherb, floating sweet-grass, yellow flag-iris and soft rush. The muddy margins receive a moderate amount of trampling by members of the public, and support water-cress (*Rorippa nasturtium-aquaticum* agg) and common spike-rush.

- 2.3.53 A band of water horsetail (*Equisetum fluviatile*) over 5m in width, and to a height of approximately 50cm, lies in the transition to open water on both the northern and western banks of the pond. This plant forms a dense, closed sward with few other species present. This vegetation type is identified in the NVC as **S10 *Equisetum fluviatile* swamp**.

- 2.3.54 Aquatic species in this pond include two introduced non-native species, Nuttall's pondweed and fringed water-lily (*Nymphoides peltata*), in addition to the native broad-leaved pondweed (*Potamogeton natans*).

Stone Walls

- 2.3.55 Stone walls are present throughout the site. However, the walls all appear to be of fairly recent construction and support only poorly developed lichen and bryophyte floras.

Historic Survey Data

- 2.3.56 Data from the Phase 1 habitat survey undertaken in Gwent by the former Nature Conservancy Council during 1988-1991 is available for the site, and an extract is shown at Plan 3. According to this data, neutral grassland and unimproved acid grassland previously covered a much greater proportion of the site, but these have now extensively given way to mixed woodland plantations.

2.4 Fauna

- 2.4.1 Studies of the fauna of the site were mainly confined to a range of key groups which had previously been identified as being potentially of interest or significance, although other species were also recorded as a matter of course when they were detected by the surveys. The results of the surveys of key fauna groups are set out below.

Bats

- 2.4.2 All species of bats are protected under UK legislation by virtue of their listing on Schedule 5 of the amended Wildlife and Countryside Act 1981. They are also protected under the EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (92/43/EEC the 'Habitats Directive'), implemented in the UK via the Conservation (Natural Habitats, etc) Regulations 1994 (the 'Habitats Regulations'). Bats are also listed under the Bern Convention on the Conservation of European Wildlife and Natural Habitats and under the Agreement on the Conservation of European Bats 1992, signed within the framework of the Bonn Convention on the Conservation of Migratory Species of Wild Animals 1979.
- 2.4.3 Both the animals themselves and any structures or places which are used for shelter and protection, or as breeding sites and resting places, are fully protected against both intentional or reckless disturbance or harm. Where works are allowed to affect such places there is a legal requirement to obtain a licence (or 'derogation') in advance and to ensure that the works do not result in any avoidable harm to bats. The bats should also enjoy continued 'favourable conservation status' in the locality once the works are completed, through the incorporation of suitable mitigation and enhancement measures.
- 2.4.4 The results of the aerial activity survey are shown on Plan 5. The survey recorded low numbers of common pipistrelle bats and a myotis species, probably either whiskered or Brandt's bat, which cannot be adequately separated in flight. A single pass by a noctule bat travelling high up in the sky was also recorded.

Badger

- 2.4.5 Badgers are fully protected in the UK under the terms of the Protection of Badgers Act 1992. Protection applies both to the animal itself, which may not be intentionally killed, injured or captured, and its setts, which may not be intentionally destroyed, damaged or disturbed, except under certain specified and/or licensed conditions. Current interpretation of the Act also confers a degree of protection to areas which are of key significance to foraging badgers.
- 2.4.6 Badger is widespread in the county, but the Glamorgan Badger Group hold no records of this species either from the site or from its immediate vicinity (J Kennet *pers comm*). No signs of badger were recorded on the site during the present survey. The high level of public use and disturbance probably deters this species.

Other Mammals

- 2.4.7 The present surveys recorded sight or signs of rabbits, common shrew, field vole, bank vole, wood mouse, grey squirrel and fox. It is very likely that other common mammals also occur, such as stoat and hedgehog etc. However, it is not considered likely that the site supports any of the other specially protected mammal species such as dormouse, otter or water vole.

Birds

- 2.4.8 Almost all naturally occurring bird species in Britain are afforded at least some degree of protection under the amended Wildlife & Countryside Act 1981. Native bird species are protected against killing, injury and capture, and this protection extends to eggs, chicks and occupied nests. It is also illegal to disturb a bird whilst it is nesting.

Deliberate or reckless destruction, or disturbance of nesting birds, by any persons is an offence, and this would include the clearance of habitats which are being used by nesting birds even where this may be the subject of a current planning consent. However, it should be noted that once nesting has been completed, the nesting site *per se* is not usually afforded any direct protection, and may lawfully be disturbed or removed.

- 2.4.9 The level of protection afforded under the law varies from species to species. A few game and pest species may lawfully be hunted and killed, usually under licence, whilst the rarest species are listed on Schedule 1 of the Wildlife & Countryside Act 1981 and are protected by special penalties for offences committed under the Act.
- 2.4.10 All of the bird species native to Britain are additionally covered by the EC Directive on the Conservation of Wild Birds, 1979 ('The Birds Directive'). This applies to all wild birds, their eggs, nests and habitats, and provides for the protection, management and control of all species of birds naturally occurring within each member state of the European Community. The Directive requires the UK to take measures to ensure the preservation of sufficient diversity of habitats to maintain populations of all such birds at ecologically and scientifically supportable levels. The requirements of the Birds Directive are implemented in the UK primarily through the Wildlife & Countryside Act.
- 2.4.11 In addition to statutory protection, the bird species of Britain are also subject to various conservation designations intended to indicate their rarity, population status and conservation priority. These do not have statutory force but may be instrumental in determining local, regional and national planning and development policy. The main categories of designation are the Royal Society for the Protection of Birds (RSPB) 'Birds of Conservation Concern' lists and listing as UK and/or Welsh Biodiversity Action Plan priorities.
- 2.4.12 A total of 21 species of birds were recorded during the current survey, many if not most of which probably breed on the site (see Appendix 1). Twelve species of conservation concern were recorded, the most significant of which are considered to be snipe, green woodpecker and kestrel, which are all listed as Welsh Birds of Conservation Concern (RSPB 2003).

Fish

- 2.4.13 No fish were seen in any of the three ponds, and there are no records available which indicate that fish are present.

Reptiles

- 2.4.14 There are six native terrestrial reptile species in Britain, comprising adder, grass snake, smooth snake, common lizard, sand lizard and slow-worm. Two of these species, smooth snake and sand lizard, are rare and declining 'European Protected Species' which are afforded the highest level of statutory protection available in the UK, similar to that afforded to bats (see above). However, neither of these species occurs in the geographical area which contains the site, and so they need not be considered further.
- 2.4.15 The four remaining commoner species are widespread and comparatively common throughout south Wales, although all are believed to be declining in range and numbers.

These species are afforded so-called ‘partial protection’ under the amended Wildlife & Countryside Act 1981 which prohibits the deliberate or reckless killing or injury of individuals, although there is no direct protection extended to the habitats which support them. All four of the commoner reptile species are listed as ‘Species of Conservation Concern’ in the UK BAP, but only the two rarer species are listed as ‘Priority Species’ in either the UK BAP or its Welsh equivalent. Adder is listed as local BAP species.

- 2.4.16 The results of the refugium survey are shown in the table below, which also includes records of amphibians and small mammals found under refugia. The locations of the refugia are shown on Plan 6.

Tile number	10/10/05	14/10/05	17/10/05	27/10/05
1-8	2CT	-	-	-
9-16	-	-	-	-
17-24	1CT	-	-	-
25-32	-	-	-	CS
33-40	3CT	-	-	-
41-48	-	-	WM	-
49-56	-	-	-	FV
57-64	-	-	-	-
65-72	2CT	-	-	-
73-80	1S/PN	-	-	-
Temp	19°C	18 °C	16.5 °C	17 °C
Start Time	12.05	14.00	11.00	12.30
Weather Conditions	Sunny clear and warm	Cloudy but warm	Sunny and bright	Overcast but warm
CT – Common toad, S/P – Smooth/Palmate newt – (verification not possible) FV – Field vole, CS – Common shrew, WM – wood mouse				

- 2.4.17 The survey results would seem to indicate either that reptiles are absent from the site, or are present in very low numbers only. However, this may be an artefact of the time of year in which the survey was undertaken, and the placement and numbers of the refugia. Large areas of the site could not be surveyed for reptiles, due to the constraints of scale and labour.
- 2.4.18 The general assessment of the habitats represented on the site would suggest that the site is generally suitable for reptiles, and that the common species are therefore likely to be present at least in low numbers. The site has a highly diverse structure showing variation from short, open swards through to rank grassland, heathland, scrub and dense woodland, all of which provide good basking and hibernating opportunities for reptiles. It is therefore considered likely that slow-worm and common lizard are both present, and that adder and grass snake may also be present, the latter most likely in association with the ponds and wetland areas of the site.

Amphibians

- 2.4.19 There are about six native amphibian species in Britain. Two of these species, Natterjack toad and great crested newt, are rare and declining ‘European Protected Species’ which are afforded the highest level of statutory protection available in the UK, similar to that afforded to bats (see above). However, Natterjack toad does not

occur in the geographical area which contains the site, and therefore need not be considered further.

- 2.4.20 Two species of amphibian have been recorded from the site to date, comprising common toad and a newt species, either smooth or palmate newt: the latter was found as an eft which could not be identified conclusively. It is also considered quite likely that common frog is also present. The three ponds within the site all appear superficially for breeding amphibians, and these could potentially also include the rare and protected great crested newt. However, there is no evidence available to date to indicate that this species is present.

Invertebrates

- 2.3.21 Upwards of 30,000 species of invertebrates are recorded in Britain, occurring in every available habitat. About 40 species are afforded full statutory protection in the UK under either European or British legislation, but none of these protected species is considered likely to occur in the vicinity of the study area.
- 2.3.22 Only very limited invertebrate information is available for the site, and no specific surveys were carried out during the present study. Three species of butterfly were recorded during the surveys, comprising small tortoiseshell (*Aglais urticae*), speckled wood (*Pararge aegeria*) and large white (*Pieris brassicae*), all of which are common and widespread species. The three ponds probably support good numbers of foraging and breeding dragonflies, although common hawker (*Aeshna juncea*) was the only species recorded. Mounds of yellow meadow-ant (*Lasius flavus*) are occasional in parts of the site with deep soils.
- 2.3.23 The site appears superficially suitable for the grayling butterfly (*Hipparchia semele*), a local and declining species, although no evidence of this species was found during the survey.

