



Bryngoleu



Ecological Management Plan 2020-2022

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1. Introduction

This ecological management plan has been produced under consultation with Merthyr Tydfil County Borough Council.

The management plan will be shared with MTCBC Countryside, Estates and Rights of Way departments, and with local organisations for consideration and taking action where possible.

It is intended that this plan will be used as a guide and a reference by future projects or local community groups who are interested in using the space.

The management plan may be used to attract future funding and it is hoped that it will assist with the Local Nature Reserve designation process, or in gaining other titles for the park such as the Green Flag Award.

This management plan suggests actions which may help to deliver on the targets of the Merthyr Tydfil Local Biodiversity Action Plan (2014-2019) and the Merthyr Tydfil Nature Recovery Action Plan (2018-2023).

2. Rationale

The Merthyr Tydfil Open Space Strategy (2016) provides a long term framework to protect and develop a network of high-quality open spaces that deliver a range of social, economic and environmental benefits. The Strategy identified Merthyr Vale ward as having issues relating to the accessibility of open spaces and the linear nature of settlements in the area acting as a barrier to access to green spaces along the valley. Bryngoleu was not identified as one of the 3 major spaces suggested for improvements, however it was noted that the site should be utilised for play opportunities where appropriate, that control of invasive species was necessary, as well as expanding the opportunity for biodiversity management, and control of fly tipping.

As well as being flagged by MTCBC in the Open Spaces Strategy, Merthyr Tydfil housing association, who were nearing completion of 23 new properties immediately adjacent to Bryngoleu, recognised the need for more activities and opportunities for their residents. Residents had expressed their feelings of isolation need for activities and focal community space:

"We as a housing association struggle to meet the need of all our residents in the area. There are simply not enough activities and funding.... The residents feel that having something that they can work on together and not have to worry about getting to/from, something that's theirs' would be beneficial. From our perspective, encouraging tenants to take ownership of their area is a key element of creating healthy, sustainable communities." - Carly Litchfield, MTHA.

3. Introduction to the site

Site name: Bryngoleu, also known locally as Patsy's Field.

Location: South of Aberfan, between the river Taff and the housing estate. See Figure 1.

Area: 4.15 ha

Centre Grid Reference: ST07569919

Owner: Merthyr Tydfil County Borough Council

Designations: The site sits within SINC 34, Aberfan Gorllewin /West Aberfan. It also sits within a TPO.

Site description

The site comprises of an open grassland area, mixed woodland and interface with the riparian zone. There are several pathways, a bench, and the remains of the old railway line which is now used as a footpath.

Historical and social context

Very little is believed to have changed to the main woodland and grassland area of Bryngoleu since 1875. In 1886 the Quakers Yard and Merthyr Railway opened a line operated by Great Western Railway and Rhymney Railway, which dissected the site and reduced the size of the grassland. Services along this line ended by 1951 and maps of the area from 1957 show that housing had been built right up to the old line. Currently the site is used mostly by local dog walkers.

Geology and soils

The site sits on top of a bedrock of Brithdir Member, or Pennant sandstones. There are superficial deposits of sedimentary sand and gravel.



Figure 1. The location and extent of the Bryngoleu site

4. Vision Statement for Bryngoleu

Bryngoleu will be managed to maintain and enhance the existing biodiversity value of the site, whilst promoting its importance as an outdoor recreational area for local residents, communities and schools.

Bryngoleu will comprise of a mosaic of different habitat types including broadleaved semi-natural woodland, neutral and marshy grassland, scrub and running water.

The woodland will contain a range of native tree species of mixed age and structure. The woodlands will be rich in bryophyte and lichen biodiversity, and will support fungi within the piles of deadwood that are left on the woodland floor. Mature and suitable trees will house nest boxes for breeding birds, and the woodlands will offer opportunities for bat feeding and roosting. Due to the steep nature of the woodland in some parts there is limited access into the woodland, although some existing suitable areas will be developed to allow for creative and wild play.

