Preliminary Ecological Appraisal
Gilestone Farm,
Talybont-on-Usk
Brecon

Client: Bannau Brycheiniog National Park Authority

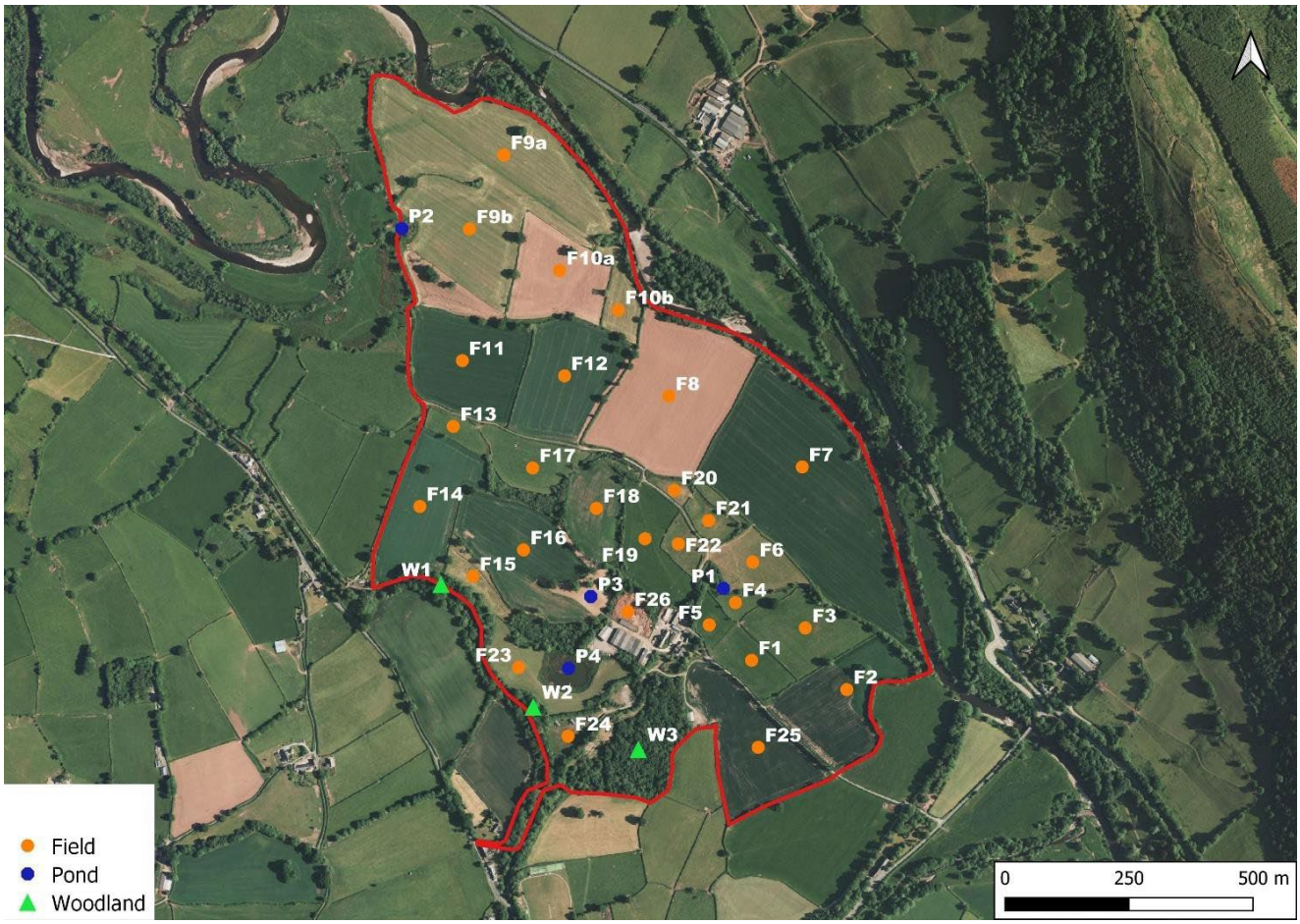
Survey Date: 6th March 2024

Report Reference: WW/HS/0324

Author:

Contents

1. Site Description



Map 1: Aerial photo of site, overlain with field, wood and pond numbers used in report (following EcoVigour, 2023 but with amendments)

The surveyed land comprises around 87 hectares at Gilestone Farm south-east of Brecon. The land mostly lies on level ground alongside the River Usk, at around 110m above sea level. The land rises slightly to the south-west, towards the Monmouthshire and Brecon Canal which forms the farm boundary. The underlying geology comprises alluvial sand, silts and clay with glacial till and alluvial fan deposits in the higher south western and southern parts of the farm. The land is predominantly a mixture of cereal cropping, silage leys and re-seeded pasture; livestock comprise sheep and beef cattle.

2. Wildlife Survey

A thorough site inspection was made by and on March 6th 2024. This aimed to do the following:

- Record habitats, according to the 'Phase I habitat survey' classification.
- Recording Birds of Conservation Concern.
- Recording plants, including bryophytes
- Recording notable lichens
- Recording mammals or their signs
- Noting the locations of any invasive, non-native species of plant or animal

The survey was constrained by the early March date, which was not optimal for recording of breeding birds, plants or invertebrates. However, habitat type and likely quality could be assessed from vegetative plant material. A further constraint was a 300m buffer zone in place around the osprey nest tree in the western part of the farm; although ospreys may not have been back at the nest, this buffer was respected and as such, detailed observations on the fields here were not made.

3. Results

3.1 Desk Exercise

There are two protected sites in close proximity – the River Usk (Upper Usk) SSSI borders the site to the north and east, whilst the River Usk (Tributaries) SSSI borders part of the site to the south. These two SSSIs form the River Usk SAC. This has one habitat feature ('Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation'), and several species features (otter, sea lamprey, brook lamprey, river lamprey, twaite shad, allis shad, Atlantic salmon and bullhead).

