



Rother District Council

Biodiversity Audit

Gibbetts Marsh, Rye

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1.1. Introduction

In March 2023, MKA Ecology Ltd was commissioned by Rother District Council to undertake Biodiversity Audits of 23 sites owned and managed by the district council. The aims of the biodiversity audits were to provide baseline information on the type and quality or condition of these areas with a view to identifying measurable opportunities for positive biodiversity interventions using the Biodiversity Metric. This report refers specifically to Gibbetts Marsh, Rye.

1.2. Methodology

The audits were performed using standard methodologies; habitats were defined according to the UK Habitat Classification and habitat conditions were assessed assist the 'Biodiversity Net Gain' metric schema (Natural England, 2023). By assigning values to habitats by their 'distinctiveness' or rarity, and their condition, the overall measurable biodiversity contained within the surveyed sites was calculated using the Defra Biodiversity Metric (v4.0). In principle, larger/longer, more valuable and better condition habitats score more highly. A detailed methodology is provided at the end of this document.

1.3. Site status

The site is not located within the High Weald National Landscape (formerly known as Area of Outstanding Natural Beauty (AONB). It is situated on the boundary between Romney Marsh and the High Weald National Character Areas (NCA).

Gibbetts Marsh is not currently covered by any international or national nature conservation designations. A small section of the site, in the south-west corner, falls within The Brede Valley Local Wildlife Site (LWS); see Section 1.4 for more details. The site lies within Rother, Brede and Tillingham Woods Biodiversity Opportunity Area (BOA; Sussex Biodiversity Partnership, 2024). Target habitat types for this BOA for creation, restoration and management are woodland, meadows and wetlands.

1.4. Site description

Gibbetts Marsh is a public open greenspace located in the centre of Rye (grid reference: TQ 91552 20307). It is approximately 1.9ha in size, and consists primarily of grassland, with small pockets of woodland, scrub, trees, and a car park to the west. The River Tillingham flows along its east boundary, and the west boundary is flanked by a ditch.

Gibbetts Marsh is surrounded by residential development to the north and west, with the river and a railway line to the east and south. Beyond the railway line is The Brede Valley Local Wildlife Site (LWS);



an extensive network of pasture and marshes identified as Coastal and Floodplain Grazing Marsh on Natural England's Priority Habitat Inventory (Natural England, 2023c). This designated site extends for 1130ha along the Brede Valley, covering an extensive ditch system supporting a diverse aquatic floral community. A small section of Gibbetts Marsh, in the south-west corner, falls within this LWS.

The table below shows the habitats which are present at Gibbetts Marsh. Detailed descriptions of each habitat type are given in Section 1.16. As Rother District Council is not responsible for management of the River Tillingham, this habitat was not included in the assessment.

Habitat type	Description
Modified grassland	Grasslands exhibiting features of neutral grassland (low
	occurrence of palatable grasses, including perennial rye
	grass Lolium perenne) but with low forb coverage (<20%) and
	low species diversity (<8 species per m ²).
Amenity grassland	Frequently managed grasslands found in recreational areas.
	Species composition is not diverse and the habitat is
	dominated by vigorous grasses that can withstand trampling
	and mowing such as perennial rye-grass Lolium perenne.
Mixed scrub	Dense scrub containing a mixture of species with no one
	species dominating.
Lowland mixed deciduous woodland	Includes both semi-natural and ancient woodland growing on
	a range of soil types, comprising native deciduous tree and
	shrub species. Deciduous species occupy >80% of tree
	cover.
Developed land; sealed surface	Areas of road, carpark and paths.
Urban trees	Individual or groups of native and non-native trees, not
	planted in distinct lines, and located in urban or suburban
	environments (including parks).
Line of trees	Native and non-native trees planted in distinct lines
	throughout the park.
Ditch	A man-made channel created for drainage.

1.5. Maps

The maps presented below show the existing habitats at Gibbetts Marsh, and their conditions. Quadrats (1m²) were used to determine the average number of species per square metre in the grassland, which informs the condition assessments for Biodiversity Net Gain.