3.0 ASSESSMENT OF KEY INTERESTS

3.1 There is currently no nationally accepted system for the categorising of sites or features of nature conservation value below the level of national value, criteria for which are set out by the former Nature Conservancy Council (1989, as amended). However, guidelines for the identification of non-statutory sites of county significance (ie SINCs) are available in this instance (SWWSP 2004), together with the criteria on which these were based (Clements & Pryce 2000), and these have been used in the assessment of this site which is set out below.

3.2 Habitats

3.2.1 Certain declining and threatened habitats are identified as priorities for conservation by the Biodiversity Action Plans which apply at the UK, Welsh, county and local levels, and as noted above, there is also emerging guidance at the sub-national level for the evaluation of habitats as possible SINCs.

3.2.2 For the purposes of this study, the habitats and features of the site have been assessed against the published BAP priorities, and also evaluated in accordance with the guidance set out in Appendix 2. It should be noted that this assessment is provisional and based entirely on the survey information available to hand at the time of writing.

Habitat	UK BAP Priority	Wales BAP Priority	Gwent BAP Priority	Blaenau Gwent LBAP	Nature Conservation Evaluation
Dry acid grassland	X ¹	X ¹	X ¹		District
Upland Heathland	X	X	X	X ²	District
Purple moor-grass and rush pastures	X	X	X	X	High Local
Damp acid grasslands and marshy grasslands lacking purple moor-grass					High Local
Ponds	X ³	X ⁴		X	High Local
Rock habitats					High Local
Neutral Grassland (non meadow)			X ¹		Local
Mixed Plantation Woodland					Local

UK priorities: UKSG (1995);UKBG (1998-1999)

Wales priorities: WAG (2003)

Gwent priorities: GGBAG (2001)

Blaenau Gwent priorities: BGBP (2001)

¹ Only lowland examples of these habitats are specified as priorities, which would exclude those of the site

² Listed as 'dwarf shrub heath' habitat in the LBAP.

³ Oligotrophic, mesotrophic and eutrophic standing water are listed as priorities.

⁴ A Welsh habitat action plan is currently in preparation for 'Ponds of High Ecological Quality'.

- 3.2.3 **Dry acid grassland** remains reasonably widespread in the uplands of Wales (CCW 2003), and it is the scarcer lowland form which is considered to be of greatest conservation significance in the UK BAP and its Welsh equivalent. This habitat may support a range of scarce vascular plants species such as bitter-vetch (*Lathyrus linifolius*), moonwort (*Botrychium lunaria*), upright chickweed (*Moenchia erecta*) and shepherd's-cress (*Teesdalia nudicaulis*).
- 3.2.4 The dry acid grasslands within the site are in a degraded condition, having been afforested. The U1 acid grassland community which is recorded on the site is a rare community on natural substrates in Wales, although is relatively frequent on secondary substrates such as colliery shale. The acid grasslands support three plants which are considered to be local in the region, and eleven species considered indicative of species-rich acid grasslands in the *Guidelines for the Selection of Wildlife Sites in South Wales* (SWWSP 2004).
- 3.2.5 The **heathland** within the site is classed as upland heathland, being above the 250m contour line. There is an estimated 79,000ha of this habitat extant in Wales, 1400ha of which occur within the Blaenau Gwent county borough (CCW 2003). This habitat type is, however, relatively scarce within the rest of Europe and has its stronghold in the UK. This habitat type often supports notable bird species including species such as hen harrier, red grouse and black grouse, although none of these species have been recorded to date at Sirhowy Hill.
- 3.2.6 The heathland habitats of the site are in a degraded condition, having been afforested throughout the site, and are now suffering from succession. The heathland habitats support seven plant species which are considered local in the region, and sixteen species considered indicative of species-rich heathlands and acid grassland mosaics in the *Guidelines for the Selection of Wildlife Sites in South Wales* (SWWSP 2004).
- 3.2.7 **Purple moor-grass & rush pasture** is a characteristic habitat of the South Wales coalfield, where they are referred to locally as 'rhos pastures'. The category encompasses a very wide range of vegetation types, all of which have nature conservation value. Rhos pastures have been extensively reclaimed for agriculture, lost to development or allowed to deteriorate through lack of management in recent decades, however, and there are now estimated to be only approximately about 35,000ha of this formerly widespread and common habitat remaining in the whole of Wales, about 160ha of which occur in Blaenau Gwent county borough (CCW 2003).
- 3.2.8 This habitat type can support a diverse and characteristic invertebrate fauna, which may include the rare and protected marsh fritillary butterfly (*Eurodryas aurinia*) as well as a number of geographically restricted plant species such as whorled caraway (*Carum verticillatum*), wavy St John's-wort (*Hypericum undulatum*) and petty whin (*Genista anglica*). However, none of these species has been recorded to date from the site. Only a very small area of this habitat was present within the site, and this was species-poor and degraded.
- 3.2.9 **Damp acid grasslands and marshy grasslands** are not specifically identified as being of high conservation value at the UK, Welsh or county level. However, where these habitats occur within the site they support four plant species considered local in the region, and seventeen species considered indicative of species-rich marshy grasslands in the *Guidelines for the Selection of Wildlife Sites in South Wales* (SWWSP 2004).

- 3.2.10 **Ponds** are identified as a key habitat for conservation in the Blaenau Gwent LBAP, and certain specific types of ponds are also recognised as being of significance at the county, Welsh or UK level. Pond habitats may support rich assemblages of flora and fauna, including many rare plants and invertebrates as well protected fauna species such as great crested newt.
- 3.2.11 The site contains one large permanent pond (Cardiff Pond) and two smaller ponds, all of which are considered potentially suitable for great crested newt although this species has not been recorded on the site to date. Upland ponds elsewhere within the county borough have been found to support rich dragonfly assemblages which include scarce blue-tailed damselfly (*Ischnura pumilio*), black darter (*Sympetrum danae*) and keeled skimmer (*Orthetrum coerulescens*). Only one dragonfly species, common hawker (*Aeshna juncea*) was recorded from the site by the present survey, but it is likely that a range of others are also present. No rare or declining plant or invertebrate species have been recorded to date.
- 3.2.12 **Rock habitats** are identified as a key habitat for conservation in the *Guidelines for the Selection of Wildlife Sites in South Wales*, and also in many of the LBAPs for the south Wales region, although not currently that for Blaenau Gwent county borough. These habitats may include natural and quarried exposures, and may support a range of plant species considered local or rare in the region. However, the open rock habitats within the site appear to support comparatively undifferentiated communities similar to those recorded in the nearby acid grassland and heathland habitats.
- 3.2.13 Lowland meadows are the only type of **neutral grasslands** which are identified as a priority for conservation in the UK and Welsh contexts. Neutral grasslands generally are recognised as key habitats for conservation in many of the LBAPs in the south Wales region, although not currently that for Blaenau Gwent county borough. The neutral grasslands of the site which occur on thin soils support a moderately species-rich sward, and the open nature of the grassland is likely to be of value to invertebrates. Grasslands on deeper soils within the site are typically ranker and floristically less species-rich, but may also be of value to invertebrates. The neutral grasslands of the site support fourteen species which are considered to be indicative of species-rich neutral grasslands in the *Guidelines for the Selection of Wildlife Sites in South Wales* (SWWSP 2004).
- 3.2.14 Conifer-dominated and mixed conifer/broadleaf plantations are not identified as being of any special conservation significance in the UK or Welsh contexts, but are identified as key habitats for conservation in many of the LBAPs in the south Wales region, although not currently that for Blaenau Gwent county borough. The main interest of such habitats lies in their value to certain rare and declining breeding birds, for mammals such as red squirrel, and for other specialised groups such as fungi and invertebrates.
- 3.2.15 The mixed plantation woodlands of the site provide nesting opportunities for a range of birds and foraging opportunities for mammals such as bats. This habitat can be important for birds of high conservation value, such as crossbill and nightjar, although neither of these species have been recorded from the site to date. These habitats are also considered important within the site for the remnant heathland and acid grassland habitats which often underlie them.

3.3 Species

3.3.1 The various conservation categories of the species recorded to date are set out at Appendix 1. Key species recorded to date comprise:

Species	Status	Status on Site
Common pipistrelle	Protected species, LBAP Priority Species	Foraging
Myotid bats	Protected species	Foraging
Noctule	Protected species	Foraging
Snipe	Welsh Bird of Conservation Concern	Resident
Green woodpecker	Welsh Bird of Conservation Concern	Possibly breeding
Kestrel	Welsh Bird of Conservation Concern	Probably breeding
Crowberry	Local in UK; Rare in Gwent	Present on site

3.3.2 **Common pipistrelle** is one of the most common and widespread bat species in Britain. It often roosts in the attics of houses and other buildings in the summer, but seldom roosts in trees. It forages in a very wide range of habitats. This species was recorded foraging throughout the site, but most probably emerged from roosts in the roofs of domestic dwellings in the vicinity.

3.3.3 Whiskered bat and Brandt's bat are closely-related, somewhat local **myotid bats** which are very difficult to distinguish in flight. Both species roost predominantly in buildings, and only very occasionally in trees. Myotid bats were recorded foraging throughout the site, but these most probably emerged from roosts in the roofs of domestic dwellings in the vicinity.

3.3.4 **Noctule** is a large bat species which roosts primarily in tree cavities. It is comparatively common in the open countryside, especially in areas where large trees are present. This species was only briefly recorded within the site. It is, however, unlikely to be roosting on the site due to the general lack of large trees with suitable cavities.

3.3.5 **Snipe** is listed as a 'primary species' in the *Guidelines for the Selection of Wildlife Sites in South Wales* (SWWSP 2004). These guidelines suggest that sites supporting breeding or wintering populations of this species should be considered for designation as Wildlife Sites. However, only very small numbers of this species were recorded within the site, and the probability of it breeding is considered very low due to the high level of public and amenity use. Snipe may occur in a variety of habitats including inland lakes, gravel pits, wet grassland and wet moorland. They prefer large open fields with surface pools and ditches for breeding.

3.3.6 **Green woodpecker** favours broadleaved woodlands close to grasslands and heathland. They require mature trees to breed and low-growing vegetation for feeding on ants and other invertebrates. This species may possibly be nesting on the site, but this is constrained by the general lack of large trees suitable for the excavation of nesting cavities.