A data search from BIS yielded numerous records. These are shown in Appendix 1; the most notable can be summarised as follows.

Several Birds of Conservation Concern (Stanbury et al, 2021) have been recorded. Curlews have only been noted on two occasions in 2002-2004 on the western side of the farm. Other historic records include grey partridge, yellowhammer and redshank (breeding until the 1980s). More regularly or recently recorded birds include kingfisher, reed bunting, dipper, whitethroat and osprey. The latter built a nest in 2023.

Mammals include numerous records of otter from the riverside. American mink has also been recorded. Bat surveys have recorded 7 species: lesser horseshoe, noctule, common pipistrelle, Nathusius's pipistrelle, soprano pipistrelle, brown long-eared and Natterer's. Several of these roost in the farm buildings. Badger, fox and hedgehog are among the other common mammals recorded on the farm.

Few notable higher plants have been recorded. Two local rarities are present – water chickweed (*Stellaria aquatica*) along the river, and fat duckweed (*Lemna gibba*) in the ditch network. Black poplar (*Populus nigra* ssp. *betulifolia*) is recorded from the area.

A few lower plants and lichens have been recorded, the including spruce's bristle-moss (*Orthotrichum sprucei*) on riverside trees, and bird's-foot wing-moss (*Nogopterium gracile*) and the lichen *Caloplaca aurantia* on the standing stone.

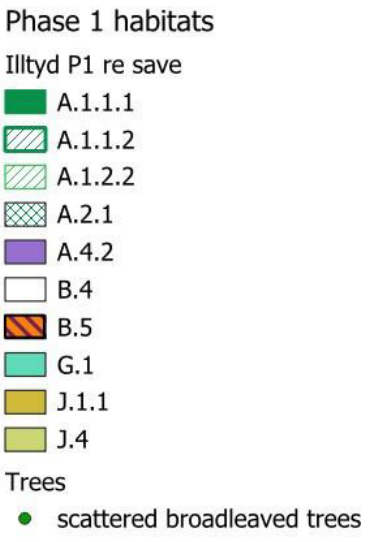
There are records of barred grass snake and common frog from the farm. Great-crested newts have been recorded in a small pond 1km to the north-west of the farm.

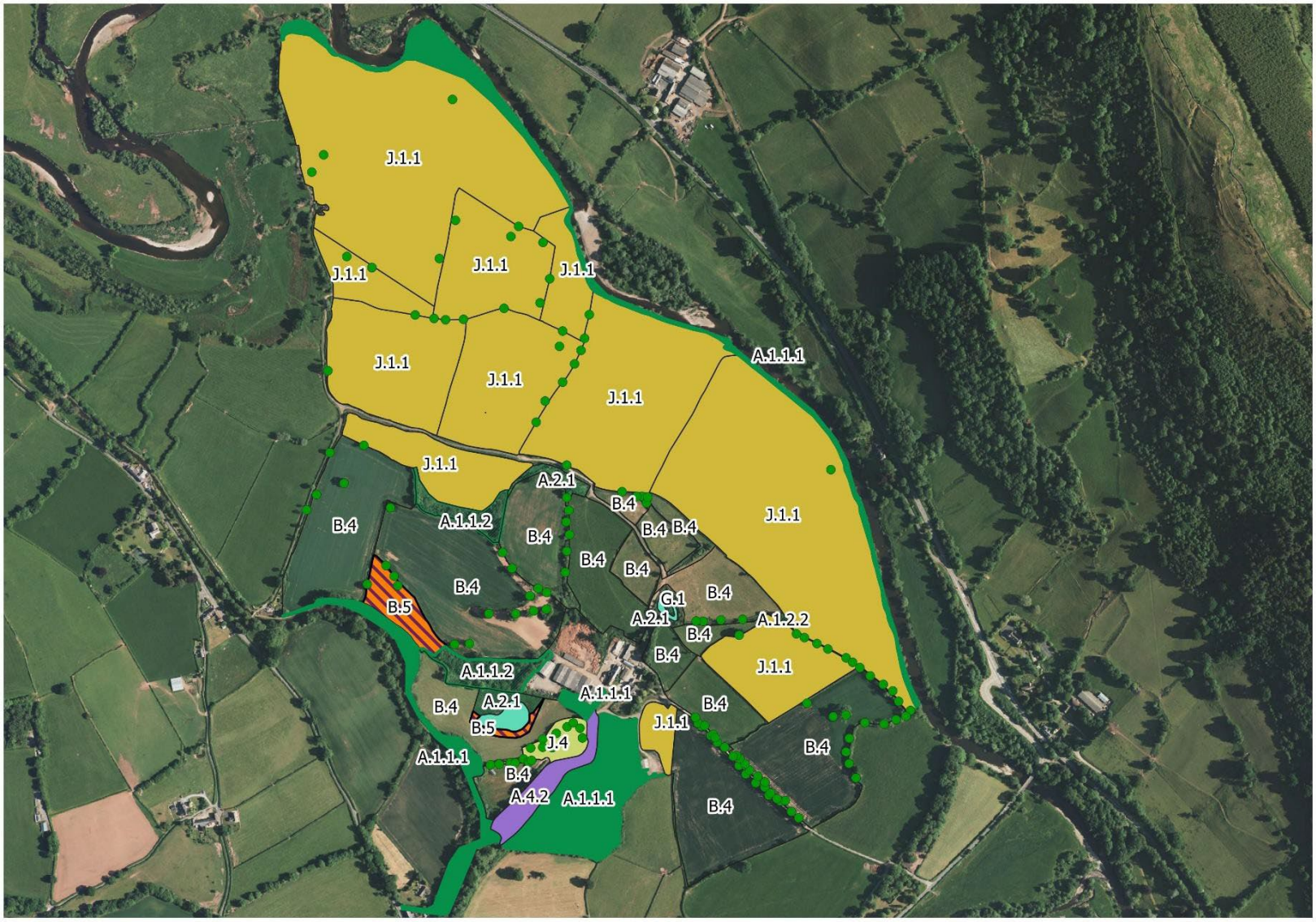
A Preliminary Ecological Assessment was also undertaken in June 20232 (2023) undertaken at an optimal time for habitat assessment, descriptions of habitats provided are generally brief as the focus of this survey appears to have been protected species. No assessments of habitat quality are presented, or recommendations for enhanced conservation management. Their record of Australian swamp-stonecrop (*Crassula helmsii*) (figure 102) appears to have been a misidentified water-starwort (*Callitriche* sp.)