Figure 1: UK Habitats Classification map

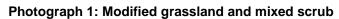




Figure 2: Condition assessments map



1.6. Photographs

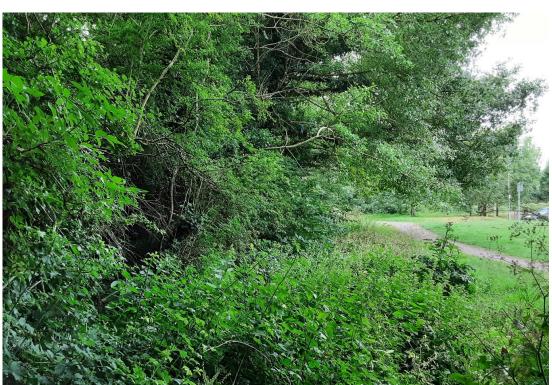




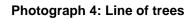
Photograph 2: Amenity grassland







Photograph 3: Lowland mixed deciduous woodland







Photograph 5: Ditch



Photograph 6: Urban trees (group 5)





1.7. Priority habitats

There are no Priority Habitats present at this location. An extensive network of Coastal and Floodplain Grazing Marsh is present to the south-west, with a parcel adjacent to the site boundary. Habitats of Principal Importance are recognised as the most important habitats in the UK and are listed within the Natural Environment and Rural Communities Act (2006).

1.8. Biodiversity units

The biodiversity units at Gibbetts Marsh, based on broad habitat types, are shown in the table below.

Habitat type	Total biodiversity units
Modified and amenity grassland	7.09
Mixed scrub	0.86
Lowland mixed deciduous woodland	2.19
Developed land; sealed surface	0.00
Urban trees	5.00
Total habitat units	15.14
Linear features type	Total biodiversity units
Line of trees	0.15
Total linear feature units	0.15
Watercourse type	Total biodiversity units
Ditch	0.78
Total watercourse units	0.78

1.9. Invasive non-native species

No invasive non-native species were recorded at Gibbetts Marsh.

1.10. Constraints

Constraints relating to protected and notable species, which should be considered as part of habitat enhancement or creation programmes, are listed below. It should be noted that most risks associated with protected species constraints can be easily avoided with appropriate planning.

- Presence of nesting birds within the scrub, trees, woodland and ditch vegetation.
- Presence of reptiles in ditch and woodland habitats.
- Potential presence of amphibians (such as great crested newt *Triturus cristatus*) in thick vegetation during their terrestrial phase, due to the presence of ditches adjacent and to the south-west of the site.



- Potential use of the habitats onsite by foraging and commuting bats.
- Potential use of trees by roosting bats.
- Potential presence of hedgehogs Erinaceus europaeus.
- Potential presence of badger Meles meles setts (no setts recorded during the site visit).
- Potential presence of hazel dormouse *Muscardinus avellanarius* in woodland habitats.

1.11. Opportunities

The following sections detail the potential opportunities for creating new habitats or enhancing existing habitats at Gibbetts Marsh, and also measures to provide further opportunities for priority species.

Opportunities - Habitats

Habitat type	Opportunities
Amenity grassland	This habitat is of low distinctiveness, although supports a high species
	diversity and is in good condition as a result. It is also clearly of amenity
	value to the local community.
	Areas in less intensive use, (e.g. around boundaries, on the bund adjacent
	to the river, and adjacent to scrub parcels, see below) could be subject to
	a less regular mowing regime, to encourage a longer sward and greater
	frequency and diversity of flowering plants. The aim in these areas would
	be to achieve a 'bee lawn', approximately 5-10cm in height, which could
	still be used for amenity purposes, but support more flowering plants.
	Long-term, these areas could be enhanced to neutral grassland, to expand
	coverage of this more valuable habitat type.
Modified grassland	This habitat is of low distinctiveness, although supports a high species
	diversity and is in good condition as a result. Like the amenity grassland, it
	would benefit from a less regular mowing regime, to encourage a long
	sward throughout the summer months. This would enhance the current
	ditch/scrub/grassland mosaic in the west of the site considerably, and
	improve the connectivity of the ditch corridor for local wildlife.
	Long-term, these areas could be enhanced to neutral grassland, to expand
	coverage of this more valuable habitat type.
Woodland	This habitat parcel, though small, likely acts as a valuable corridor for
	wildlife, linking ditch networks to the west with the river in the east.
	Expanding and enhancing this woodland habitat should therefore be a core
	objective of biodiversity enhancements at the Site, in balance with amenity
	objectives for continued access to recreational grassland areas. Ideally,
	additional planting would link together the current scrub parcels and tree
	planting at the site into one continuous corridor, reinforcing links east-west
	across the site.