The open grassland will be managed to create high quality wildflower meadows, containing a mix of grasses and wildflowers. Management of the grassland will prevent coarser grasses or rushes from becoming dominant, and encroaching scrub and bramble will be removed to maintain the extent and quality of the grassland.

When resources allow, the invasive non-native Himalayan balsam and Japanese knotweed on site should be controlled with the aim of eradication.

The park will be a continuing focal point for the local communities as a recreation area, where people can come enjoy the outdoor space. The aesthetics and welcoming nature of the park will be increased by creation of clear footpaths with open aspects, and the installation of improved signage and new boundary features. Negative human impacts such as fly tipping, littering and dog fouling will be limited as much as possible.

5. Conservation value

5.1 Habitat

There are a number of different habitats present at Bryngoleu which in turn provide for a number of national and locally important species.

5.1.1 Semi natural broadleaved woodland

It is believed that much of the woodland which can be found at Bryngoleu is the same woodland which was present as far back as 1875. It is ancient woodland of mixed species such as oak *Quercus petraea*, ash *Fraxinus excelsior*, alder *Alnus glutinosa*, birch *Betula sp*, and hazel *Corylus avellana*. Hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa*, can be found at the woodland edges. The undergrowth within the woodland blocks includes bramble *Rubus sp*, Dryopterid ferns, and some ancient woodland indicator species such as bluebell *Hyacinthoides non-scripta* and wild garlic *Allium ursinum*.

5.1.2 Neutral Grassland

The grassland is made up of a mix of coarse grasses such as Cock's-foot *dactylis glomerata*, False Oat-grass *Arrhenatherum elatius*, Yorkshire-fog *Holcus lanatus*, and finer grass species such as crested dogs tail *Cynosurus cristatus*. The grassland also contains creeping buttercup *Ranunculus repens*, Cuckoo flower

Cardamine pratensis, Germander Speedwell *Veronica chamaedrys*, Wood forget me not *Myosotis sylvatica*, Red campion *Silene dioica*, Herb Robert *Geranium robertianum* and Pignut *Conopodium majus*.

5.1.3 Marshy Grassland

Parts of the site remain fairly wet and contain marshy grassland which is made up of meadowsweet *Filipendula ulmaria*, lesser celandine *Ficaria verna*, rosebay willowherb *Chamerion angustifolium*, and soft rush *Juncus effusus*, amongst many other species.

5.1.4. Streams

There are some small streams and flushes within the woodland at Bryngoleu, which contribute to the diversity of habitats at the site and improve the suitability of the site for certain species such as amphibians. Streams provide excellent habitat for invertebrates, birds, small mammals and have a flora of their own.

5.1.5 Scrub

There are some areas of scrub within the interface habitats between woodland and grassland, along the river, and between the woodland and the old railway line. The scrub is mostly made up of bramble *Rubus sp*, hawthorn *Crataegus monogyna* and blackthorn *Prunus spinose*. There are discrete areas of bracken *Pteridium sp* scrub within the woodland. Dense scrub has significant biodiversity value and offers refuge and forage for numerous bird species including linnets *Carduelis cannabina* and shelter for hedgehogs *Erinaceus europaeus*, which are Section 42 species. The blossom on scrub trees and bramble also provide resources for bees and other insects.

5.2 Species

Bryngoleu contains a number of species which hold local, regional or even national significance.

5.2.1 Bats

All species of bats and their roosting sites 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 EU Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, implemented in the UK via the Conservation of Habitats and Species Regulations 2017. Several bats, including common pipistrelle, are listed as 'Priority Species' for conservation in the UK Biodiversity Action Plan, succeeded by the UK Post-2010 Biodiversity Framework and 6 bat species are included in the Merthyr Tydfil Local Biodiversity Action Plan (2014-2019).

Three species of bat have been recorded within the boundaries of Bryngoleu; common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and daubenton's bats *Myotis daubentonii*. The ancient woodland present within the site, the woodland edges, grassland, and river corridor all provide habitats where insect life is present and bats can feed.