3.2 Habitat survey

The farm has a diversity of habitat types. These were classified according to Phase I survey guidelines as arable (J1.1), improved grassland (B4), marshy grassland (B5), standing water (G1), running water (G2), semi-natural broad-leaved woodland (A1.1.1), broad-leaved plantation woodland (A1.1.2), coniferous plantation woodland (A1.2.2), recently-felled conifers (A4.2), scattered trees / parkland (A3.1) and intact species-poor hedgerow (J2.1.2). Each of these is described and assessed below.

The following map has been supplied as a GIS shapefile.





Map 2: Phase I Habitat Map

Arable

Arable fields dominate the level ground

The great majority of the fields have been agriculturally-improved, and support either cereal crops or regularly re-seeded rye-grass leys. At the time of survey, these showed few signs of an associated rich 'arable weed' flora; charlock (frequent in Field 12) was the only notable species. There is no significant arable bryophyte flora. Toad rush, shepherd's purse and scentless mayweed were amongst the very few other plants noted amongst the crop. Fodder vetch had been sown with the ley in Field 7. Surface water-flooding was apparent in parts of the riverside fields, leading to reduced crop cover.

These intensively-managed fields hold minor ecological interest. They may be used by widespread invertebrates and farmland birds such as skylark, but only support a limited range of nectar, pollen and seed-bearing plants.

Improved Grassland

(top) Improved grassland in Field 23; (bottom-left) Field 14; (bottom-right) Field 24

Older leys or permanent pastures tend to dominate the southern parts of the farm. Although perhaps less regularly re-seeded, these are still species-poor swards dominated by perennial or Italian rye-grass.

Other grasses, such as annual meadow-grass, common bent, crested dog's tail and Yorkshire fog were occasionally noted. The few associated flowering plants are all species favoured by intensive agricultural management, such as white clover, creeping thistle, chickweed, broad-leaved dock, creeping buttercup, dandelion and common mouse-ear.

The improved grassland is of little ecological interest, but has the potential to revert slowly to a more botanically-diverse grassland with a reduction in inputs and summer sheep-grazing.

Marshy Grassland

Marshy grassland in Field 15

Field 15 has poorly drained wet ground with marshy grassland. This is dominated by soft rush with grasses including Yorkshire fog, creeping bent and floating sweet-grass. There is a very limited range of associates, with some lesser spearwort, bog stitchwort and greater bird's-foot trefoil, but indicators of better-quality rush-pastures (such as ragged robin, southern marsh orchid or meadowsweet) appear to be absent. Indicators of agricultural disturbance, such as creeping buttercup and perennial rye-grass, are often frequent. In the National Vegetation Classification, this is a poor-quality example of the soft-rush sub-community of *Juncus effusus / acutiflorus – Galium palustre* rush pasture, M23b.

Marshy grassland is a Section 7 'Priority Habitat'. Although still widespread in parts of Wales, good examples are of high conservation interest. Although this example is rather small and degraded (despite being previously managed under a BBNPA Section 39 Agreement), it has the potential to become more diverse with benign management.

Running Water

Willows such as this one in the flood-zone of the River Usk have a distinctive assemblage of mosses

High water-levels at the time of survey prevented recording of any aquatic flora in the river. Bankside vegetation here mostly comprises a narrow strip of alder, crack willow and grey willow. The willows hold a distinctive assemblage of flood-tolerant mosses, including river bristle-moss (*Orthotrichum rivulare*), Spruce's bristle-moss (*Orthotrichum sprucei*), many-fruited leskea (*Leskea polycarpa*), water screw-moss (*Syntrichia latifolia*) and tufted feather-moss (*Scleropodium cespitans*). The ground flora, prone to winter scour, is mostly dominated by competitive species typical of nutrient-rich alluvial deposits. Himalayan balsam, nettle, cow parsley and goosegrass are typical here; wild garlic and daffodil were also noted. There are also bramble patches. Running water was also mapped in the ditch network across the farm, where water often appeared clear but generally supported plants typical of nutrient-rich conditions such as hemlock water-dropwort, fool's watercress, floating sweet-grass and water-starwort. Ditch-side vegetation included great willowherb, nettles and other competitive

species. The River Usk, notified as SSSI, is clearly of ecological significance. The farm ditch network is less significant, but supports the locally-rare fat duckweed, and is used by foraging otters.

Standing Water / Swamp

(top) Pond 4 to the south-west of the farmstead has the stonewort Chara vulgaris; (bottom-left) Pond 1 with island; (bottom-right) Pond 3

There are four artificial ponds on the farm, three of them lying close to the farm buildings. Pond 4, uphill to the southwest, appears to have relatively good water quality, and the stonewort *Chara vulgaris* was noted in patches around the edge. There are stands of greater reedmace on the southern side. The edges appear to be relatively steep-sided and the margins are mostly dry, with an abundance of disturbance indicators such as broad-leaved dock and nettle. There is a fringe of disturbed rush-pasture; hard rush was noted here. Pond 3, below the farmyard to the north-west, may receive more nutrient run-off; algal growth was noted here. Pond 1 was not investigated closely, and the smaller Pond 2 near the western boundary was not visited.