Habitat type	Opportunities
	Woodland could be created using the Miyawaki Method (CTF, 2024).
	In the existing woodland, investigate veteranizing some of the trees to also
	increase deadwood features within the woodland. Measures to increase
	the volume of deadwood habitat in living trees is particularly appropriate in
	cases where there are large generation gaps (Woodland Trust, 2014).
	Encouraging a more diverse ground flora through re-seeding and planting
	would also be beneficial.
Trees and scrub	The scrub, trees and tree line form important connecting corridors around
	the perimeter of the Site, connecting the ditch with the River Tillingham.
	However, this connection across the site is currently highly fragmented.
	The scrub and trees could form the basis for expanding woodland planting
	at the Site (see above). Interventions to enhance this habitat include:
	 Increasing length/extent and closing current gaps in the canopy
	through planting native tree species (other than ash, which is the
	dominant species at this site currently, and likely to be affected by ash
	dieback in the short-term).
	 Install bird and bat boxes to compensate for lack of veteran features;
	Where feasible and this aligns with amenity objectives, investigate
	veteranisation of existing trees (Woodland Trust, 2014).
	 Leaving areas of grassland adjacent to scrub and trees unmown, to
	create a buffer between these habitats.
Ditch	The presence of a wide band of scrub and trees along the south bank of
	the ditch, while causing heavy shading and limiting aquatic and marginal
	plant growth, does likely provide a valuable wildlife corridor. With this in
	mind, there may be scope to clear some small pockets of scrub and trees
	at intervals along the south bank, to increase light spill onto the channel.
	Marginal and aquatic plants are likely to establish quickly, although this
	could be accelerated further through planting if required.

Opportunities - Species

Species	Opportunities
Invertebrates	Standing deadwood piles: The creation of 'stumperies' with large volume
(saproxylic)	wood (as gen/erated by management works) dug into the soil (eg: PTES,
	2016).
	Artificial rot-holes: Cavities cut into stumps to mimic rot holes. These often
	fill with water and provide habitat for the larvae of a range of specialist
	invertebrates.
Invertebrates	Increasing the proportion of wildflowers within the grassland will create
(pollinators)	additional foraging habitat for pollinators.



Species	Opportunities
Invertebrates	'Bug hotels,' 'bee banks' and log piles could be installed around the Site.
(generalist)	
Birds	Installation of generalist bird boxes on trees where possible. Bird boxes
	with varying entrance hole sizes should be used to provide for a range of
	species.
Amphibians	Creation of a wildlife pond within one of the grassland parcels would add a
	high value habitat to the existing habitat mosaic, particularly of value to
	local amphibian populations. A location next to the ditch, in the south-west
	of the site, would be ideal.
Reptiles	Reptiles could be supported through creation of bespoke reptile refugia and
	hibernacula, providing additional areas for basking and foraging.
Bats	Installation of bat boxes where possible on trees.

1.12. Key targets for the short and long term

Short-term targets

Some key targets for upcoming 5 to 10 years:

- New tree, scrub and woodland planting, together with a management plan;
- Trial relaxing mowing regime on grassland to create areas of bee lawn and identify areas to enhance to neutral grassland;
- Reduce shading along ditch;
- Install bird and bat boxes;
- Create a wildlife pond; and
- Create reptile hibernaculum.

Long-term targets

Some key targets for long term planning;

- Review woodland management plan,
- Review ditch management and adjust where necessary;
- · Create new areas of neutral grassland;
- Expand bee lawn areas, dependent on results of trial.