5.2.2 Otter

Otter *Lutra lutra* is also a 'European Protected Species', afforded the highest level of statutory protection available in the UK under both British domestic and European legislation, and similar in status to bats (see above). Statutory protection also extends to its habitats, it is a 'Priority Species' of the UK BAP and its Welsh equivalent, and is part of the Merthyr Tydfil Local Biodiversity Action Plan (2014-2019).

During the last few decades otters have begun to re-colonise many river systems in south Wales where they previously occurred, but were lost from in the 1960s and 1970s. Otter is now well-established within Merthyr County Borough and it is a species which may be present as a visitor to Bryngoleu.

5.2.3 Red Fox

The Red fox (*Vulpes vulpes*) is protected by several pieces of legislation which prevent certain measures of capture or dispatch, but it is not afforded full legal protection and can be controlled by several means. The British Trust for Ornithology had been monitoring the status of fox populations in the UK and announced that it has fallen by a staggering 41% between 1995 and 2017. Red fox have been recorded 2km away and may travel through the site.

5.2.4 Other Mammals

Rabbits and Hedgehogs are known to occur on the site and it is likely that there will be a range of other common mammals including stoats, weasels, common shrews, bank and field voles and wood mice. Non-native species are so far limited to brown rats, grey squirrels and rabbits.

5.2.5 Birds

Nearly all species of bird are protected under UK legislation as individuals, and this protection extends to their nests, eggs and young. A number of especially rare species are subject to enhanced protection under the amended Wildlife & Countryside Act 1981. So far 18 species of birds have been recorded on the site including Willow warbler, Swallow, Grey heron, Chiff chaff and buzzard.

5.2.6 Reptiles

With some habitat areas suitable for reptiles, and plenty of interface habitat between the woodland, grassland and nearby gardens, it is possible that some species of reptile may be found at Bryngoleu including common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis*. These are all afforded 'partial protection' under the amended Wildlife & Countryside Act 1981, which prohibits the deliberate or reckless killing or injury of individuals. However, there is no direct protection extended to the habitats which support these species. Whilst not rare nationally, these species are nevertheless listed as 'Species of Conservation Concern' in the UK BAP. Slow worms have been recorded 1km away from Bryngoleu and common lizard within the same 1km square as the site.

5.2.7 Amphibians

Five native amphibian species occur in Merthyr county borough, comprising common frog, common toad, smooth newt, palmate newt and great crested newt. The latter species is nationally rare and declining, and is afforded full protection under both UK and European legislation, which also extends to the habitats which support it. The other four species are not afforded any direct statutory protection, other than with respect to trade. Both common toad and great crested newts are on the Section 42 list as species of principle importance for conservation of biological diversity in Wales.

There are several streams running through Bryngoleu to the river, which may support frogs and toads. It is likely that all the common amphibian species utilise woodland and scrub areas in the terrestrial phases of their lifecycles and it is important that this is taken into consideration when carrying out habitat management work.

5.2.8 Invertebrates

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. At Bryngoleu there are currently 26 species of invertebrates recorded, including Lepidoptera, Beetles, and Hymenoptera, although there haven't as yet been many concerted efforts to discover and identify the full range of species to be found there.

5.2.9 Fungi

With plenty of habitat on site there will be opportunities for a range of fungi species on site. Currently only 1 species has been recorded, Cobalt crust, which has been recorded fairly frequently in south Wales. However, further survey effort will undoubtedly reveal fungi in the woodland, on the deadwood on the woodland floor, and on vegetation in the grassland.

5.2.10 Invasive species

Invasive non-native species at Bryngoleu include Japanese knotweed *Fallopia japonica* and Himalayan balsam *Impatiens glandulifera*. At the site both of these species can be found growing in dense stands along the river banks and also within the woodland, see Figure 2 for locations.