These aquatic habitats are likely to be of at least minor ecological significance. Birds including mallard and little grebe were seen. They will support amphibians, potentially including great-crested newts, and these will attract foraging otters. A range of insects including common dragonflies and damselflies are likely to be present.

Semi-natural Broad-leaved Woodland / Scrub
Broad-leaved Plantation Woodland / Coniferous Plantation Woodland

Alder and birch woodland to the south of the farm

The largest area of woodland on the farm, Gilestone Wood, lies to the south of the farmstead. This is recorded as ancient woodland, although the trees are now young and even-aged. The majority of the wood is dominated by alder and downy birch, and other species such as hazel, sycamore, beech and holly are found towards the drier margins. Some areas have been coppiced for firewood. Bluebells are locally abundant, and yellow archangel and hard fern were amongst the other species noted. Small stream channels run through the wood, and the ground flora here includes wet woodland species such as opposite-leaved golden saxifrage.

Alder also dominates a plantation to the west of the farmstead. Bramble patches dominate at the woodland edge here. Wood 1, alongside the canal, may also have originated as plantation (as suggested by the tithe map) but is classed as ancient woodland on the register; it now holds a mixture of beech, ash, hazel and holly together with some mature wych elm and, unusually, a couple of trees of white mulberry at the woodland edge. The ground flora is developed over loose stone on a slope, and is characterised by ubiquitous species such as wood avens and bramble, together with some dog's mercury and bluebell.

A small plantation of Norway spruce was also mapped by Field 3. Goldcrest was singing here. An area of recently-felled conifer plantation to the south of the farm has been newly planted with an orchard of apple and pear trees. There are small patches of bramble scrub in the corners of the glamping field.

These woodland areas are of some local conservation interest; Gilestone Wood is designated as a SINC. They will support a range of insects, birds, mammals and other wildlife.

(left) Small Norway spruce plantation; (right) alder plantation

Veteran trees such as this oak (top) and aspen (bottom-left) are a distinctive feature of some hedges; there are also a few veteran 'parkland' trees within the improved grassland and arable fields, such as here in Field 16 (bottom-right) where they are associated with a former field boundary

Most fields are bounded by managed hedgerows. These are generally species-poor hedges of hawthorn and blackthorn, occasionally with other shrubs such as hazel, elder or willows. They are

flailed regularly. However, many of the hedges also contain veteran trees as standards. Oaks are particularly prominent, but ash and aspen were also noted.

Some individual veteran trees are also present, mostly in association with former hedgerows, now removed. These hold vestiges of a parkland lichen flora on the trunk, although this is much reduced in extent and quality as a result of ammonia / nitrogen pollution from the intensive management of the surrounding grassland.

The hedges, although rather poor-quality and over-managed, provide food and shelter for invertebrates, birds, bats and small mammals. The veteran trees within them are of significant wildlife and landscape interest.

Typical hedges

Other Habitats – Standing Stone, Farm Buildings, Horticulture

(left) barn; (right) standing stone

The farm buildings were not investigated, but are known to hold roosting bats. Gravel in the visitor car-park has a few ruderal species including thale cress, rue-leaved saxifrage and common whitlow-grass.

Part of Field 25 near the farm is devoted to horticulture, with vegetable beds, a polytunnel and beehives. The prominent sandstone standing stone in Field 6 has several mosses and liverworts, including large patches of bird's-foot wing-moss (*Nogopterium gracile*).

3.3 Birds

(left) Passerine nest in hedge; (right) barn owl pellet below veteran ash near standing stone

Survey in late spring or early summer would be required to fully characterise the breeding bird interest here. However, a total of 15 bird species of conservation concern were noted, and most of these are likely to breed on or near the farm. On the 'Red list' are skylark, marsh tit, mistle thrush and house sparrow. On the 'Amber' list are mallard, sparrowhawk, wood pigeon, reed bunting, bullfinch, rook, wren, meadow pipit, dunnock, starling and song thrush. Other birds noted included kingfisher, barn owl (pellet), little grebe and red kite. Expected summer visitors here would include osprey, willow warbler, spotted flycatcher and house martin.

Only a few species, such as dunnock (hedges) and house sparrow (farm buildings) appeared to be relatively numerous; other species were only seen in small numbers. Notable by their apparent absence were species such as curlew - the focus of the project funding the present survey, yellowhammer - a declining bird of mixed farmland, previously recorded from the site, and linnet - a bird of taller hedges and gorse scrub.

3.4 Mammals

(top) Potential bat roost feature in oak in field 16; (bottom-left) Otter prints in riverside mud; (bottom-right) badger sett in Field 12

A large active badger sett was noted on the eastern edge of Field 12, and a further sett, not currently active was noted on the track edge by Field 11. The active sett location in this part of the farm appears to have switched since EcoVigour survey in 2023. The main sett in the woodland to the south of the farm is still active.

An otter was seen swimming in the ditch and through the culvert under the lane by field 20. Activity was also noted alongside the river in several places, where fresh footprints and spraints were found. Potential holts and laying-up sites were recorded by Ecovigour in 2023 and no attempt was made to duplicate this survey.

As described in section 3.1, there are previous records of several bat species from the farm. Records of commuting or foraging lesser horseshoe bats have been made from around the farm, whilst other species have been recorded as roosting in the farm buildings. Many of the veteran trees also have significant cavities and other features likely to be used by roosting bats. The river corridor is likely to be of significance to foraging and commuting bats, and hedge and ditch networks across the farm will also be used. However, the grassland habitats generally provide poor quality foraging habitats, being too short-grazed and botanically-poor to support a significant number of insects.