3.3.7 **Kestrel** occurs in a variety of habitats including grasslands, moorland, heathland, open woodland and urban situations. The species feeds on small mammals, birds and earthworms, and nests on cliff and quarry ledges, and in trees, nestboxes and on disused

industrial buildings. This species is considered quite likely to be nesting in trees on the site.

- 3.3.8 ***Crowberry*** is a low-growing shrub of well-drained acidic soils. It is usually found in upland situations on moorlands, mountains and blanket mire. It is currently only recorded from within 26 10km squares within Wales, and is considered a local species in the region.
- 3.3.9 In addition to the above, the site has been recorded as supporting a number of other ***local plant species***, including star sedge, yellow sedge, southern marsh-orchid, heath-grass, early hair-grass, bilberry, western gorse, heath milkwort and heath speedwell.

4.0 MANAGEMENT STRATEGY

4.1 Aims of the Strategy

4.1.1 The site formerly consisted of patchy acid grassland and heathland vegetation developed on colliery spoil. These habitats are assessed as being the most significant on the site from a biodiversity standpoint, but are now in a declining and degraded condition as a result of extensive afforestation over the last twenty years. The site is in the process of succeeding towards a future state in which the majority of the site will be dominated by dense woodland with only a few small patches of heathland and acid grassland remaining.

4.1.2 It is therefore recommended that the primary aims of the ecological management strategy should be:

1. that those areas of woodland and scrub which still have a species-rich acid grassland and/or heathland underlayer should be mainly cleared of tree and scrub cover in order to conserve the underlying habitats;
2. that the woodland and plantings over the remainder of the site should be left to develop into high forest.

4.1.3 Other significant aims should include:

3. conservation and enhancement of damp and marshy grassland habitats;
4. conservation and enhancement of pond habitats;
5. diversification of woodland and scrub habitats;
6. control of invasive non-native species.

4.2 Management Prescriptions

4.2.1 For the purposes of management the site has been divided into a series of management compartments (cpts) as shown on Plan 7.

4.2.2 The following tables set out the identified interests, management priorities and recommended targets for each of the identified management compartments, together with recommended management prescriptions. Generic advice is also provided with respect to suitable management methods. Plan 8 summarises the broad management priorities within the site.

4.2.3 Illustrative example photographs of the site are given at Appendix 3. Plan 9 shows the locations of the photograph viewpoints.

Sirhowy Hill Woodlands (Whole Site)	
Key Features/Habitats/Species etc	
<ul style="list-style-type: none"> • Significant area of open space located between major conurbations of Ebbw Vale and Tredegar. • Identified as a possible Local Nature Reserve for future designation • Mainly plantation woodland but with an underlayer which supports diverse acid grassland and heathland in many places • Network of paths, some of which are accessible to wheelchairs and pushchairs • Succession towards domination by high forest woodland at expense of heathland and acid grassland habitats • Snipe resident; local plants present 	
Existing Management Considerations	
<ul style="list-style-type: none"> • Increasing dominance of woodland and scrub • Heavy recreational use by local residents • Some littering and vandalism • Localised burning of vegetation 	
Primary Management Objectives	
<ul style="list-style-type: none"> • Maintain and increase areas of acid grassland and heathlands • Manage woodland in favour of native broadleaved species • Minimise scope for abuse/damage to the site by visitors • Encourage passive use of the site by the local community • Reduce scope for uncontrolled burning 	
Secondary Management Objectives	
<ul style="list-style-type: none"> • Formalise recreational use • Increase local participation in the management of the site 	
'Whole Site' Tasks	Return
<ul style="list-style-type: none"> • Install/restore secure fencing around site • Install suitable access point restrictions to deter fly-tipping and unauthorised vehicular access • Set up voluntary warden scheme to monitor condition and abuse etc and coordinate management of a local community group (Method I) • Set up voluntary fire-warden scheme, especially in summer months; establish clear links and response policy with emergency services • Install litter bins; consider installation of 'dog latrine' facilities • Empty litter bins; maintain bins and other facilities as required • Institute appropriate survey and monitoring regime to assess the effects of management • Review management plan • Continue to maintain existing network of paths; create more varied verges alongside paths through differential mowing (Methods: A) • Install interpretation panels at the entrances (Method I) • Investigate possibility of introducing grazing by cattle over parts of the site • Ensure that all management tasks undertaken on the site are recorded (Method J) 	<ul style="list-style-type: none"> Year 1 Year 1 Year 1 Year 1 Year 1 6-monthly 5 yearly 5 yearly Annually Year 1 - Year 1-5

Cpt No.: 1	Cpt Name: Damp Acid Grassland	
Key Features/Habitats/Species etc		
<ul style="list-style-type: none"> Local plant species Large numbers of southern marsh orchids Resident snipe 		
Existing Management Considerations		
<ul style="list-style-type: none"> The largest part of the site which has not been subject to tree planting Small numbers of colonising willow trees Heavy recreational use by local residents; walking, dog-walking etc 		
Management Aims		
<ul style="list-style-type: none"> Maintain and enhance grassland habitat Fence off part of the area to prevent access and encourage use by ground-nesting birds Consider the creation of new ponds and scrapes Manage trees and scrub 		
Tasks/Methods		Return
<ul style="list-style-type: none"> Preferably manage this area by means of grazing by cattle (Methods: D); otherwise by means of cutting (Methods: A) Consider fencing off the majority of the compartment and limiting access to the perimeter of the compartment only Consider excavating small ponds and scrapes increase the attractiveness of the site to wet grassland birds such as snipe (Method C) Monitor re-growth of scrub, and clear as required (Methods: B) 		<p>Annually</p> <p>Year 1</p> <p>Years 1-3</p> <p>5-yearly</p>

Cpt No.: 2a – 2d	Cpt Name: Heathland	
Key Features/Habitats/Species etc		
<ul style="list-style-type: none"> Species-rich heathland and acid grassland mosaic Localised patches of young scrub Cpt 2d overplanted with trees Sandstone rock outcrop in cpt 2b Local plant species 		
Existing Management Considerations		
<ul style="list-style-type: none"> Encroachment of heathland by scrub and trees Overplanted heathland likely to deteriorate Scrub extent probably increasing Future encroachment by scrub possible 		
Management Aims		
<ul style="list-style-type: none"> Undertake extensive removal of trees and scrub to conserve heathland Increase extent of heathland and acid grassland areas; maintain and enhance these areas 		
Tasks/Methods		Return
<ul style="list-style-type: none"> Remove 90% of trees and scrub, leaving an open scatter of trees only Control scrub and trees (Methods: B) Manage grassland by means of cutting (Methods: A) Monitor re-growth of scrub, and clear as required (Methods: B) 		<p>Years 1-3</p> <p>Years 1-5</p> <p>Annual</p> <p>5-yearly</p>

Cpt No.: 3a – 3e	Cpt Name: Mixed Plantation Woodlands with Neutral Underlayer	
Key Features/Habitats/Species etc		
<ul style="list-style-type: none"> • Plantation woodland of mixed age, including many non-native species, especially conifers • Woodland with mainly neutral underlayer • Small areas of mainly neutral grasslands within clearings and along paths 		
Existing Management Considerations		
<ul style="list-style-type: none"> • Some thinning of coniferous species has taken place in recent years 		
Management Aims		
<ul style="list-style-type: none"> • Promote dominance by native tree and shrub species • Thinning operations shall favour well formed, healthy groups of trees displaying wind firm characteristics. • Retain open clearings and paths, and increase size of clearings • Control Japanese knotweed in compartment 3d 		
Tasks/Methods		Return
<ul style="list-style-type: none"> • Seek to clear up to 10% of current trees and shrubs, preferentially removing conifers and other non-native species over a 10 year period. 		Years 1-10
<ul style="list-style-type: none"> • Monitor condition of all large trees (visual inspection) and manage by means of tree surgery where limbs present a health & safety issue 		Annually
<ul style="list-style-type: none"> • Inspect large trees for possible bat roosts prior to any tree management operations (visual inspection/bat detector survey); consult with CCW as required 		As required
<ul style="list-style-type: none"> • Erect bat roosting boxes and bird nesting boxes on suitable trees (Methods: E) 		Year 1
<ul style="list-style-type: none"> • Maintain and monitor use of bat/bird boxes (visual inspection/ bat detector survey) 		Annually
<ul style="list-style-type: none"> • Manage grassland by means of cutting (Methods: A) and scrub control (Methods: B) 		Annually
<ul style="list-style-type: none"> • Eliminate Japanese knotweed (Methods: F) 		Year 1

Cpt No.: 4a – 4b	Cpt Name: Coniferous Plantation with Neutral Underlayer	
<ul style="list-style-type: none"> • Coniferous woodland of mixed age • Woodland with mainly neutral underlayer • Small areas of mainly neutral grasslands within clearings and along paths 		
Existing Management Considerations		
<ul style="list-style-type: none"> • Some thinning of coniferous species has taken place in recent years 		
Management Aims		
<ul style="list-style-type: none"> • Promote dominance by native tree and shrub species • Retain open clearings and paths, and increase size of clearings 		
Tasks/Methods		Return
<ul style="list-style-type: none"> • Seek to clear up to 30% of current trees and shrubs, preferentially removing conifers and other non-native species over a 10 year period. 		Years 1-10
<ul style="list-style-type: none"> • Monitor condition of all large trees (visual inspection) and manage by means of tree surgery where limbs present a health & safety issue 		Annually
<ul style="list-style-type: none"> • Inspect large trees for possible bat roosts prior to any tree management operations (visual inspection/bat detector survey); consult with CCW as required 		As required
<ul style="list-style-type: none"> • Erect bat roosting boxes and bird nesting boxes on suitable trees (Methods: E) 		Year 1
<ul style="list-style-type: none"> • Maintain and monitor use of bat/bird boxes (visual inspection/ bat detector survey) 		Annually
<ul style="list-style-type: none"> • Manage grassland by means of cutting (Methods: A) and scrub control (Methods: B) 		Annually