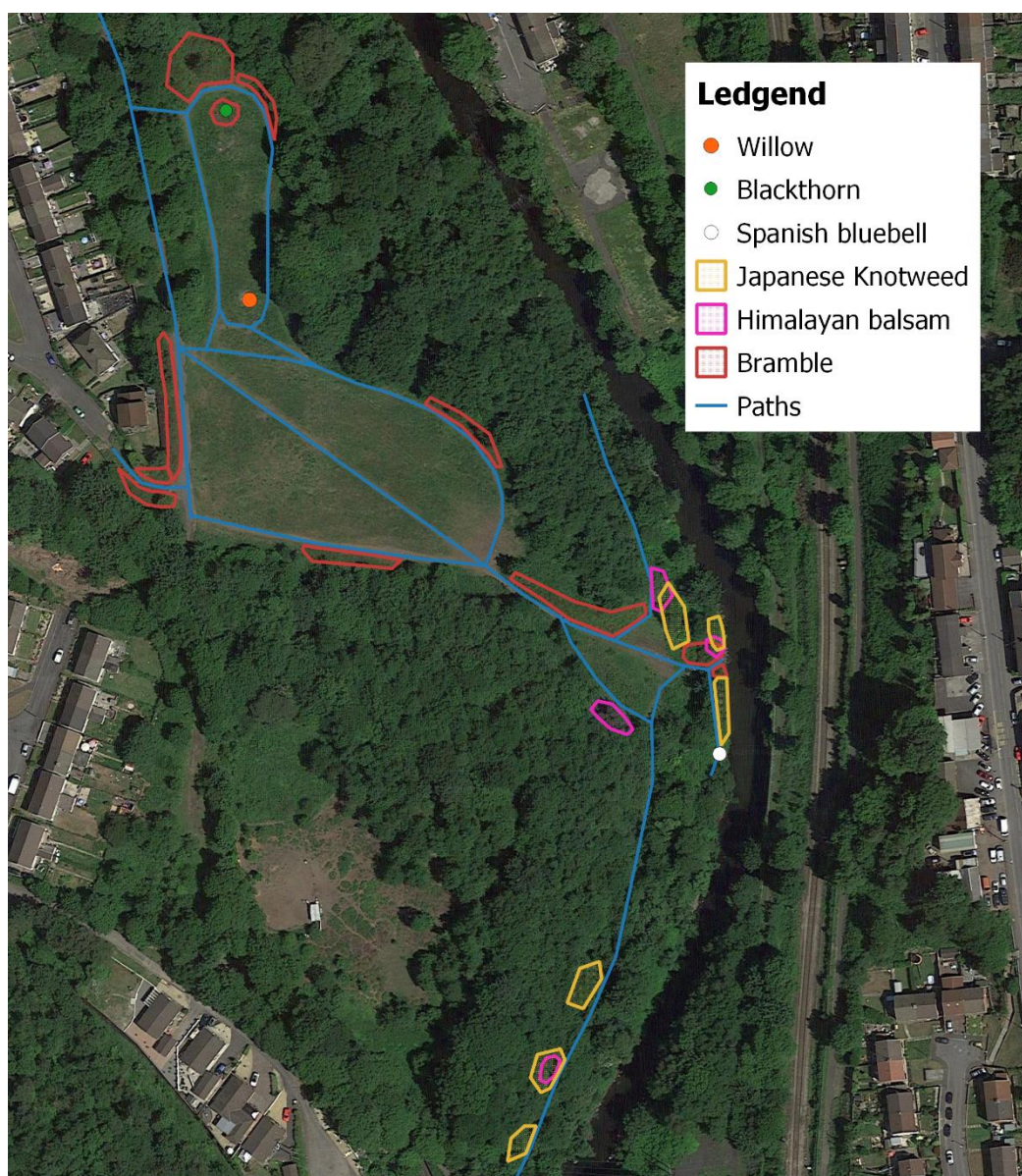


Figure 2. The invasive species, both native and non-native, which can be found at Bryngoleu.

6. Management Strategy

6.1 Priority Two Year Aims

6.1.1 Semi natural broadleaved woodland

The woodland may need future management involving some thinning to allow light into the woodland floor to promote regeneration and retain a range of ages including both mature trees and saplings. Where possible the woodland will be encouraged to spread if it is not to the detriment of other quality habitat.