Signs of fox, mole and rabbit were the only other mammals noted.

3.5 Higher Plants and Stoneworts

White mulberry at the edge of Wood 1

The survey date was not conducive to detailed plant recording, and no rare native species were recorded. The most notable species was white mulberry (*Morus alba*), two fairly mature trees of which were planted or naturalized at the edge of former plantation woodland in the south-east corner of Field 14 / edge of Wood 1. This is a rarely recorded species in the UK, and NBN Atlas has no Welsh records.

Two previously noted species, charlock and yellow archangel (native subspecies), were re-recorded – the former in arable in Field 12, and the latter in woodland south of the farm buildings. Other notable species included new tetrad records for rue-leaved saxifrage and common whitlow-grass (both in gravel in the visitor car-park), aspen (one as a hedgerow standard in Field 12), wych elm (hedgerow tree in Field 12 and woodland tree in Wood 1), and the stonewort *Chara hispida* (Pond 4).

3.6 Bryophytes and Lichens

(left) Scleropodium cespitans; (right) Nogopterium gracile

Bryophyte interest on the farm is limited to two features. The standing stone has saxicolous species including bird's-wing capillary moss (*Nogopterium gracile*), intermediate screw-moss (*Syntrichia montana*), grey-cushioned grimmia (*Grimmia pulvinata*) and wall scalewort (*Porella playtphylla*). Willows in the flood-zone of the river, as previously described, have a characteristic assemblage.

Lichen interest is focussed on the veteran trees. Many of the oaks retain fragmentary remnants of lichen communities of dry bark, bark recesses, or quickly drying lignum (the Lecanactidetum premneae association). This distinctive association is typical of ancient (over 300 years-old) oak trees with bark surfaces which have become dry and brittle with age, losing their water-holding capacity but retaining relatively high bark pH. Many of the oaks are impacted by nitrogen pollution, but some retain notable parkland lichens such as *Cresponea premnea*, which was noted on a pollarded ash near the standing stone, along with *Scytinium teretiusculum* and an *Opegrapha* species. *Enterographa crassa* was also noted.

3.7 Invertebrates

Very few insects were seen due to the late winter survey date - only buff-tailed bumblebee and the drone fly *Eristalis tenax* were recorded. Previous records obtained through BIS include moths such as the rosy rustic, and damselflies including beautiful demoiselle from the river.

Specialist invertebrate survey of the veteran trees could be a worthwhile exercise, as several of these have significant deadwood features. No fallen dead-wood appeared to be left in-situ.

3.8 Invasive Species

Himalayan balsam and rhizomes in riverside silt

As noted by previous surveyors, Himalayan balsam is abundant on the river banks; it has also been noted along boundaries elsewhere on the farm. Japanese knotweed was not recorded but is likely to still be present. Monkey flower has been recorded in the past, but it was not recorded by EcoVigour (2023). Their survey did record Australian swamp stonecrop in one drain (apparently erroneously); water-levels were too high during the current survey to confirm the presence of this species. The invasive non-native moss *Campylopus introflexus* was recorded on one gate.

Grey squirrel and rabbit were the only non-native animals recorded. There are previous records of American mink from the farm.

4. Management

4.1 Past Management

OS Tithe Maps from the late 19th Century indicate that the riverside fields in the north-western part of the farm were all meadowland. There was a band of predominantly arable fields running across the farm to the south of these; the westernmost of these fields was subdivided into three and included an orchard in one part. The fields surrounding the farmstead comprised a mixture of meadow, arable and pasture; there was another orchard in one field. Field 16 was formerly three fields, and two veteran oaks mark a former division. The canal-side woodland is marked as plantation and waste.

4.2 Current Management

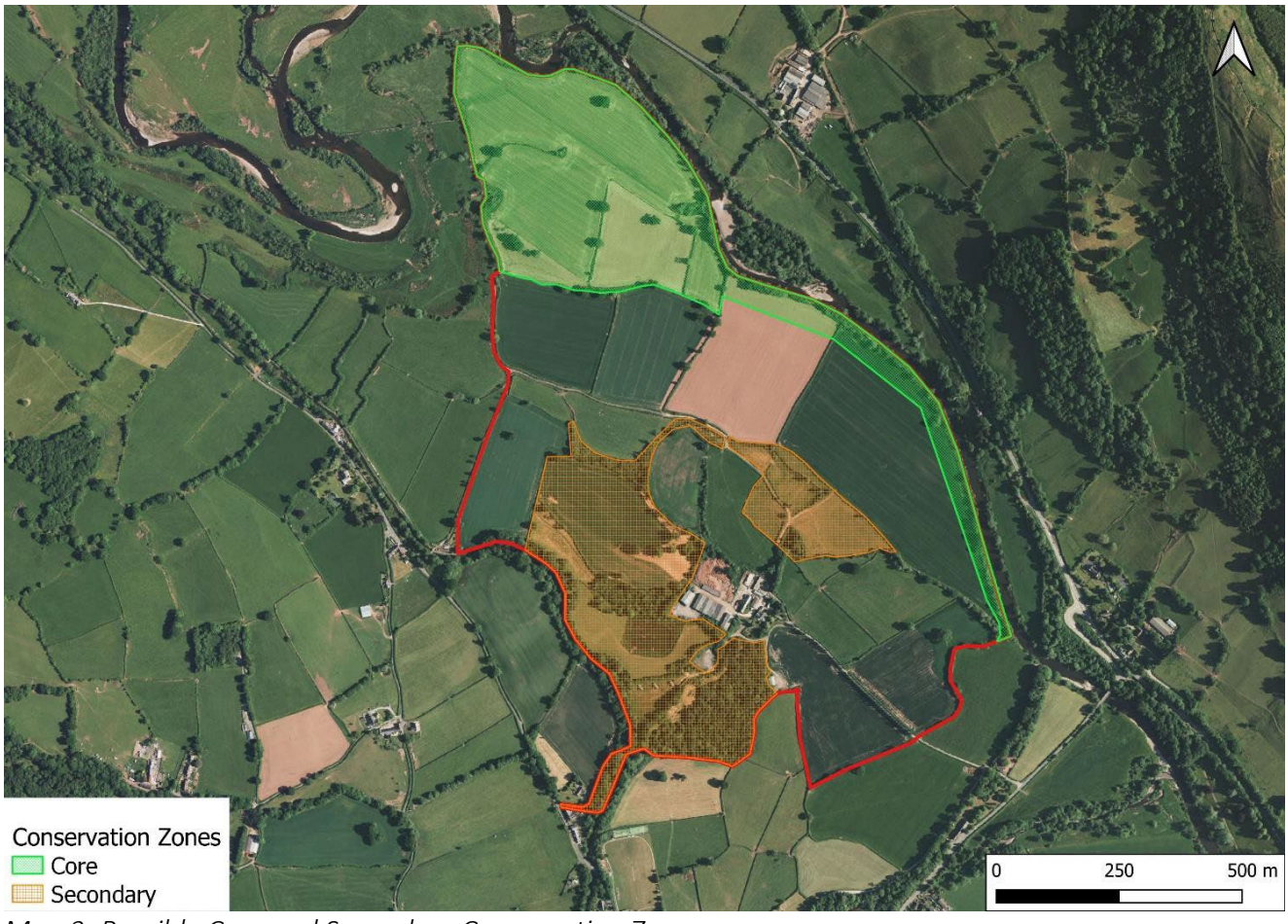
(left) hedges are regularly flailed; (right) small-scale management in the community woodland