Cpt No.: 5a – 5e	Cpt Name: Mixed or Coniferous Plantation Woodlands with Heathland or Acid Grassland Underlayer	
Key Features/Habitats/Species etc		
<ul style="list-style-type: none"> • Plantation woodland of mixed age, including many non-native species, especially conifers • Woodland with a heathland and acid grassland underlayer • Small to extensive areas of acid grasslands and heathland in clearings, and where canopy is broken 		
Existing Management Considerations		
<ul style="list-style-type: none"> • Some thinning of coniferous species has taken place in recent years 		
Management Aims		
<ul style="list-style-type: none"> • Enhance condition of acid grassland and heathland habitats • Undertake extensive tree and scrub clearance • Promote heathland and acid grassland regeneration • Selectively remove coniferous species • The Upper slopes of compartments 5c and 5d are more species-rich than the lower slopes and therefore are a higher priority for clearance. 		
Tasks/Methods		Return
<ul style="list-style-type: none"> • Seek to remove the majority of pine and larch trees over a 10 year period⁵ • Selectively fell coniferous and non-native trees and shrubs 		Years 1-10 Years 1-10

Cpt No.: 6a - 6c	Cpt Name: Ponds	
Key Features/Habitats/Species etc		
<ul style="list-style-type: none"> • Permanent ponds • Possible use by great crested newt • Well developed marginal/emergent vegetation on southern and western end of Pond 3 and the entire perimeter of Ponds 1 and 2 		
Existing Management Considerations		
<ul style="list-style-type: none"> • Extensive litter in Pond 3 		
Management Aims		
<ul style="list-style-type: none"> • Maintain in present condition 		
Tasks/Methods		Return
<ul style="list-style-type: none"> • Monitor condition; clear any refuse and litter, as necessary • Control New Zealand Pigmyweed (<i>Crassula helmsii</i>) in Pond 2 (Method H) • Monitor ponds for siltation and/or closure of open water by emergent vegetation • Remove small percentage of emergent vegetation to ensure that at least 20% of pond surface is covered by open water (especially Pond 2) • Survey for great crested newt • Survey for dragonflies and damselflies • Survey for other aquatic invertebrates 		Annually 3-yearly As required Year 1 Year 1 Year 1

⁵ The ideal ecological objective in this area would be to remove up to 90% of the trees and shrubs in this area to encourage the development of heathland. However, this conflicts with the forestry objectives which seek to retain woodland in this area.

Cpt No.: 7a – 7e	Cpt Name: Grasslands	
Key Features/Habitats/Species etc		
<ul style="list-style-type: none"> • Mainly semi-improved acid and neutral grasslands • Scattered trees and scrub • Well developed marginal/emergent vegetation on southern and western end of Pond 3 and the entire perimeter of Ponds 1 and 2 • Cpt 7c consists of species-poor semi-improved grassland 		
Existing Management Considerations		
<ul style="list-style-type: none"> • Coarsening of grassland habitats; transition from fine-leaved to coarse grass swards • Scrub extent probably increasing • Heavy recreational use by local residents; walking, dog-walking etc, but mainly confined to paths 		
Management Aims		
<ul style="list-style-type: none"> • Control scrub and tree cover • Extensive tree clearance should be undertaken in Compartment 7b. • Increase extent of grassland areas, if possible • Manage to favour fine-leaved swards 		
Tasks/Methods		Return
<ul style="list-style-type: none"> • Manage grassland by means of cutting (Methods: A) and scrub control (Methods: B) 		Annually

4.3 Management Methods

A: Mowing of Grasslands

- 4.3.1 In areas where grazing is not possible the grasslands of the site should be maintained by mowing or cutting. However, mowing should be carried out with care in areas where heather and bilberry are frequent. It may be necessary to mow by hand in these areas, but elsewhere it may be possible to use mechanised mowing. Grasslands should be cut once in late summer (July – August). All arisings should be collected and removed from the site.
- 4.3.2 Not all areas should be mown at the same time. In large areas of grassland such as compartment 1 only approximately one two thirds of the grassland should be cut in any one year.
- 4.3.3 Differential mowing should also be used to create more varied verges alongside paths. A strip approximately 1-2m wide could be cleared on either side of the paths, and these mown approximately 2-3 times per year – or the paths could be divided into groups and each group mown in alternation, to produce a rotational mowing regime. This would act to create margins of intermediate height vegetation alongside the paths which would be of value to a wide range of fauna.

B: Tree and Scrub Control

- 4.3.4 Trees and scrub should be cleared by the cutting of tree and shrub stems at ground level in the winter months, with follow-up treatment of the cut stems with a suitable herbicide (eg Glyphosate Pro-Biactive) to prevent regrowth. All arisings should be removed from the site for disposal, although some proportion could be left as piles of cut material ('ecopiles') under shade within the scrub-woodland areas for use as a refuge by fauna species. A return period of 5-7 years will be suitable in most cases.
- 4.3.5 Clearance in the mature woodland areas with a neutral grassland understorey should aim to produce a mixed-age canopy with large clearings and areas of open cover. At the edges of these areas the scrub clearance should aim to create a 'scaloped' edge to the canopy, forming sun-traps and bays which are attractive to invertebrates. Thinning operations should favour groups of well formed trees displaying wind firm characteristics.
- 4.3.6 Clearance in the areas of open grassland and heathland areas should aim to leave a scatter of shrubs and small trees at a density of about 8-10/ha.
- 4.3.7 All scrub clearance works should avoid the main bird-nesting period (approximately March to August inclusive), so as to minimise the risk of causing impacts to nesting birds. It should be noted that almost all species of bird in the UK are afforded statutory protection against harm or disturbance whilst nesting, and that this protection extends the nests, eggs, chicks and adult birds attending a nest.

C: Ponds and Scrape Creation

- 4.3.8 Consideration should be given to the creation of a series of scrapes and temporary ponds within Compartment 1. These wetland areas should be of irregular-ovoid shape,

and at least 5m diameter, and preferably 10m or more. They should have a gently sloping bank profile, to a maximum depth at centre of about 2m. These areas should not be planted but instead simply left for natural colonisation to take place. Excavation work should take place in the summer months so that any reptiles which may potentially be present are not affected by the works.

D: Grazing

- 4.3.10 Ideally, the grassland areas of the site should be lightly grazed in the summer months, but the viability of grazing is in doubt on this site due its suburban location and the high levels of public use. Grazing, if it could be achieved, would probably have to be by means of cattle, which are better able than sheep to withstand disturbance by visitors and dogs etc. It would be necessary to install new fencing at the access points to enclose stock. It would also be necessary to provide a suitable water supply.
- 4.3.11 The grassland areas should be lightly grazed during the summer months, from about late May through to September, with the stock being withdrawn in winter. Supplementary feeding should be avoided if possible, but if necessary should be confined to one or two fixed locations in areas of the grassland which are already rank and less species-rich.

E: Bird and Bat Boxes

- 4.3.12 Bat and bird boxes should ideally be of ‘woodcrete’ construction such as those manufactured by Schwegler Ltd, since these are much more robust and longer-lived than traditional wooden boxes, and require minimal after-maintenance. Boxes should be mounted at least 4m from the ground, in locations where they cannot be readily accessed by predators or humans (i.e located away from footpaths) and away from areas scheduled for woodland clearance. The occupation of boxes should be monitored annually.

F: Pond Management

- 4.3.13 Pond management should focus on retaining a variety of different habitats within each pond including areas of open water and emergent vegetation. All three of the ponds are currently in good condition in this respect. Pond two will probably need to be managed by removing approximately 10% of the emergent vegetation in a year or two.

G: Japanese Knotweed Clearance and Control

- 4.3.14 Japanese knotweed should be eradicated from the site; WDA guidelines and advice (1998a/b) should be followed. Only small amounts of this species are currently present within the site, surrounding the former quarry in the southern-most part of the site, but there is the potential for this invasive and persistent pest species to spread rapidly at the expense of native flora.

H: Control of New Zealand Pigmyweed (Crassula helmsii)

- 4.3.15 If possible New Zealand pigmyweed should be eliminated from Pond 2, following the Centre for Ecology and Hydrology guidelines. It should be noted that control of this plant is extremely difficult and can be very destructive to other pond vegetation and fauna. Bankside material should be treated with Glyphosate, formulated for use in aquatic environments. Emergent material in the water should be treated with both

Glyphosate and "Midstream" if access is possible. Submerged material should be treated with "Midstream" at least twice per growing season at intervals of between 3 and 5 weeks. Herbicide applications can be started as early as February. Covering of black plastic or carpet can also eliminate small patches of this plant, but the shade material should remain in place for at least 8 weeks, and preferably for 6 months.

- 4.3.16 Mechanical control methods should *never* be used as cutting and tearing produces small plant which can rapidly re-grow. In this way, treatment of an area may lead to infestation of downstream areas or rapid re-infestation of the treated area.

I: Interpretation and Community Involvement

- 4.3.17 The provision of interpretive materials dealing with the wildlife and historic use of the site for coalmining should be a key objective. Interpretive boards should be installed at major access points as well as key viewpoints but care should be taken to ensure that they are not excessively intrusive in the landscape. A site leaflet could be prepared for distribution in Ebbw Vale and Tredegar. Regular public events should be held to encourage local people to use the site.
- 4.3.18 A key aim should be to try to involve local people in the management of the site. A regular programme of conservation tasks should be organised for volunteers and advertised widely in the local community and a voluntary warden scheme should be established.

J: Task Recording

- 4.3.19 It is essential that all future work undertaken on the site is recorded to assist with future management planning. An example of project recording form is given in Appendices 4 and 5.

4.4 Summary of Tasks by Year

4.4.1 The following table sets out a summary of the main identified management tasks, listed in order of first year of commencing and periodicity of return.