6.1.2 Neutral grassland

The neutral grassland at Bryngoleu will be cut and the arisings removed to reduce the dominance of coarse grasses. The cutting will create a sward structure that is varied in height. Grass cuttings will be piled to create reptile habitat.

6.1.3 Marshy grassland

The marshy grassland will be cut to prevent the dominance of rushes and coarse grasses, and will contain a diverse mix of species.

6.1.4 Streams

The streams will be managed as natural riverine habitats, with a flow free from litter and fly-tipping.

6.1.5 Scrub

Scrub, including hawthorn and bramble, will be managed to maintain some areas for habitat and cover, but to prevent it from becoming too dominant on the site overall, or from encroaching on other habitat types.

6.1.6 Invasive species

A longer term aim for Bryngoleu would be to remove all non-native invasive flora, but this typically takes a minimum of 3 years with concerted effort.

6.2 Management units

6.2.1 Semi natural broadleaved woodland

Objectives

- Maintain the extent of the ancient woodland habitat and ensure there is a mixed age structure.
- Survey the woodland to identify any areas which may need thinning.

Management prescriptions

Prescription	Description	Rationale	Methodology
Survey the accessible areas of the woodland	Assess whether woodland management might be necessary.	To provide future guidance on whether the woodland might benefit from creating light through thinning to help regeneration.	Survey the accessible areas of woodland to record grid references of where the ground flora and understorey is depleted and may benefit from woodland management.

6.2.2 Neutral grassland

Objectives

- Increase the floristic diversity of neutral grassland habitat.
- Maintain the extent of the neutral grassland habitat.

Management prescriptions

Prescription	Description	Rationale	Methodology
Cutting	Mow or strim the neutral grassland once a year.	To prevent scrub encroachment and to reduce the dominance of coarse grasses. To create a sward structure that is varied in height.	Annual cut in September of the neutral grassland or a different section of it each year. Remove the arisings and pile them at the periphery of the field for reptile habitat.

6.2.3 Marshy grassland

Objectives:

- Increase the floristic diversity of marshy grassland habitat.
- Maintain the extent of the marshy grassland habitat.

Management prescriptions

Prescription	Description	Rationale	Methodology
Cutting	Mow or strim the marshy grassland once a year.	To reduce <i>Juncus</i> and the dominance of hardy grasses, and to promote more diverse flora.	Select an area to cut twice a year (January/February & September/October). Remove the arisings and pile them at the periphery of the field for reptile habitat. Record areas cut each year and rotate.

6.2.4 Streams

Objectives:

- Maintain a natural riverine habitat free from litter and fly-tipping.

Management prescriptions

Prescription	Description	Rationale	Methodology
Maintain a natural riverine habitat	Remove litter and flytipping from the streambeds.	To improve the habitat for wildlife such as dragonflies and aquatic invertebrates.	Using litter picking equipment do all litter picking from the banks of the stream. If necessary use waders to access parts of the stream.

6.2.5 Scrub

Objectives:

- Maintain some areas of dense scrub where it is established.
- Reduce areas of scrub where it is encroaching on other habitat types.

Management prescriptions

Prescription	Description	Rationale	Methodology
Scrub control	Removal of bramble or young woody scrub trees such as hawthorn from areas where it is encroaching on other habitats.	To prevent loss of high quality grassland habitat.	Bramble can be cut by machine or manually. Scrub trees are best pulled when very small or cut flat and low to the ground outside of the bird breeding season (September- February).

6.2.6 Invasive species

Objectives:

- Remove Himalayan balsam where possible to prevent its spread across the site
- Arrange for Japanese knotweed to be professionally treated to reduce its spread across the site.