All fields are intensively managed autumn-sown cereal or rye-grass leys, mown for silage or managed as pasture. They receive regular applications of fertiliser and slurry; cereal fields are conventionally-managed with herbicide and pesticide applications. There is a beef suckler-herd and sheep flock. Cattle are in-wintered; sheep are winter-grazed on the pastures. Hedges are flailed on an annual basis. The main woodland area to the south of the farm is managed by a community woodland group and used for group activities; some firewood extraction takes place here. A community orchard has been planted, and there is a market garden area.

4.3 Options for Enhanced Conservation Management

It would be desirable from the outset to establish a 'core conservation-zone', where wildlife-friendly management was given highest priority. Logically, this would encompass the riverside fields (9, 10 and the northern / north-eastern sides of 7 and 8). This would assist with protection of water-quality in the River Usk, enhance habitats for protected species, and create opportunities to enhance biodiversity. Key species here could include osprey, curlew (and other floodplain grassland birds such as redshank and yellow wagtail), otter and lesser horseshoe bat.

It would be ecologically-desirable to widen the conservation focus to encompass more of the farm, mapped as a secondary conservation-zone in Map 3. However, it is recognised that agronomic considerations may prove more important in shaping management decisions here. Some of the suggested actions given could be accommodated without significant impacts on agricultural productivity; other options would require a step-change away from the current conventional farming model. Funding for such options is likely to be available through the Sustainable Farming Scheme from 2025.



Map 3: Possible Core and Secondary Conservation Zones

4.3.1 Actions in Core Conservation-Zone

(top) Conservation management for curlews could focus on Field 9; *(bottom-left) The northern edge of Field 7 with standing water after winter rain (left), and only a narrow strip of trees buffering the river (bottom-right)*

Conversion of Arable to Permanent Grassland

Arable fields are not used by nesting curlew in the Usk valley (King, in litt.), and a switch to low-input grassland management would potentially favour this species. It has been noted by King and others that

the viability of arable management in this part of the farm is regularly impacted by prolonged winter flooding; photos in Mackrill (2024) for example show most of Field 9 flooded, and recent aerial photography shows bare channels around the field left following flooding episodes.

King also notes that the following actions may be required to attract curlew:

- Sculpt and deepen existing flood channels across these fields to retain some water for longer periods of the year.
- Parts of those channels to link with 'scrapes' bottomed out with clay/marl to aid ponding of the water for as long into the summer as possible.
- Sow with a low maintenance permanent grassland seed-mix, with wildflower seed included on the edges where flood scouring is expected to be less severe.
- No fertiliser addition, agricultural sprays or cultivations once established.

These actions would serve to enhance the ecological interest of the fields to a wider range of birds and other wildlife. Although management could aim to restore or create a semi-natural floodplain meadow community such as the rare 'great burnet – meadow foxtail grassland', MG4 (Rodwell, 1992), the use of generic floodplain grassland seed mixtures available from commercial suppliers should be cautioned against. Not only are these expensive, and unlikely to establish successfully in the aftermath of arable cropping due to disturbed soils with highly-elevated soil nutrient levels, but they are also likely to result in the introduction of species and genotypes atypical of and poorly-suited to the local flora.

In the short-term, sowing with a simple grass-mixture based on crested dog's-tail, meadow foxtail, red fescue and sweet vernal-grass may be preferable. Seed from the BBNPA nursery should be used if available. The more competitive agricultural grasses such as rye-grasses and timothy should be avoided. If clover is used, this should be native red clover rather than white; robust agricultural varieties of either should be avoided. The annual management regime should be based on mowing for hay or silage, after the third week of July and ideally not until August. Aftermath grazing, ideally with cattle, should take place until ground conditions become wet; significant poaching and winter-grazing, with the attendant need for supplementary feeding, should be avoided.

Once the meadow sward is established, and perennial 'weed' species such as docks and thistles have declined, consideration could be given to introducing locally-sourced meadow flowers to the fields. This would ideally be based on seed collected with a brush-harvester from species-rich local meadows, such as the Wildlife Trust reserve at Trewalkin Meadow. Some natural colonisation of widespread species such as meadowsweet could be expected as a result of flooding events.