Year	Return	Task	Cpt No.
1	As required	Fence boundaries to control access	3a, 3b, 3c 3d, 5a, 5d,
1	Nil	Install suitable access point restrictions to deter fly-tipping and unauthorised vehicular access	3a, 3b, 3c 3d, 5a, 5d,
1	Nil	Set up voluntary warden and fire-warden scheme	N/A
1	Nil	Install litter bins at key entry points	3c, 4a
1	Nil	Survey for great crested newt	2a-c
1	Nil	Survey for dragonflies and damselflies	2a-c
1	Nil	Survey for other aquatic invertebrates	2a-c
1	Nil	Erect bat-roosting and bird-nesting boxes	3a-e,4a-b and 5
1-3	Nil	Excavate ponds and scrapes	1
1	-	Investigate the possibility of fencing off part of site	1
1	-	Investigate possibility of introducing grazing by cattle over parts of the site	1 and 7a-d
1	As required	Install interpretation panels at the site entrance	3c, 3d, 4
1	Annually	Graze grasslands from late summer to early winter	1, 2 and 7a-d
1	Annually	Rough-mow marshy grasslands (if not grazed)	1, 2 and 7a-d
1	Annually	Remove litter and refuse from ponds	2a-c
1	Annually	Monitor re-growth of scrub	1,2 and 7
1	Annually	Monitor use of bat and bird boxes	3a-e and 4a-b
1	1-5	Eliminate Japanese Knotweed	3d
1	3-yearly	Monitor for siltation and/or closure of open water by emergent vegetation	2a-c
1	5-yearly	Institute appropriate survey and monitoring regime	Whole site
5	5-yearly	Review management plan	Whole site
1	1-10	Undertake extensive tree and scrub clearance	2a-d, 5a-e, 7b
1	1-10	Small scale tree and scrub clearance	1 and 7a-e
1	1-10	Selectively thin coniferous species	3a-e and 4a-b
1-10	As required	Replace stock of conifers with native broadleaves	3a-e and 4a-b

4.5 Detailed Breakdown of Tasks by Year

4.5.1 The following table sets out a detailed breakdown of the main identified management tasks.

Task	Cpt No.	Year	Return	Cost	Funding	2006			2007			2008			2009			2010		
						J-F	M-A	M-J	J-A	S-O	N-D	J-F	M-A	M-J	J-A	S-O	N-D	J-F	M-A	M-J
Management Planning and Grant Aid																				
Produce plans showing recently completed works and outstanding work for which grant aid has been allocated		1	-	£200																
Record all tasks undertaken on site using project recording forms (see Appendix 4)		1-5	As required	£400/yr																
Contact Land Registry to confirm land ownerships.		1		£100																
Fencing, Access and Provision for Visitors																				
Map areas within site where upgrading and replacement of fencing and paths is required		1	As required	£50																
Fence boundaries to control access		1-5	-	£5000/yr for 5 yrs	Cydoed															
Install suitable access point restrictions to deter fly-tipping and unauthorised vehicular access		1	As required	£3000 total cost	Cydoed															
Excavate and widen selected paths to allow access by wheelchair users		1-5	As required	£5000/yr for 5 yrs	Cydoed															
Create stone wall circular access points which permit both pedestrian and wheelchair access		Not specified	-	£5000/yr	Cydoed															
Repair timber steps		1-4	As required	£1000/yr	Cydoed															
Install litter bins at key entry points		3c, 4a	As required	£300	Cydoed															
Maintenance of litter bins		3c, 4a	Weekly	£1000/	Cydoed															

Task	Cpt No.	Year	Return	Cost	Funding	2006			2007			2008			2009			2010		
						J-F	M-A	M-J	J-A	S-O	N-D	J-F	M-A	M-J	J-A	S-O	N-D	J-F	M-A	M-J
Bird and Bat Boxes																				
Identify suitable bat and bird locations	3a-e,4a-b and 5	1	-	£50	Cydoeed															
Erect bat-roosting and bird-nesting boxes	3a-e,4a-b and 5	2-5	Annually	£500	Cydoeed															
Monitor use of bat and bird boxes	3a-e,4a-b and 5	2-5	Annually	£100/yr	Cydoeed															
Maintenance and cleaning of bat and bird boxes	3a-e,4a-b and 5	2-5	Annually	£100/yr	Cydoeed															
Grassland Management																				
Determine location and shape of scrapes	1	1	Nil	£50	Cydoeed															
Excavate scrapes	1	1,2 & 3	1,2 & 3	1000/yr	Cydoeed															
Investigate the possibility of fencing off part of site	1	1-5	Nil	£200	Cydoeed															
Investigate possibility of introducing grazing by cattle over parts of the site	1 and 7a-d	1-5	Nil	£200	Cydoeed															
Graze grasslands from late summer to early winter	1, 2 and 7a-d	1-5	Annually	£100/yr	Cydoeed															
Rough-mow marshy grasslands (if not grazed)	1, 2 and 7a-d	1-5	Annually	£200/yr	Cydoeed															
Monitor re-growth of scrub	1,2 and 7	1-5	Annually	£50/yr	Cydoeed															
Pond Management																				
Remove litter and refuse from ponds	6(Ponds 1-3)	1-5	Annually	£300/yr	Cydoeed															
Monitor for siltation and/or closure of open water by emergent vegetation	6(Ponds 1-3)	2	-	£50	Cydoeed															
Control of Invasive Plants																				
Monitor New Zealand Pigmyweed (<i>Crassula helmsii</i>)	6 (Pond 2)	1-5	Annually		Cydoeed															
Control New Zealand Pigmyweed		1-5	Annually																	
Eliminate Japanese Knotweed	3d	1-5	Annually	£120/yr	Cydoeed															

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APPENDIX 1: SPECIES RECORDED

All species recorded either by DCE in 2005 or by J Winder in 1996/1998

Group/Species	Common Name	Source		Status	Indicator Species (SWWSP 2004)				
					W	NG	AG	MG	PIL
Trees and Shrubs									
<i>Acer campestre</i>	Field maple	2005	1998		W				
<i>Acer platanoides</i>	Norway maple	2005							
<i>Acer pseudoplatanus</i>	Sycamore	2005	1998						
<i>Aesculus hippocastanum</i>	Horse chestnut	2005							
<i>Alnus cordata</i>	Italian alder	2005							
<i>Alnus glutinosa</i>	Alder	2005	1998						
<i>Alnus incana</i>	Grey alder	2005							
<i>Betula pendula</i>	Silver birch	2005	1998						
<i>Cornus sanguinea</i>	Dogwood	2005	1998						
<i>Corylus avellana</i>	Hazel	2005	1998						
<i>Cotoneaster sp.</i>	Garden cotoneaster	2005							
<i>Crataegus monogyna</i>	Hawthorn	2005	1998						
<i>Fagus sylvatica</i>	Beech	2005	1998						
<i>Fraxinus excelsior</i>	Ash	2005	1998						
<i>Ilex aquifolium</i>	Holly	2005	1998						
<i>Larix decidua</i>	Larch	2005							
<i>Larix kaempferi</i>	Japanese larch	2005	1998						
<i>Lupinus sp.</i>	Lupin sp.	2005							
<i>Malus domestica</i>	Garden apple	2005							
<i>Picea abies</i>	Norway spruce	2005							
<i>Picea sitchensis</i>	Sitka spruce	2005	1998						
<i>Pinus contorta</i>	Lodgepole pine	2005	1998						
<i>Pinus sylvestris</i>	Scot's pine		1998						
<i>Populus sp.</i>	Poplar sp.		1998						
<i>Prunus avium</i>	Wild cherry	2005							
<i>Prunus spinosa</i>	Blackthorn	2005	1998						
<i>Quercus petraea</i>	Sessile oak	2005	1998		W				
<i>Rosa canina</i>	Dog rose	2005	1998						
<i>Salix caprea</i>	Goat willow	2005	1998						
<i>Salix cinerea</i>	Grey willow	2005							
<i>Salix fragilis</i>	Crack willow	2005							
<i>Salix sp.</i>	Willow sp.		1998						
<i>Sambucus nigra</i>	Elder		1998						
<i>Sorbus aucuparia</i>	Rowan	2005	1998						
<i>Ulex europaeus</i>	Common gorse	2005	1998						
<i>Ulex gallii</i>	Western gorse	2005		Local					
<i>Ulmus glabra</i>	Wych elm		1998		W				
<i>Viburnum opulus</i>	Guelder-rose	2005	1998		W				
Herbs									
<i>Achillea millefolium</i>	Yarrow	2005	1998						
<i>Achillea ptarmica</i>	Sneezewort	2005		Local		NG		MG	
<i>Aegopodium podagraria</i>	Ground-elder	2005	1998						
<i>Agrimonia eupatoria</i>	Agrimony	2005				NG			
<i>Agrostis canina</i>	Velvet bent	2005	1998					MG	
<i>Agrostis capillaris</i>	Common bent	2005	1998						

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Group/Species	Common Name	Source	Status	Indicator Species (SWWSP 2004)				
				W	NG	AG	MG	PIL
<i>Agrostis stolonifera</i>	Creeping bent	2005	1998					
<i>Aira praecox</i>	Early hair-grass	2005	1998	Local		AG		PIL
<i>Alopecurus pratensis</i>	Meadow foxtail		1998					
<i>Anthoxanthum odoratum</i>	Sweet vernal-grass	2005	1998					
<i>Arenaria serpyllifolia</i>	Thyme leaved sandwort	2005						
<i>Arrhenatherum elatius</i>	False oat-grass	2005	1998					
<i>Artemisia vulgaris</i>	Mugwort	2005						
<i>Athyrium filix-femina</i>	Lady-fern	2005	1998					
<i>Bellis perennis</i>	Daisy	2005	1998					
<i>Blechnum spicant</i>	Hard-fern	2005	1998		W			
<i>Bromus hordeaceus</i>	Soft brome		1998					
<i>Callitriche sp.</i>	Water starwort	2005						
<i>Calluna vulgaris</i>	Ling heather	2005	1998		W		AG	PIL
<i>Cardamine pratensis</i>	Cuckooflower	2005	1998			NG		MG
<i>Carex binervis</i>	Green-ribbed sedge	2005	1998					MG
<i>Carex echinata</i>	Star sedge	2005	1998	Local				MG
<i>Carex flacca</i>	Glaucous sedge	2005	1998			NG		MG
<i>Carex hirta</i>	Hairy sedge	2005	1998					
<i>Carex nigra</i>	Common sedge		1998			NG		MG
<i>Carex ovalis</i>	Oval sedge	2005	1998					
<i>Carex panicea</i>	Carnation sedge	2005	1998			NG		MG
<i>Carex viridula</i> ssp <i>oedocarpa</i>	Yellow sedge	2005	1998?	Local				MG
<i>Centaurea nigra</i>	Common knapweed	2005	1998			NG		
<i>Centaurea sp.</i>	Garden star-thistle	2005						
<i>Cerastium fontanum</i>	Common mouse-ear	2005	1998					
<i>Cerastium tomentosum</i>	Snow-in-summer	2005						
<i>Chamerion angustifolium</i>	Rosebay willowherb	2005	1998					
<i>Chenopodium album</i>	Fat hen	2005						PIL
<i>Chenopodium rubrum</i>	Red goosefoot	2005						PIL
<i>Chrysosplenium oppositifolium</i>	Opposite leaved golden saxifrage	2005			W			
<i>Cirsium arvense</i>	Creeping thistle	2005	1998					
<i>Cirsium dissectum</i>	Meadow thistle		1998	Local		NG	AG	MG
<i>Cirsium palustre</i>	Marsh thistle	2005	1998					
<i>Cirsium vulgare</i>	Spear thistle	2005	1998					
<i>Conyza canadensis</i>	Canadian fleabane	2005						
<i>Crassula helmsii</i>	New Zealand pigmyweed	2005		IA				
<i>Crepis capillaris</i>	Smooth hawk's-beard	2005	1998					PIL
<i>Cynosurus cristatus</i>	Crested dog's tail	2005	1998					
<i>Dactylis glomerata</i>	Cocksfoot	2005	1998					
<i>Dactylorhiza fuchsii</i>	Common spotted orchid		1998	Local		NG		MG
<i>Dactylorhiza praetermissa</i>	Southern march orchid	2005	1998	Local		NG		MG
<i>Danthonia decumbens</i>	Heath-grass	2005	1998	Local		NG	AG	
<i>Daucus carota</i>	Wild carrot		1998					
<i>Deschampsia caespitosa</i>	Tufted hair grass	2005	1998					
<i>Deschampsia flexuosa</i>	Wavy hair grass	2005	1998		W		AG	PIL
<i>Digitalis purpurea</i>	Foxglove		1998					