1.13. Further monitoring work/other activities

Specific surveys for protected and priority species could be undertaken for bats, birds, invertebrates, amphibians and reptiles, to understand if and how these species groups use the site. There are survey methods for all these species which can be undertaken by volunteers; groups could be supported by a licensed ecologist or local specialist if needed.

These targeted surveys could be supplemented by regular Bioblitz surveys at the site, carried out by volunteer groups, to monitor general species diversity.

Soil sampling is recommended to inform management activities to enhance grassland habitats.

1.14. Future risks to condition

- Potentially increased levels of recreational pressure;
- Changes in management and land use;
- Tree disease;
- Impacts of climate change on the habitats present, such as increased drought, fire and flood risk; and
- Introduction and spread of invasive, non-native species.



1.15. Habitat descriptions and conditions

Grassland

UKHabs habitat types present (secondary codes in brackets)

g4 - Modified grassland

g4a - Amenity grassland

Description

Grassland occupies the majority of the site, which is situated on loamy/clay soils characteristic of coastal flats, with naturally high groundwater. Artificial drainage regimes have altered this natural character into two main grassland types, described below.

g4 - Modified grassland

This describes the strip of grassland running along the west boundary of the site, adjacent to the ditch. It had been mown to a short sward (<10cm) at the time of the survey visit, with only scattered patches of longer grass (>30cm) remaining. The dominant grass recorded was common couch *Elymus repens*, with rough meadow-grass *Poa trivialis*, creeping bent *Agrostis stolonifera* and perennial rye-grass *Lolium perenne*. Forbs were present at low density, including creeping buttercup *Ranunculus repens*, common nettle *Urtica dioica* and white clover *Trifolium repens*.

Currently, although comprised of species typical of a neutral grassland community, low forb coverage and low species diversity means this habitat fails to qualify as neutral grassland; hence classification as modified grassland.

g4a - Amenity grassland

This describes all grassland parcels in the recreational areas, and in the car park. The sward in these areas is short (<10cm) and dominated by perennial rye-grass and creeping bent. A high number of forb species were also recorded, including creeping buttercup, white clover, creeping cinquefoil *Potentilla reptans*, small-flowered crane's-bill *Geranium pusillum*, and dandelion *Taraxacum agg*. In the north-east of the site, adjacent to the River Tillingham, there is a bund running parallel to the river.

Condition

g4 - Modified grassland

Good condition. This applies to the strip of grassland along the west of the site, adjacent to the ditch. Species diversity was high on average for this grassland type (>6 species recorded per 1m² quadrat) and a lack of physical damage, invasive species and scrub encroachment means these areas reach maximum condition.

g4a - Amenity grassland



Grassland

Good condition. This applies to the main grassland area in the centre and east of the site. Species diversity was high on average for this grassland type (>6 species recorded per 1m² quadrat) and a lack of physical damage, invasive species and scrub encroachment means these areas reach maximum condition. There is a lack of variety in sward height, however.

Poor condition. All areas of grassland in the car park have poor species diversity (fewer than 6 species recorded per 1m² quadrat).

Heathland and scrub

UKHabs habitat types present (secondary codes in brackets)

h3h: Mixed scrub

Description

h3h: Mixed scrub

There are three areas of this habitat type at the site; a strip of low immature scrub along the ditch to the west, a stand of mature scrub in the grassland next to the River Tillingham, and a small area of immature scrub to the north, by the line of trees. Species recorded in these parcels are hawthorn *Crataegus monogyna*, cherry plum *Prunus cerasifera*, yew *Taxus baccata* (in the mature stand), elder *Sambucus nigra*, bramble *Rubus fruticosus agg.*, garden privet *Ligustrum ovalifolium* and apple *Malus sp.*

Condition

h3h: Mixed scrub

Moderate condition. This applies to all three parcels. Although species diversity is high and there were no invasive species recorded, a lack of age diversity and lack of a well-developed edge with adjacent grassland limited condition.