In addition to favouring curlew, a key driver behind recent management discussions has been the attempted breeding of ospreys on the site. Although ospreys will become habituated to farm vehicles, the appearance of humans is known to cause disturbance. In the early stages of colonisation and during courtship and egg-laying, it is desirable to avoid all forms of disturbance. The current management of the field as arable entails herbicide applications during the nesting season, although other tractor operations such as cultivation and harvesting lie outside of this period. Conversion to grassland would remove the need for any such disturbance during the nesting season, assuming hay or silage making

was left until late July at the earliest. A detailed zonal approach to disturbance management on the site is provided by Mackrill (2024).

Riparian Management

River Usk channel in 1969 (left) and 2023 (right), with location of osprey nest marked for comparison

It is instructive to view sequential aerial photography from 1969 to the present day, to view the movement of the Usk as it approaches Gilestone from the west. There has been a significant deepening of the meander. A continuation of the current trajectory would potentially see the main river channel eventually cut through the Gilestone Fields, leaving the old river channel as an oxbow lake. It will be beneficial to work with such natural processes rather than employ engineering techniques – either hard or soft – to control erosion. Woody debris deposited in or alongside channels should be retained. It is possible that beavers could become established within the Usk valley in the long-term, and their actions could facilitate the development of a dynamic floodplain system with a greater variety of hydrological features.

4.3.2 Actions in Secondary Conservation-Zone

Parkland Trees

The veteran trees associated with current and former field boundaries are perhaps the most distinctive landscape and conservation feature on the site. In addition to supporting nesting osprey, they provide opportunities for roosting bats and barn owls, and otter laying-up sites. Although the lichen flora on the trunks is significantly impacted by ammonia, a few notable parkland species are still present in small quantity. There is, however, a scarcity of younger trees, especially of the most important tree species, oak. The retention of all remaining trees, whilst alive, decaying or fallen, should be a key conservation aim here. The establishment of a next generation to replace the veterans should be an urgent priority so a continuous supply can be maintained.

The veteran oak and ash are a significant feature of the farm, but the establishment of a new generation of these is urgently required.

Although grazing and open conditions should be maintained around the veteran trees, there may be opportunities for protection of individual establishing oak seedlings, through marking and fencing with individual parkland tree guards. These could be made with cleft oak for aesthetic reasons.

Alternatively, acorns could be collected from veteran trees on the estate for propagating and planting out with similar tree guard protection. Seed from any dieback-resistant local ash could also be collected for propagating and planting out. These actions would ensure that planting stock was of strong, local genetic provenance. If trees are bought in, they should be from a local tree nursery cultivating local stock, such as that recently established at the Penpont Estate near Brecon. Trees may require care during the establishment phase, with mulching, weeding and watering as necessary.

A third approach would be to select, mark and promote trees within the existing hedges as standards, to allow them to develop into future veteran trees.

(left) cleft tree guards around planted saplings on Prince Charles's estate near Myddfai; (right) wych elm within flailed hedge beside Field 12 – individual hedgerow trees could be allowed to develop as standards

Grassland Management

The key factors limiting the development of wildlife-rich grassland are fertiliser use and intensive summer sheep-grazing. These both promote grass growth and seriously limit wildflower diversity, as well as that of other wildlife such as insects. The high ammonia levels associated with intensive pasture management are also known to impact on rare lichen species on veteran trees. Some insects associated with old trees also require grassland with a variety of nectar and pollen sources nearby.

Restoring wildlife-rich grasslands would involve fertiliser applications ceasing on selected fields, and stock numbers being reduced in accordance with this. Past inputs of plant nutrients (particularly phosphorous) will continue to favour growth of competitive grasses rather than wildflowers for some years, as they are bound tightly to clay particles in the soil. Fields which can be mown for hay (or silage in the short-term) would benefit from this management, as the removal of nutrients in the crop will bring levels down faster than grazing alone (in the absence of muck or fertiliser applications). A shift away from summer sheep grazing, at least over certain areas, would be very desirable. Extensive cattle grazing is more compatible with conservation management systems.

A long-term aim could be then enhancement of selected areas with locally-harvested native meadow flowers. The glamping field could be a suitable first location to trial this. A mixture with species such as yellow rattle, eyebright and lesser knapweed may be suitable.

Restoration of wildlife-rich grassland could be a long-term aim within Field 24 (left), and the glamping field (right)

Ditches, Ponds and Marshy Grasslands

This ditch and marshy grassland in field 15 would benefit from cessation of fertiliser inputs, to restore wildlife-rich grassland habitats. A shallow pond or scrape could also be created here.

The one tiny area of marshy grassland remaining on the farm should continue to be grazed, but summer sheep grazing is undesirable here and the area should not receive fertiliser applications.

No direct management is needed on the existing ponds. Swampy ponds are often a richer habitat than open water, and the temptation to remove silt or vegetation should be resisted. In time, it would be preferable to create a new open water feature elsewhere, providing this can be done without drying out or damaging existing habitats of interest.

Good water quality is important to pond and ditch health, and inputs of nutrients such as nitrogen and phosphorus can lead to growth of algae or competitive plant species. The floating sweet-grass in the ditch in Field 15, and the algae in the pond to the north-west of the farmhouse, are an indication that water feeding these water features is enriched. Fertiliser use in these areas should be restricted.

Woodlands

The ancient woodland is being managed by a community woodland group, and the selected felling and coppicing for firewood and other materials taking place will result in an increased structural diversity within this even-aged woodland. It could be advantageous to encourage the development and retention of more deadwood, both standing and falling, to increase invertebrate, fungal and bird diversity here.