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Group/Species	Common Name	Source	Status	Indicator Species (SWWSP 2004)				
				W	NG	AG	MG	PIL
<i>Dryopteris affinis</i>	Scaly male-fern	2005		W				
<i>Dryopteris dilatata</i>	Broad buckler fern	2005	1998					
<i>Dryopteris filix-mas</i>	Male fern	2005						
<i>Eleocharis palustris</i>	Common spike-rush	2005	1998				MG	
<i>Elodea canadensis</i>	Canadian pondweed		1998					
<i>Elodea nuttallii</i>	Nuttal's pondweed	2005						
<i>Elytrigia repens</i>	Common couch	2005						
<i>Empetrum nigrum</i>	Crowberry	2005	1998	CS				
<i>Epilobium hirsutum</i>	Great willowherb	2005	1998					
<i>Epilobium montanum</i>	Broad-leaved willowherb	2005	1998					
<i>Epilobium parviflorum</i>	Hoary willowherb	2005						
<i>Equisetum arvense</i>	Field horsetail	2005	1998					
<i>Equisetum fluviatile</i>	Water horsetail	2005	1998					
<i>Euphrasia officinalis</i> agg.	Eyebright	2005			NG			
<i>Fallopia japonica</i>	Japanese knotweed	2005		IA				
<i>Festuca gigantea</i>	Giant fescue	2005			W			
<i>Festuca ovina</i>	Sheep's fescue	2005	1998			AG		PIL
<i>Festuca rubra</i>	Red fescue	2005	1998					
<i>Filago vulgaris</i>	Common cudweed		1998					PIL
<i>Filipendula ulmaria</i>	Meadowsweet	2005					MG	
<i>Galeopsis tetrahit</i>	Common hemp-nettle	2005						PIL
<i>Galium aparine</i>	Cleavers	2005	1998					
<i>Galium palustre</i>	Marsh bedstraw	2005	1998				MG	
<i>Galium saxatile</i>	Heath bedstraw	2005	1998			AG		
<i>Geranium dissectum</i>	Cut-leaved crane's bill	2005	1998					
<i>Geranium molle</i>	Dove's foot crane's bill	2005						
<i>Geranium robertianum</i>	Herb Robert	2005	1998					
<i>Glyceria fluitans</i>	Floating sweet-grass	2005	1998				MG	
<i>Gnaphalium uliginosum</i>	Marsh cudweed	2005						PIL
<i>Heracleum sphondylium</i>	Hogweed	2005	1998					
<i>Hieracium sp.</i>	Hawkweed	2005				AG		
<i>Holcus lanatus</i>	Yorkshire fog	2005	1998					
<i>Holcus mollis</i>	Creeping soft-grass	2005	1998					
<i>Hypochaeris radicata</i>	Common cat's-ear	2005	1998			NG		
<i>Iris pseudacorus</i>	Yellow flag-iris	2005					MG	
<i>Juncus articulatus</i>	Jointed rush	2005	1998				MG	
<i>Juncus bufonius</i>	Toad rush	2005						
<i>Juncus conglomeratus</i>	Compact rush	2005	1998				MG	
<i>Juncus effusus</i>	Soft rush	2005	1998					
<i>Juncus inflexus</i>	Hard rush	2005	1998					
<i>Juncus squarrosus</i>	Heath rush	2005	1998			AG	MG	
<i>Juncus tenuis</i>	Slender rush	2005						
<i>Lathyrus latifolius</i>	Broad-leaved everlasting pea	2005						
<i>Lathyrus pratensis</i>	Meadow vetchling	2005	1998					
<i>Lemna minor</i>	Common duckweed	2005						
<i>Leontodon autumnalis</i>	Autumn hawkbit	2005	1998					
<i>Leontodon hispidus</i>	Rough hawkbit		1998			NG		

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Group/Species	Common Name	Source	Status	Indicator Species (SWWSP 2004)				
				W	NG	AG	MG	PIL
<i>Leucanthemum vulgare</i>	Ox-eye daisy	1998			NG			
<i>Linum catharticum</i>	Fairy flax	2005	1998		NG			
<i>Lolium perenne</i>	Perennial rye grass	2005	1998					
<i>Lonicera periclymenum</i>	Honeysuckle	2005						
<i>Lotus corniculatus</i>	Common bird's-foot-trefoil	2005	1998		NG			PIL
<i>Lotus pedunculatus</i>	Greater bird's-foot-trefoil	2005	1998				MG	
<i>Lunaria annua</i>	Honesty	2005						
<i>Luzula campestris</i>	Field wood-rush		1998		NG			
<i>Luzula multiflora</i>	Heath wood-rush	2005	1998			AG	MG	
<i>Luzula sp.</i>	Wood-rush species	2005						
<i>Lychnis flos-cuculi</i>	Ragged robin		1998				MG	
<i>Lysimachia sp.</i>	Garden loosestrife							
<i>Matricaria discoidea</i>	Pineapple-weed	2005						
<i>Matricaria recutita</i>	Scented mayweed	2005						PIL
<i>Medicago lupulina</i>	Black medick	2005						
<i>Mentha arvensis</i>	Corn mint	2005						PIL
<i>Molinia caerulea</i>	Purple moor-grass	2005	1998				MG	
<i>Myriophyllum sp.</i>	Water-milfoil	2005						
<i>Nardus stricta</i>	Mat grass	2005	1998			AG		
<i>Nymphoides peltata</i>	Fringed water-lily	2005						
<i>Odontites vernus</i>	Red bartsia	2005						
<i>Persicaria hydropiper</i>	Water pepper	2005						
<i>Persicaria maculatum</i>	Redshank	2005						
<i>Phleum pratense</i>	Timothy grass	2005	1998					
<i>Picris echioides</i>	Bristly oxtongue	2005						PIL
<i>Pilosella aurantiaca</i>	Fox-and-cubs	2005						
<i>Pilosella officinalis</i>	Mouse-ear hawkweed	2005	1998		NG	AG		PIL
<i>Plantago lanceolata</i>	Ribwort plantain	2005	1998					
<i>Plantago major</i>	Greater plantain	2005	1998					
<i>Poa annua</i>	Annual meadow grass	2005	1998					
<i>Poa trivialis</i>	Rough meadow-grass		1998					
<i>Polygala serpyllifolia</i>	Heath milkwort	2005		Local		AG	MG	
<i>Polygonum arenastrum</i>	Equal leaved knotgrass	2005						
<i>Polygonum aviculare</i>	Knotgrass	2005						
<i>Potamogeton natans</i>	Broad-leaved pondweed	2005						
<i>Potentilla anserina</i>	Silverweed	2005						
<i>Potentilla erecta</i>	Tormentil	2005	1998		NG	AG	MG	
<i>Potentilla reptans</i>	Creeping cinquefoil	2005	1998					
<i>Prunella vulgaris</i>	Self heal	2005	1998					
<i>Ranunculus acris</i>	Meadow buttercup	2005	1998					
<i>Ranunculus flammula</i>	Lesser spearwort	2005					MG	
<i>Ranunculus repens</i>	Creeping buttercup	2005	1998					
<i>Ranunculus sp.</i>	Water crowfoot sp.	2005						
<i>Rorippa nasturtium-aquaticum</i>	Water-cress	2005						
<i>Rubus fruticosus</i> agg.	Bramble	2005	1998					
<i>Rumex acetosa</i>	Common sorrel	2005	1998					PIL
<i>Rumex acetosella</i>	Sheep's sorrel	2005	1998			AG		