Management prescriptions

Prescription	Description	Rationale	Methodology
Himalayan balsam removal	Removal of Himalayan balsam where possible, focusing on areas where it might spread into other habitat.	To prevent loss of habitat through shading and competition, and to prevent destabilisation of the river and stream banks and slopes.	Pull directly from the ground by hand and hang on trees or pile it. The stem must be crushed near the root, below the lowest node to prevent regrowth. The plant should be pulled from May until August, or until it produces seed pods.
Japanese knotweed control	Professional chemical treatment of knotweed should be sought.	To prevent loss of habitat through shading and competition.	Japanese knotweed needs a spray or injection treatment with Glyphosate to remove it, which should be repeated for 3-5 years.

7. Artificial habitats

In addition to the natural habitats within Bryngoleu adding some artificial habitats could benefit a number of select species. Within Bryngoleu it is suggested that suitable artificial habitats might include:

- Bird nesting boxes
- Bat boxes
- Hedgehog houses
- Amphibian and reptile hibernacula

7.1 Bird nest boxes

Five nesting boxes for birds have already been sited on some of the larger trees at Bryngoleu (see Appendix 1). The boxes used were made by volunteers and are wooden, 4 with entrance holes 25mm wide and one with a hole 32mm wide, which could be used by birds such as blue tits, coal tits, marsh tits and tree sparrows as well as great tits and house sparrow. They were sited at a height of between approximately 2- 4m and where possible faced North East. More nest boxes could be installed within the woodland if suitably large and accessible trees can be found to place them on. It may also be beneficial to offer a Tawny owl nest box but this would need to be placed on a mature tree, and within the woodland rather than on the edges. Bird nesting boxes can be cleaned out once a year after the breeding bird season and throughout the active season could be watched to monitor which species are using them.

7.2 Bat boxes

Three bat species have been recorded at Bryngoleu and the addition of bat boxes might provide spaces for these species to roost or raise young. On a number of large trees at Bryngoleu several boxes should be put up around the tree facing different directions, including south or south west, to provide a range of conditions. Trees at the edges of the woodland, and along the river would be best since the bats may be using the tree lines for navigation. The boxes should be sited at least 4m above the ground or as high up the

tree as possible. Once the bat boxes are securely sited in the trees they should not be disturbed and must only be checked by someone with a bat licence. However, the boxes can be monitored via an emergence survey where the boxes are watched at dawn or dusk to see if bats are leaving and returning.

7.3 Hedgehog houses

There is 1 hedgehog house at Bryngoleu (see Appendix 1). It was sited in dense bramble scrub the woodland floor. The hedgehog house was the igloo style type made from a steel frame covered in a brush wood finish and covered in rattan matting. Once in place it was covered over to camouflage it and was pegged down, and filled with dried leaves to provide some bedding materials, as shown in figure 3. Providing hedgehog houses is a good way to ensure that there are suitable sites for hedgehog hibernation. Hedgehog houses can be monitored by placing something moveable by a hedgehog (but not the wind) for example a scrunched up ball of newspaper at the entrance to the house and seeing if it is moved during the spring and summer when hedgehogs are active. Hedgehog footprint tunnels have been used at the park previously (see figure 3) and are a good way to monitor small mammal activity.



Figure 3. A well-hidden hedgehog house in the woods at Bryngoleu and showing children from the local primary school some hedgehog footprints in a tunnel set at the site.

7.4 Amphibian and reptile hibernacula

There is currently no artificial amphibian and reptile hibernacula at Bryngoleu but since there are a number of species which would benefit from this, it is recommended that the habitat is introduced. To create the

hibernacula, a southerly location with full sunshine should be selected and a hole dug to about 50cm deep and 1.5m across. The hole should be filled with logs, branches, bricks and rocks, with lots of gaps between these materials, and banked up to create a mound. At ground level insert into the hole several entrance tubes (made from plastic drainpipe cut offs which have been sanded internally to create a surface for the animals to grip onto, or cement pipes). Cover the pile with soil to about 50cm high, and either cover with the turf which was removed to create the hole, or plant with a native wildflower meadow seed mix.

Reptile refugia can be used to monitor the amphibian and reptile activity at Bryngoleu, along with other small mammals which will use the sheets for shelter. Sheets should be placed in locations at the edge of habitat where the sun will be able to warm them up, but they won't be subject to disturbance. They can then be monitored to add to our understanding of the species at Bryngoleu.