4.3.3 Rewilding and Regenerative Agriculture

Gilestone is a highly managed landscape, with good agricultural land, historic interest and landscape features. Radical shifts in management would perhaps prove controversial here. However, if an approach typical of 're-wilding' projects were to be followed (such as a return to more extensive or naturalistic grazing regimes based on beef cattle with no fertiliser inputs), this would certainly have benefits for wildlife. Natural regeneration of trees such as oak, ash, aspen, birch and elm would potentially occur rapidly across all fields; working with this process in some areas to encourage woodland development would provide a useful counterpoint to the planted and managed woodland areas. However, tree expansion here would be counter to the needs of curlew and other target bird species, and mowing and managed grazing are still envisaged within a core conservation zone.

While eschewing this model over the whole farm, it may prove possible to work with regenerative agriculture and some rewilding principles within selected areas of a newly-established secondary conservation zone. As an example of regenerative agriculture, grassland management could promote permanent pasture over short-term leys to avoid regular soil cultivation. As an example of re-wilding, the boundaries between grassland and woodland on the farm are currently 'sharp', with little in the way of bramble, blackthorn or other scrub favoured by pollinating insects and breeding birds. The simplest way to encourage development of this under-appreciated habitat is to re-align fencing further into the field when it requires renewal. As well as encouraging natural scrub and woodland expansion, this avoids costs associated with tree planting, and labour associated with repairing fences damaged by falling trees or limbs. There would be a loss of forage area which may require incentivising through SFS or a similar grant-aid scheme.

Development of a broad fringe of natural woodland expansion in Field 23 could be achieved by repositioning fencing at least 10m out into the field, perhaps when this is next due for renewal.

5. References

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Appendix 1 Scientific Names of Plant Species

These plants are mentioned in the report, or otherwise recorded at the site during the walkover survey; no comprehensive botanical survey was undertaken.

English Name	**Scientific Name**
Sycamore	*Acer pseudoplatanus*
Common Bent	*Agrostis capillaris*
Creeping Bent	*Agrostis stolonifera*
Garlic Mustard	*Alliaria petiolata*
Wild Garlic	*Allium ursinum*
Alder	*Alnus glutinosa*
Meadow Foxtail	*Alopecurus pratensis*
Cow Parsley	*Anthriscus sylvestris*
Fool's Watercress	*Apium nodiflorum*
Thale Cress	*Arabidopis thaliana*
Lesser Burdock	*Arctium minus*
Downy Birch	*Betula pubescens*
Hard Fern	*Blechnum spicant*
a Water-starwort	*Callitriche sp.*
Common Water-starwort	*Callitriche stagnalis*
Shepherd's Purse	*Capsella bursa-pastoris*
Cuckoo Flower	*Cardamine pratensis*
Oval Sedge	*Carex leporina*
Lesser Knapweed	*Centaurea nigra*
Common Mouse-ear	*Cerastium fontanum*
Opposite-leaved Golden Saxifrage	*Chrysosplenium oppositifolium*
Creeping Thistle	*Cirsium arvense*
Marsh Thistle	*Cirsium palustre*
Hazel	*Coryllus avellana*
Hawthorn	*Crataegus monogyna*
Foxglove	*Digitalis purpurea*
Great Willowherb	*Epilobium hirsutum*
Common Whitlow-grass	*Erophila verna*
Beech	*Fagus sylvatica*
Ash	*Fraxinus excelsior*
Goosegrass	*Galium aparine*
Marsh Bedstraw	*Galium palustre*
Herb Robert	*Geranium robertianum*
Wood Avens	*Geum urbanum*
Floating Sweet-grass	*Glyceria fluitans*
Yorkshire Fog	*Holcus lanatus*
Bluebell	*Hyacinthoides non-scripta*
Holly	*Ilex aquifolium*
Himalayan Balsam	*Impatiens glandulifera*

Sharp-flowered Rush	*Juncus acutiflorus*
Toad Rush	*Juncus bufonius*
Soft Rush	*Juncus effusus*
Yellow Archangel	*Lamiastrum galeobdolon ssp. montanum*
Italian Rye-grass	*Lolium multiflorum*
Perennial Rye-grass	*Lolium perenne*
Honeysuckle	*Lonicera periclymneum*
Greater Bird's-foot Trefoil	*Lotus pedunculatus*
Scentless Mayweed	*Matricaria matricoides*
Dog's Mercury	*Mercurialis perennis*
White Mulberry	*Morus alba*
Daffodil	*Narcissus pseudonarcissus*
Hemlock Water-dropwort	*Oenanthe crocata*
Norway Spruce	*Picea abies*
Aspen	*Populus tremula*
Primrose	*Primula vulgaris*
Blackthorn	*Prunus spinosa*
Pedunculate Oak	*Quercus robur*
Lesser Celandine	*Ranunculus ficaria*
Lesser Spearwort	*Ranunculus flammula*
Creeping Buttercup	*Ranunculus repens*
Gooseberry	*Ribes uva-crispa*
Bramble	*Rubus fruticosus*
Curled Dock	*Rumex crispus*
Broad-leaved Dock	*Rumex obtusifolius*
Grey Willow	*Salix cinerea*
Crack Willow	*Salix fragilis*
Elder	*Sambucus niger*
Rue-leaved Saxifrage	*Saxifraga tridactylites*
Charlock	*Sinapis arvensis*
Branched Bur-reed	*Sparganium erectum*
Common Chickweed	*Stellaria media*
Bog Stitchwort	*Stellaria uliginosa*
Dandelion	*Taraxacum officinale*
White Clover	*Trifolium repens*
Great Reedmace	*Typha latifolia*
Wych Elm	*Ulmus glabra*
Nettle	*Urtica dioica*
Fodder Vetch	*Vicia* cf. *villosa*