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Group/Species	Common Name	Source		Status	Indicator Species (SWWSP 2004)				
					W	NG	AG	MG	PIL
<i>Rumex obtusifolius</i>	Broad-leaved dock	2005	1998						
<i>Sagina procumbens</i>	Procumbent pearlwort	2005							
<i>Scrophularia nodosa</i>	Figwort	2005			W				PIL
<i>Senecio jacobaea</i>	Common ragwort	2005	1998						
<i>Silene alba</i>	White campion		1998						
<i>Solidago altissima</i>	Canadian goldenrod	2005							
<i>Sonchus arvensis</i>	Perennial sow-thistle	2005							
<i>Sonchus sp.</i>	Sow-thistle species		1998						
<i>Sparganium erectum</i>	Branched bur-reed	2005							
<i>Stellaria graminea</i>	Lesser stitchwort		1998				NG		
<i>Taraxacum officinalis</i>	Dandelion	2005	1998						
<i>agg.</i>									
<i>Tragopogon pratensis</i>	Goats-beard		1998						PIL
<i>agg.</i>									
<i>Trifolium dubium</i>	Lesser trefoil	2005	1998						
<i>Trifolium pratense</i>	Red clover	2005	1998				NG		
<i>Trifolium repens</i>	White clover	2005	1998						
<i>Tussilago farfara</i>	Colt's-foot	2005	1998						PIL
<i>Typha latifolia</i>	Greater reedmace	2005							
<i>Urtica dioica</i>	Common nettle	2005	1998						
<i>Vaccinium myrtillus</i>	Bilberry	2005	1998	Local	W		AG		PIL
<i>Verbascum thapsus</i>	Great mullein	2005							PIL
<i>Veronica arvensis</i>	Wall speedwell	2005							
<i>Veronica beccabunga</i>	Brooklime	2005	1998						MG
<i>Veronica chamaedrys</i>	Germander speedwell	2005							
<i>Veronica officinalis</i>	Heath speedwell	2005	1998	Local			NG	AG	
<i>Veronica persica</i>	Common field speedwell	2005							
<i>Veronica serpyllifolia</i>	Thyme-leaved speedwell	2005							
<i>Vicia cracca</i>	Tufted vetch		1998				NG		
<i>Vicia sativa</i>	Common vetch	2005	1998						
<i>Vicia sepium</i>	Bush vetch	2005	1998						
Bryophytes									
<i>Aulacomnium palustre</i>		2005							
<i>Bryum argenteum</i>		2005							
<i>Bryum species</i>		2005							
<i>Dicranum scoparium</i>		2005						AG	
<i>Hylocomium splendens</i>		2005							
<i>Hypnum jutlandicum</i>		2005							
<i>Lepidozia reptans</i>		2005							
<i>Pleurozium schreberi</i>		2005						AG	
<i>Polytrichum juniperinum</i>		2005							
<i>Polytrichum sp.</i>		2005	1998						
<i>Pseudoscleropodium purum</i>		2005							
<i>Rhytidiadelphus squarrosus</i>		2005							
<i>Polytrichum formosum</i>			1998					AG	
<i>Sphagnum sp.</i>			1998						

Group/Species	Common Name	Source	Status	Indicator Species (SWWSP 2004)				
				W	NG	AG	MG	PIL
Lichens								
<i>Cladonia</i> sp		2005	1998					
<i>Peltigera</i> sp.		2005						
<i>Peltigera canina</i>	Dog lichen		1998					

Key

Status

RDB - Red Data Book

NS - Nationally Scarce

PS - Primary Species in SWWSP (2004)

CS - Contributory Species in SWWSP (2004)

IA – Invasive Alien

Indicator Species (SWWSP 2004)

W - Woodland, NG - Neutral Grassland, CG - Calcareous Grassland, AG – Acid Grassland, PIL – Post Industrial Land

SINC selection guidelines (SWWSP 2004)

Sites which support 1 primary species, 5 contributory species, or 8 neutral grassland, 8 calcareous grassland, 7 acid grassland or 12 marshy grassland indicator species should be considered for selection as a SINC. Post Industrial sites should be considered for selection as SINC's if they support 20 or more indicator species from the combined post industrial land and acid, neutral, calcareous and marshy grassland lists.

Mammals		European Protected Species	1981 Wildlife & Countryside Act	UK BAP	Welsh BAP Priority	Blaenau Gwent LBAP	Status on Site/Notes
<i>Myotis</i> sp	Bat, myotid	Yes	5	SoCC		BG	Foraging
<i>Nyctalus noctula</i>	Bat, noctule	Yes	5	SoCC		BG	Foraging
<i>Pipistrellus pipistrellus</i>	Bat, pipistrelle	Yes	5	Prio	*	BG	Foraging
<i>Vulpes vulpes</i>	Fox						Inferred from droppings
<i>Apodemus sylvaticus</i>	Mouse, wood						Seen under refugia
<i>Oryctolagus cuniculus</i>	Rabbit						Seen on site
<i>Sorex araneus</i>	Shrew, common		6	SoCC			Seen under refugia
<i>Sciurus carolinensis</i>	Squirrel, grey						Seen on site
<i>Clethrionomys glareolus</i>	Vole, bank						Inferred from feeding remains
<i>Microtus agrestis</i>	Vole, field						Seen under refugia

Key

European Protected Species: *Habitats Regulations 1994*: highest level of protection

Wildlife & Countryside Act 1981: confers protection in UK context

5 : Schedule 5: full protection which includes places used for shelter and protection

5(pt) : Protection of places used for shelter and against disturbance whilst in such a place

6 : Schedule 6: may not be killed or captured without a licence

All other mammals are protected against killing by certain specified means

PBA : *Protection of Badgers Act 1992*: full protection which includes places used for shelter and protection

DA : *Deer Acts (various)*: generally protected against killing or capture, except under specified conditions

UK BAP (Biodiversity Action Plan)

Prio : Priority Species

SoCC : Species of Conservation Concern

Welsh BAP Priority

* : List of Species & Habitats of Principle Importance for Conservation of Biological Diversity (2003).

LBAP

BG : Species listed in the Blaenau Gwent Local Biodiversity Action Plan

Birds								Status on Site/Notes	
		EU Birds Directive	Wildlife & Countryside Act	UK BAP	Wales BAP	UK BOCC	Wales BOCC	Local Status	Blaenau Gwent LBAP
<i>Turdus merula</i>	Blackbird		G						
<i>Buteo buteo</i>	Buzzard		G	C					
<i>Fringilla coelebs</i>	Chaffinch		G						
<i>Corvus corone</i>	Crow, carrion		V						
<i>Prunella modularis</i>	Duncock		G	C		A			
<i>Regulus regulus</i>	Goldcrest		G	C		A			
<i>Carduelis carduelis</i>	Goldfinch		G	C					
<i>Corvus monedula</i>	Jackdaw		V						
<i>Garrulus glandarius</i>	Jay		V						
<i>Falco tinnunculus</i>	Kestrel		G	C		A	A	C	
<i>Pica pica</i>	Magpie		V						
<i>Columba palumbus</i>	Pigeon, wood		V						
<i>Anthus pratensis</i>	Pipit, meadow		G	C		A			
<i>Corvus corax</i>	Raven		G						
<i>Carduelis spinus</i>	Siskin		G	C					
<i>Gallinago gallinago</i>	Snipe		S	C		A	A	P	BG
<i>Parus caeruleus</i>	Tit, blue		G	C					
<i>Parus ater</i>	Tit, coal		G	C					
<i>Parus major</i>	Tit, great		G	C					
<i>Aegithalos caudatus</i>	Tit, long-tailed		G						
<i>Picus viridis</i>	W/pecker, green		G	C		A	A	C	BG

Key

EU Birds Directive 1979:

1 : Annex 1 species: special conservation measures apply

1¹ : Selected subspecies only

Wildlife & Countryside Act 1981: confers protection in UK context

G : Species protected under general provisions of WCA against killing, injury, capture and disturbance while nesting: protection extends to nests, eggs and young

S : Special cases: identified 'game' species which may be killed under licence in certain circumstances

V : 'Pest' species: may be killed or taken under licence in special circumstances

1 : Schedule 1: additionally protected by special penalties

UK BAP (Biodiversity Action Plan, 1995; 1998)

P : Priority Species

C : Species of Conservation Concern

Wales BAP

W : List of Species & Habitats of Principle Importance for the Conservation of Biological Diversity (2003)

UK Birds of Conservation Concern: lists compiled by the bird conservation agencies (2002)

R : Red List: species of greatest concern

A : Amber List: birds of moderate concern

Wales Birds of Conservation Concern: lists compiled by the bird conservation agencies (2003)

- R : Red List: species of greatest concern
 A : Amber List: birds of moderate concern

Local Status

- P : Primary species. Sites supporting breeding populations or wintering or regular passage refuelling populations of these species should be considered for selection as SINC's.
 C : Contributory species. Sites supporting 8-10 of these species should be considered for selection as SINC's.

LBAP

- BG : Species listed in the Blaenau Gwent Local Biodiversity Action Plan

Invertebrates

Group/Species	Common Name	Status	Source
Hymenoptera	Bees, Wasps & Ants		
<i>Lasius flavus</i>	Yellow meadow-ant		
<i>Lasius niger</i>	Black ant		
Odonata	Dragonflies & Damselflies		
<i>Aeshna juncea</i>	Common hawkler		
Lepidoptera	Butterflies		
<i>Aglais urticae</i>	Small tortoiseshell		
<i>Pararge aegeria</i>	Speckled wood		
<i>Pieris brassicae</i>	Large white		

APPENDIX 2: DEFINITIONS OF SITE VALUE

International Value

Site carrying an internationally recognised designation such as Ramsar Site, World Heritage Site, Special Protection Area, Special Area of Conservation, Biosphere Reserve or Biogenetic Reserve, or:

Habitats: site supporting nationally significant areas of habitats of defined international community interest.

Species: site supporting nationally significant populations of species of defined international community interest.

National Value

Site meeting published Site of Special Scientific Interest (SSSI) designation criteria (NCC 1989), whether so designated or not.

Habitats: site supporting nationally significant areas of habitats of defined national rarity or interest.

Species: site supporting nationally significant populations or communities of UK Red Data Book, Nationally Notable or protected species (other than badger).

County Value

Site identified as a County Wildlife Site (CWS), Site of Importance to Nature Conservation (SINC) or similar at the county level (ie greater than district, borough or city level); meeting published CWS designation criteria (where these exist), but falling short of SSSI designation criteria, whether designated as a CWS or not.

Habitats: site supporting good examples of nationally threatened habitats, or extensive areas of habitats which are rare or unique in the county.

Species: site supporting large or strong populations or communities of nationally rare or protected species (other than badger), or of species which are rare in the county and uncommon nationally.

District Value

Sites failing to meet County Value criteria, but nevertheless supporting habitats, species or communities which appreciably enrich the ecological resource of the county, especially by virtue of their size or extent.

Habitats: sites supporting habitats uncommon in the county, small but unmodified fragments of nationally threatened habitats, or comprising extensive areas or systems of semi-natural habitats.

Species: sites supporting nationally rare species, or strong populations or communities of regionally uncommon species, which would not otherwise be present (ie they are critically dependant on the site characteristics).