8. Access and Recreation

The access and public use value of the park can potentially bring many benefits both for the residents and for the environment in general. Access to the park and the opportunity to engage in activities there can help to enhance quality of life and assist in raising environmental understanding and awareness. However these potential benefits need to be balanced against the negative effects of access and public use, such as disturbance to wildlife, erosion of the landscape and littering or fly-tipping.

Objectives:

- Encourage community use and enjoyment of Bryngoleu.
- Increase visibility and the welcoming nature of Bryngoleu.
- Increase use of Bryngoleu as an educational resource.
- Increase knowledge of the biodiversity present in the site.
- Set up regular monitoring of specific species/habitats.

Management Prescriptions

8.1 Interpretation and access point signage

The infrastructure at Bryngoleu supports community access and use however there is little information about the site for visitors. It is recommended that good quality, easy to read and well maintained interpretation signs are installed at the main site entrances to explain the purpose and use of the site.

8.2 Visibility and welcome

Opening up the aspect and clearing views across Bryngoleu where possible will reduce 'threatening spaces' and help improve the welcoming nature of the site. This would be possible through control and reduction of bramble and scrub alongside the footpaths, especially at the drop down towards the river, and vegetation clearance at the entrance points to improve visibility.

8.3 Community engagement and events

It is essential to increase the local public's awareness and appreciation for Bryngoleu in order for them to value it and care about its future. The site could provide an educational resource for the local school Ysgol Rhyd Y Grug through the forest school initiative. Local groups should be identified and contacted and regular public events carried out. Public events can range from management of the site itself to family-friendly walks and activities. Potential events are listed in Table 1. Through a series of events it might become possible to identify local individuals who could set up a 'friends' group to help involve the local community in the

management of Bryngoleu, which would lead to a sense of community ‘ownership’ and improved monitoring and local policing of the site.

Table 1. Programme of events

Event type	Time of year	Wider events
Bird walk	Spring/summer	
Moth trap	Spring/summer	National Moth Night
Fungal forays	Autumn/winter	UK Fungus Day
Dawn chorus walk	Spring	National Dawn Chorus Day
Wildflower walk	Spring/summer	
Bug hunts	Spring/summer	National Insect Week
Guided Nature walk	Spring/summer	
Litter-picks	All year	
Habitat management	All year	

8.4 Ecological surveys and monitoring

Ecological surveys would help to increase our understanding of the wildlife of Bryngoleu. Setting up regular and specialist species surveys could increase the knowledge of species using the reserve. Some of these surveys could be incorporated in to public events. Examples of species surveying that would be beneficial are listed in Table 2.

Table 2. Programme of ecological surveys

Target Group	Survey Method	Time of Year	Local Groups
Birds	Transect	All year	Glamorgan Bird Club
Terrestrial Mammals	Camera traps	All year	South Wales Mammal Group
Reptiles	Transect	Spring/summer	South West Wales Amphibian And Reptile Group (SWWAARG)
Butterflies	Transect	Spring/summer	Butterfly Conservation South Wales Group
Moths	Light trapping	All year	Glamorgan Moth Recording Group (GMRG)
General insect	General search, sweep nets		
Lichen	General search	All year	
Fungi	General search	Autumn/winter	Glamorgan Fungi Group
Grassland flora	General search and mapping	Spring/summer	

8.5 Eutrophication (dog fouling)

Bryngoleu receives a high number of dog-walkers and often these dogs are let off their leads, leading to a large amount of dog fouling. As well as being unsightly and a hygiene risk to humans this can also cause increased nutrients being input into the soil which in turn affects the vegetation that grows there, with more sensitive species generally declining in response. There is a dog waste bin at the entrance to the site from Bryngoleu road next to the road barrier. Within the bounds of budgets and time constraints it is unlikely that a dog warden or extra bins could be provided but some signage may help to highlight the problem and make dog walkers aware that this isn't acceptable at Bryngoleu.