Woodland

UKHabs habitat types present (secondary codes in brackets)

w1f7: Other lowland mixed deciduous woodland

Description

w1f7: Other lowland mixed deciduous woodland

A strip of woodland lines the site's boundary with a railway line to the south-east. Tree species recorded in the canopy were predominantly sycamore *Acer pseudoplatanus*, alder *Alnus glutinosa*, hornbeam *Carpinus betulus*, crack willow *Salix x fragilis* and elder *Sambucus nigra*. Although likely secondary woodland, the canopy included a number of mature sycamore and alder trees, with a



Woodland

distinct understorey. Ground flora is limited to ivy *Hedera helix*, hogweed *Heracleum sphondylium* and burdock *Arctium sp.*, with common reed *Phragmites australis* in damper, more open areas. A single desire line runs into the woodland from the adjacent pathway through the grassland; it does not appear to be regularly managed.

Condition

w1f7: Other lowland mixed deciduous woodland

Moderate condition. The woodland scores highly on criteria relating to native species diversity and cover, absence of invasive species, but is limited by an absence of younger trees indicating regeneration (likely a result of heavy shading from mature trees), absence of a distinctive woodland ground flora, absence of veteran trees and low occurrence of large deadwood features.

Lines of trees

UKHabs habitat types present (secondary codes in brackets)

w1g6 - Line of trees

Description

w1g6 - Line of trees

A line of mature non-native conifer and poplar *Populus sp.* trees runs along the north end of the site, adjacent to the River Tillingham.

Condition

w1g6 - Line of trees

Moderate condition. This habitat is limited in condition as it is composed of non-native tree species. Although mature, the trees also lack niches of value to other wildlife (such as birds, bats and invertebrates).

Trees

UKHabs habitat types present (secondary codes in brackets)

Urban trees

Description

Urban trees

A number of trees are planted throughout the site, individually and in groups. These are labelled in Figure 1 and Figure 2 as follows:

1, 2 and 3: immature ash Fraxinus excelsior trees planted over grassland islands in the car park.



Trees

- 4: A group of two semi-mature ash trees planted in grassland at the south end of the car park.
- 5, 6 and 7: Each semi-mature ash trees, planted at intervals within grassland adjacent to the ditch
- 8: A group of three semi-mature horse chestnut *Aesculus hippocastanum* trees at the entrance to the car park.
- 9: A group of four semi-mature ash trees planted in grassland east of the car park.

Condition

Urban trees

- 1: Poor condition.
- 2: Poor condition.
- 3: Moderate condition.
- 4: Good condition.
- 5: Moderate condition.
- 6: Moderate condition.
- 7: Moderate condition.
- 8: Good condition.
- 9: Good condition.

All trees are native species, and where there are groups, have a continuous canopy. Trees are limited in condition by not being fully mature, having an associated lack of ecological niches of value to other wildlife, and by being situated in locations where they are predominantly surrounded by hardstanding.

Watercourses

UKHabs habitat types present (secondary codes in brackets)

r1e - Ditch

Description

r1e - Ditch

This runs along the west boundary of the site, and forms part of an extensive ditch network in the wider landscape to the south-west, associated with The Brede Valley LWS. This particular ditch is approximately 2m wide, and heavily over-shaded by trees and scrub. Aquatic marginal vegetation was only present in isolated pockets, and included common reed, bur-reed *Sparganium sp.* and hemlock water-dropwort *Oenanthe crocata*.

Condition

r1e - Ditch

Poor condition. This habitat is limited primarily by heavy shading and very low occurrence of aquatic marginal vegetation.



Urban

UKHabs habitat types present (secondary codes in brackets)

u1b - Developed land; sealed surface

Description

u1b - Developed land; sealed surface

This refers to areas of car park and hard-surfaced paths running through the modified grassland.

Condition

u1b - Developed land; sealed surface: N/A - Other



1.16. References

Butcher, B., Carey, P., Edmonds, R., Norton, L., & Treweek, J (2020) *The UK Habitat Classification User Manual Version 1.1* http://www.ukhab/org/.

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Sussex Biodiversity Partnership (2024). *Biodiversity Opportunity Areas*. https://sussexInp.org.uk/boa/. Accessed 19/01/2024.

SxBRC (2023) Sussex Biodiversity Records Centre: data search of protected and priority sites and species in Rother District. Received 05/06/2023.