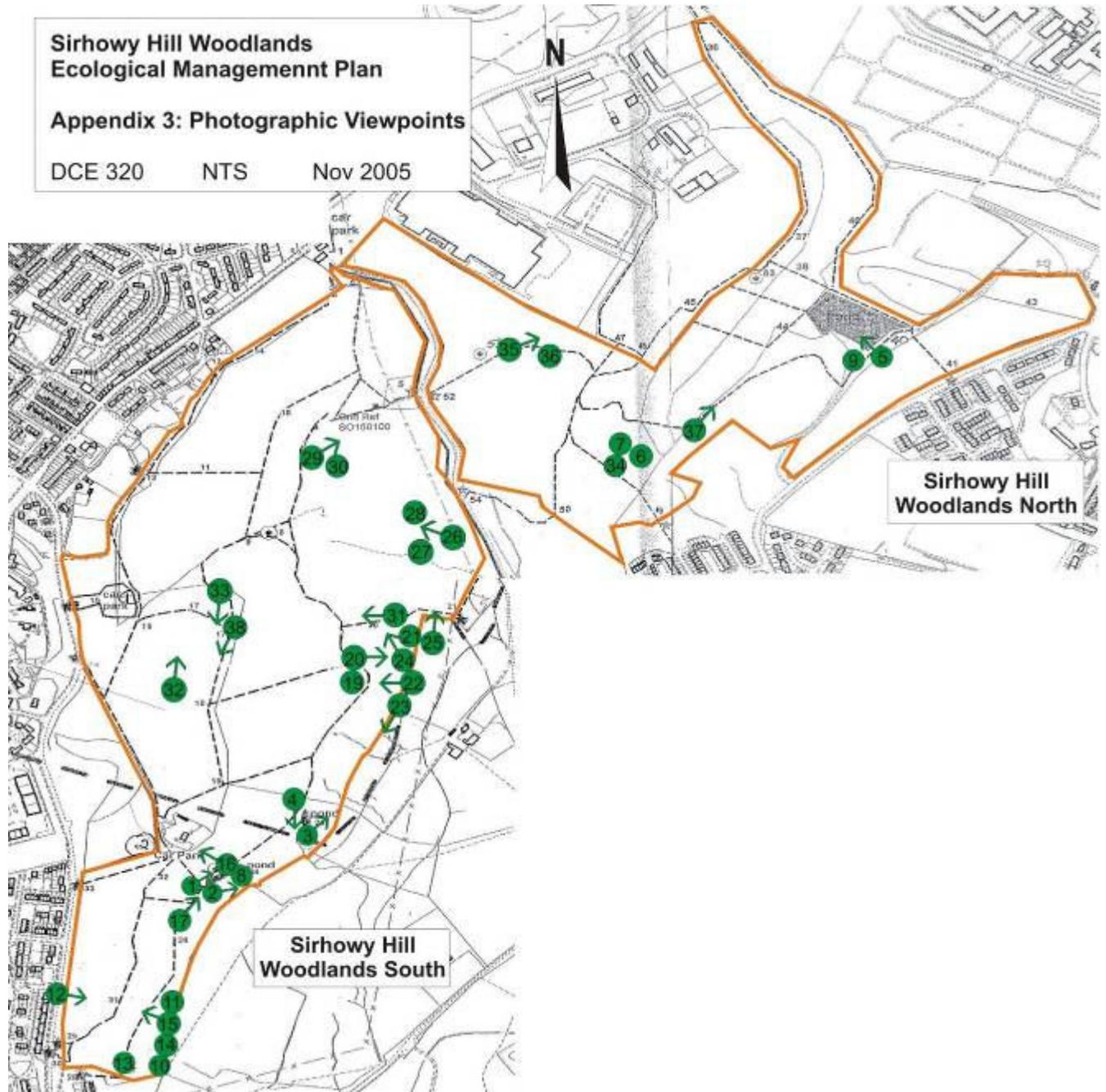
Local Value

Habitats which fail to meet District Value criteria, but which appreciably enrich the ecological resource of the locality. This category can be further divided into:

- **High Local Value**: just failing to meet District Value Criteria; supporting species which are notable or uncommon in the county; or species which are uncommon, local or habitat-restricted nationally, and which might not otherwise be present in the area.
- **Local Value**: sites which are of ecological value only in the context of their immediate surroundings. Rare or un species may occur but are not restricted to the site or critically dependant upon it for their survival in the area.

Sites failing to meet any of the above can be considered as being of '**Negligible**' ecological value.

APPENDIX 3: PHOTOGRAPHIC VIEWPOINTS



APPENDIX 4: PHOTOGRAPHIC RECORDS



Photo 1: Pond 1 (facing north)



Photo 2: Pond 1 (eastern bank)



Photo 3: Pond 2



Photo 4: Pond 2



Photo 5: Pond 3 (facing north west)



Photo 6: Heathland



Photo 7: heathland and Acid grassland mosaic



Photo 8: heathland under-storey under woodland canopy surrounding Pond 1



Photo 9: Ephemeral grassland



Photo 10: heathland and acid grassland mosaic



Photo 11: Sandstone rock outcrop



Photo 12



Photo 13



Photo 14



Photo 15



Photo 16



Photo 17



Photo 18



Photo 19



Photo 20



Photo 21



Photo 22



Photo 23



Photo 24



Photo 25



Photo 26



Photo 27: Purple moor grass dominated grassland



Photo 28



Photo 29



Photo 30



Photo 31



Photo 32



Photo 33



Photo 34



Photo 35



Photo 36

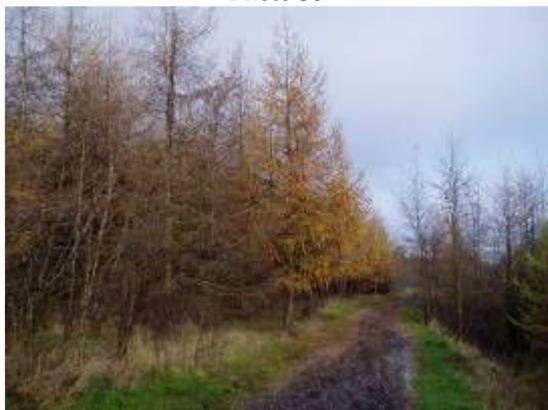


Photo 37



Photo 38

APPENDIX 5: PROJECT RECORDING FORM – BLANK EXAMPLE

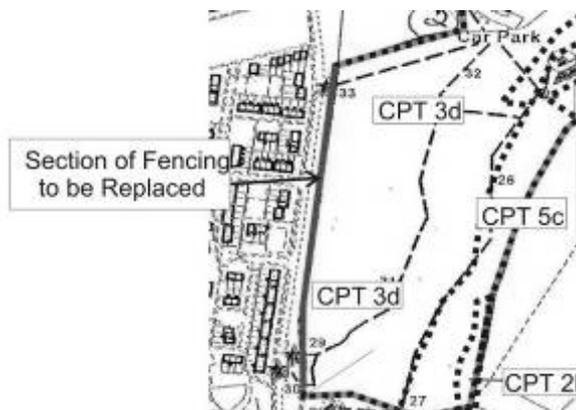
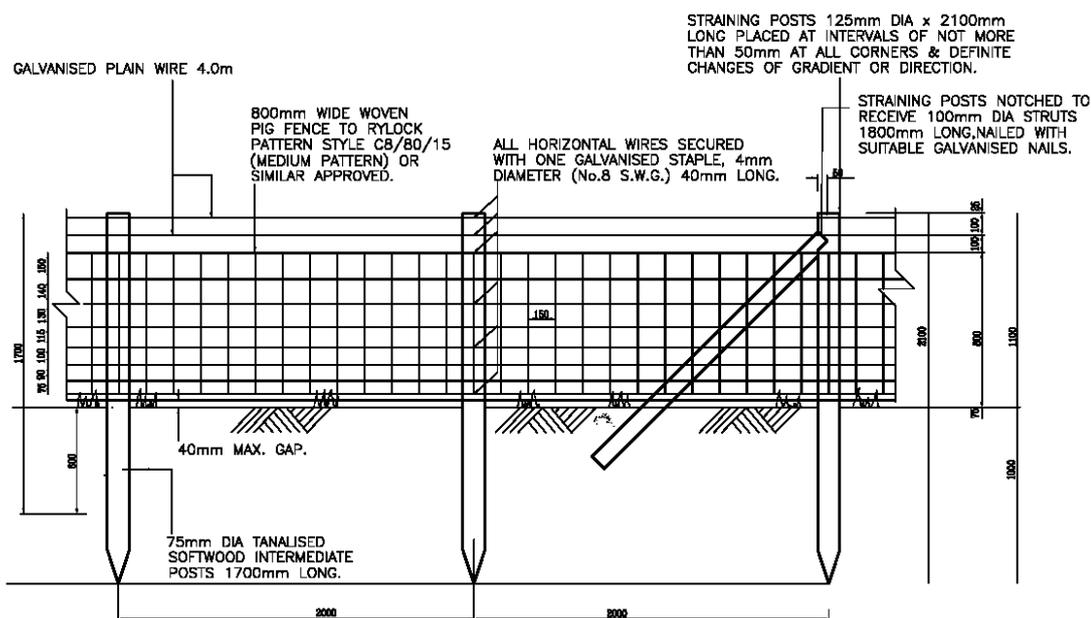
Site name: Sirhowy Woodlands			Site code (if applicable)				Management plan year No.					
Project title:						Form completed by						
Objective in Management Plan:									Compartment No.			
Project active	J	F	M	A	M	J	J	A	S	O	N	D
Project priority	Photograph No.											
Estimated cost	£	Actual cost			£	Grant Income		£				
Personnel		Estimated Man Days					Actual Man Days					
Staff (BGCBC / TCW Project)												
Volunteers												
Contactors												
Other (Specify)												
Description/Specification of Works												
Report												

APPENDIX 6: PROJECT RECORDING FORM – COMPLETED EXAMPLE

Site name: Sirhowy Woodlands		Site code (if applicable)		South		Management plan year No.		2006					
Project title: Fencing				Form completed by				Paul Hudson					
Objective in Management Plan: Fence boundaries to control access						Compartment No.				3d			
Project active		J	F	M	A	M	J	J	A	S	O	N	D
Project priority		1	Photograph Reference No.				F1-10-30						
Estimated cost		£3000		Actual cost		£3000		Grant Income		£3000			
Personnel				Estimated Man Days				Actual Man Days					
Staff (BGCBC / TCW Project)				-				-					
Volunteers				-				-					
Contractors				14				14					
Other (Specify)				-				-					

Description/Specification of Works

Fencing to be replaced along western edge of Compartment 3d, following specification outlined below.



Report

Work commenced on May 10 and was completed on 22 May by contractors. Fencing was installed to a high standard.