8.6 Litter and fly-tipping

Litter is a big problem at Bryngoleu. Litter is often found along the old railway line footpath and on the bank below the garden fences belonging to the houses on the Bryngoleu estate. There are often whole bags of rubbish fly-tipped into the stream and there is an area on the grassland at Bryngoleu where rubbish is fly-tipped and burnt annually. Rubbish is not only an unsightly health and safety concern, but it is detrimental to wildlife. In order to tackle the issue of fly-tipping at Bryngoleu a boulder was inserted at Canonbie Crescent to block vehicle access onto the footpath which leads to the stream, where bags of rubbish were being thrown. The access onto the field is otherwise blocked by barriers at Bryngoleu and Glan-Yr-Afon which should remain locked to prevent further fly-tipping. Signs warning of the consequences of being caught fly tipping could also be used at the site entrances.

9. Management and Activity Timetable

Feature		Prescription	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Semi Natural Broadleaved Woodland	Monitoring	Survey the woodland	2 020			*	*	*	*	*					
Neutral grassland	Management	Cutting	2020-2022									*			
Marshy grassland	Management	Cutting	2020-2022	*	*							*	*		
Streams	Management	Litter picking	2x annually	*	*								*	*	*
Scrub	Management	Scrub control	Annually	*	*							*	*	*	*
Invasive species	Management	Himalayan balsam removal	Annually					*	*	*	*				
	Management	Japanese knotweed control	Annually			*						*	*		
Bird boxes	Management	Installation & cleaning out	2020-2022	*	*									*	*
	Monitoring	Watch the boxes	Annually			*	*	*	*	*					
Bat boxes	Management	Installation	2020	*	*									*	*
	Monitoring	Watch the boxes	Annually				*	*	*	*	*	*			
Hedgehog houses	Management	Installation	2020				*	*	*	*	*				
	Monitoring	Hedgehog footprint tunnel	Annually				*	*	*	*	*				
Amphibian & reptile hibernacula	Management	Installation	2020				*	*	*	*	*	*			
	Monitoring	Reptile refugia	Annually				*	*	*	*	*	*			

Appendix 1. Locations of artificial habitats

Habitat type	Description	Grid reference	Location description	Notes
Bird box	Wooden box 32mm hole	ST0753799254	In woods, NE of the site	
Bird box	Pallet wood box 25mm hole	ST0754099279	In woods, NE of the site	
Bird box	Pallet wood box 25mm hole	ST0754499309	In woods, NE of the site	
Bird box	Pallet wood box 25mm hole	ST0753099338	In woods, NE of the site	
Bird box	Pallet wood box 25mm hole	ST0750799335	In woods, NE of the site	
Hedgehog house	Igloo style metal house	ST07579925	In woods, NE of the site	

Appendix 2. Management Activity Diary

Date	Management Activity	Comment
20.02.18	Bramble clearance near the barrier entrance to the site.	2volunteers
20.02.18	Litter picking	2 volunteers
20.02.18	Wildlife walk	2 participants
09.04.18	Wildlife walk	7 participants
06.07.18	Scavenger hunt, bug hunt, hedgehog tunnels	91 children from Ysgol Rhyd y Grug
19.09.18	Litter pick in the stream	1 volunteer
17.10.18	Bulb planting near the school	28 volunteers from Ysgol Rhyd y Grug
17.10.18	Bulb planting at Ty Bryngoleu and near the bus stop	""
29.10.18	Bulb and primrose planting near the den	8 volunteers from Ty Bryngoleu
29.10.18	Install hedgehog house	3 volunteers
27.11.18	Litter picking in the stream bed	3 volunteers
26.02.19	Bird box making, putting up boxes	5 volunteers
15.04.19	Litter picking	2 volunteers
10.05.19	Mapping invasive plant species	
31.05.19	Bug hunting (Welsh Wildlife Day)	2 volunteers
21.06.19	Bat walk and moth trapping	8 volunteers
01.11.19	Halloween crafts, access clearance at the barrier entrance	
23.02.20	Litter picking and bramble strimming near the den	3 volunteers