Woodland Trust (2014) Ancient Trees and special interest trees. Woodwise. Woodland Conservation News, Spring 2014. Available at: https://www.woodlandtrust.org.uk/media/1798/wood-wise-ancient-trees.pdf.

1.17. Surveyors

The survey was undertaken by Lydia Ennis ACIEEM. Lydia has six years' experience undertaking habitat surveys and delivering management advice to landowners. The report was also written by Lydia, and reviewed by Will O'Connor CEcol MCIEEM. Will has over 15 years' experience working as an ecological consultant.



Detailed methodology

UK Habitat Classification

The habitat surveys followed the methodology of the UK Habitat Classification (professional) version 2.0 (hereafter UKHab; UK Habitat Classification Working Group, 2023). UKHab works at two levels: a hierarchical primary habitat classification and a list of secondary codes. The primary classification builds on existing habitat and botanical classifications (e.g., Phase 1, NVC). Habitats are described through an increasingly detailed hierarchy until a match is found. The secondary codes provide a list of environmental qualifiers that capture details for a range of other factors (e.g., hydrological regime, management etc). A given primary habitat area may have many secondary codes attached.

Some modifications to the UKHab were made as follows:

- Native hedgerows were categorised according to the more detailed Biodiversity Metric habitat label (see below). A level 5 hierarchy was created under the existing level 4 code 'h2a -Priority hedgerows' to reflect the differing features that hedgerows might contain in combination:
 - o Association with a bank or ditch.
 - Species richness.
 - With/without trees.

Incidental plant species lists were gathered for each habitat and distributions of species estimated (using the DAFOR scale; **D**ominant, **A**bundant, **F**requent, **O**ccasional and **R**are). Full botanical inventories were not feasible within the scope of this work. Botanical lists are provided as a separate appendix to this Biodiversity Audit.

Biodiversity Metric

The Defra Biodiversity Metric 4.0 (Natural England, 2023) has been used for this Biodiversity Audit, with certain modifications as detailed in the Appendix. This method uses habitat as a proxy for biodiversity, whereby habitats are assigned the following 'multiplier' scores:

- Distinctiveness: A measure of the type and importance of a habitat. Habitats that are rare and/or support a wide range of species are more distinctive.
- Condition: A measure of the condition of a given habitat type. The condition is assessed
 according to a suite of criteria described within the methodology below. It should be stressed
 that condition in biodiversity terms is not to be confused with traditional perceptions of condition



or maintenance. A grassland that might be perceived to be well maintained (e.g. regularly mown) is very likely to be in poor condition. Distinctiveness and condition are also not wholly independent. Some of the factors that lead to poor condition grasslands (intensive mowing or grazing) can also lead to a definition as a lower distinctiveness grassland.

Strategic significance: Any site that possesses a designation is considered High, those deemed
ecologically valuable but without designation are considered Medium, and those with limited
ecological value and no designation are classed as Low.

These factors are then multiplied to the area (for habitat parcels) or length (hedgerows, lines of trees) to produce an overall 'biodiversity unit.' Large parcels of habitat or long linear features will score better.

The total number of units is presented for the surveyed areas, each site and by habitat type. Indications of how many units are currently contained within habitats of different conditions are also presented; this will help to indicate the opportunities that might be made to increase measurable biodiversity by improving the condition of existing habitats.

Condition assessments

Each habitat type was assessed for condition using the methodology outlined in the Defra Biodiversity Metric 4.0 (Natural England, 2023). Habitat condition is defined as either good, moderate or poor by assessment against a suite of condition criteria. A habitat in good condition will meet more of the criteria for good condition and fewer of the criteria for poor condition. A habitat in poor condition will meet fewer of the criteria for good condition and more of the criteria for poor condition. For the purposes of this assessment the interim categories of 'fairly good' and 'fairly poor' were not used because they are not clearly defined within the methodology and may present inconsistencies with future audit assessments. The habitat condition sheets were modified for use in the field and are supplied as supplementary data.

Habitats were therefore divided into parcels based upon their condition and minimum mappable unit of habitat area.



