MKA
ECOLOGY

Rother
District Council

Rother District Council

Biodiversity Audit

Land at Coronation Gardens, Battle

Land at Coronation Gardens, Battle

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 Land at Coronation Gardens, Battle.

1.2. Methodology

The audits were performed using standard methodologies; habitats were defined according to the UK Habitat Classification and habitat conditions were assessed against the 'Biodiversity Net Gain' metric schema (Natural England, 2023a; Natural England, 2023b). 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 located within the High Weald National Landscape (formerly known as Area of Outstanding Natural Beauty (AONB) and High Weald National Character Area (NCA).

Land at Coronation Gardens, Battle is not currently covered by any international, national or local nature conservation designations. The site is located within the Great Wood Area Biodiversity Opportunity Area (Sussex Biodiversity Partnership, 2024). Target habitat types for this BOA for creation, restoration and management are woodland and grassland.

1.4. Site description

The survey area is shown on the map in Figure 1. Within this report this area is referred to as the Site or Land at Coronation Gardens. The 1.7ha Site is located on the eastern edge of the town of Battle (central grid reference TQ 75833 16117), and comprises a field and small play area, with woodland positioned along the northern boundary. The site is adjacent and in close proximity to Priority Lowland Meadow and Priority Lowland Deciduous Woodland habitat (Priority Habitat Inventory; Natural England, 2023c), with Great Wood, a large area of ancient replanted woodland (Natural England, 2023d) 0.5km to the east.

Land at Coronation Gardens contains four sections of grassland of differing land use. The most eastern section of amenity grassland is used as a playground. The adjacent large field of modified grassland is used by the community for recreational sports and other activities, and has a line of trees running along its southern boundary. Pockets of neutral grassland are situated to the north and west of the Site. The woodland belt along the northern boundary forms part of the wider woodland landscape, connecting Great Wood to the east and Petley Wood Shaw to the north through a continuous corridor.

The table below shows the habitats which are present at Land at Coronation Gardens, Battle. Detailed descriptions of each habitat type are given in Section 1.16.

Habitat type	Description
Other neutral grassland	A widespread grassland type, distinguished by an absence of strong calcareous or acidic indicator species, and low occurrence of palatable grasses typical of modified grassland.
Modified (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*.
Line of trees	Native and non-native trees planted in distinct lines throughout the park.
Developed surface	Areas of road, carpark and paths.
Other woodland; mixed	A mixture of broadleaved and coniferous trees in which neither make up >80% of the tree cover.
Mixed scrub	Dense scrub containing a mixture of species with no one species dominating.

1.5. Maps

The maps presented below show the existing habitats at Land at Coronation Gardens, Battle, and their conditions. Quadrats ($1m^2$) 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 Classifications map

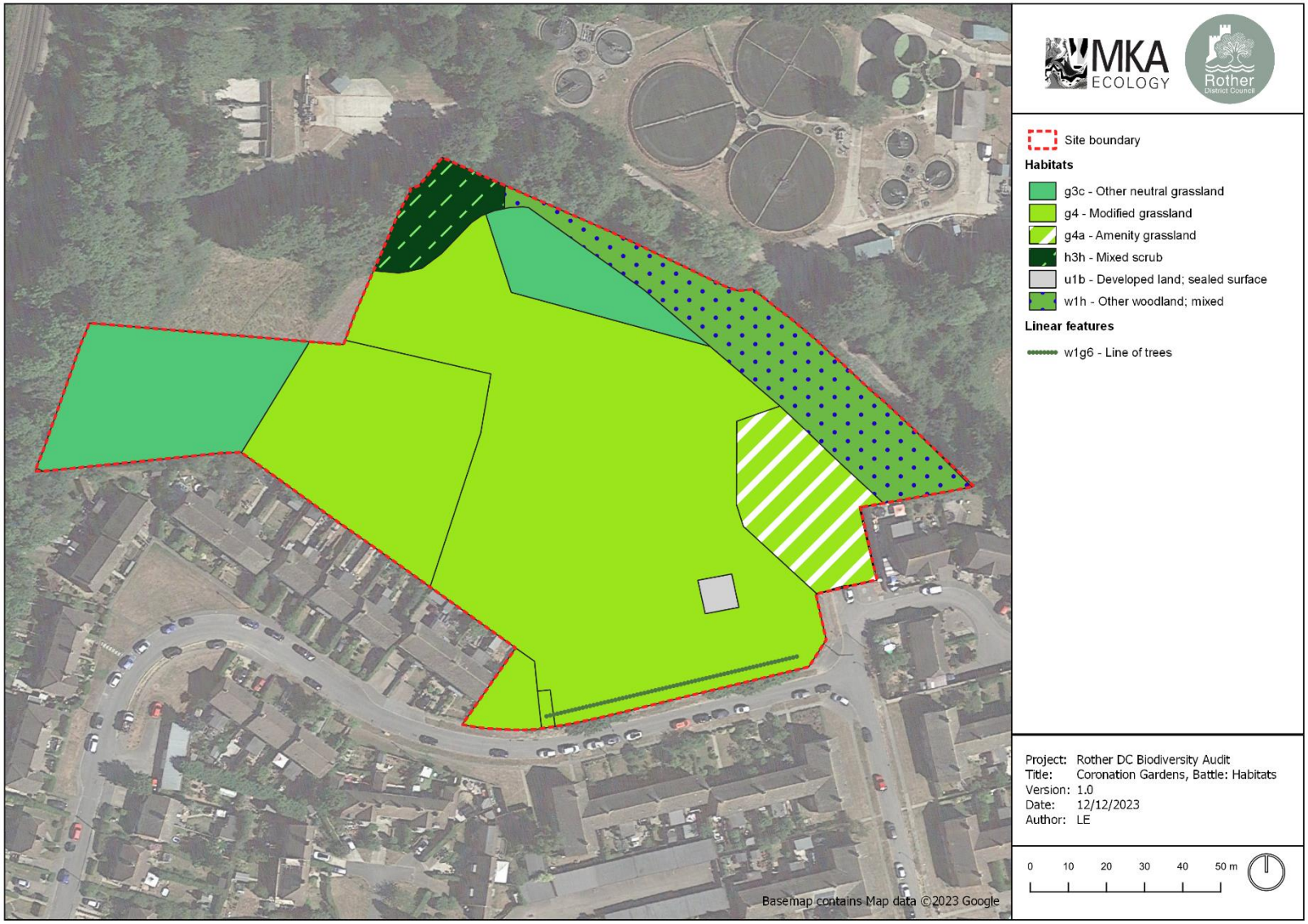
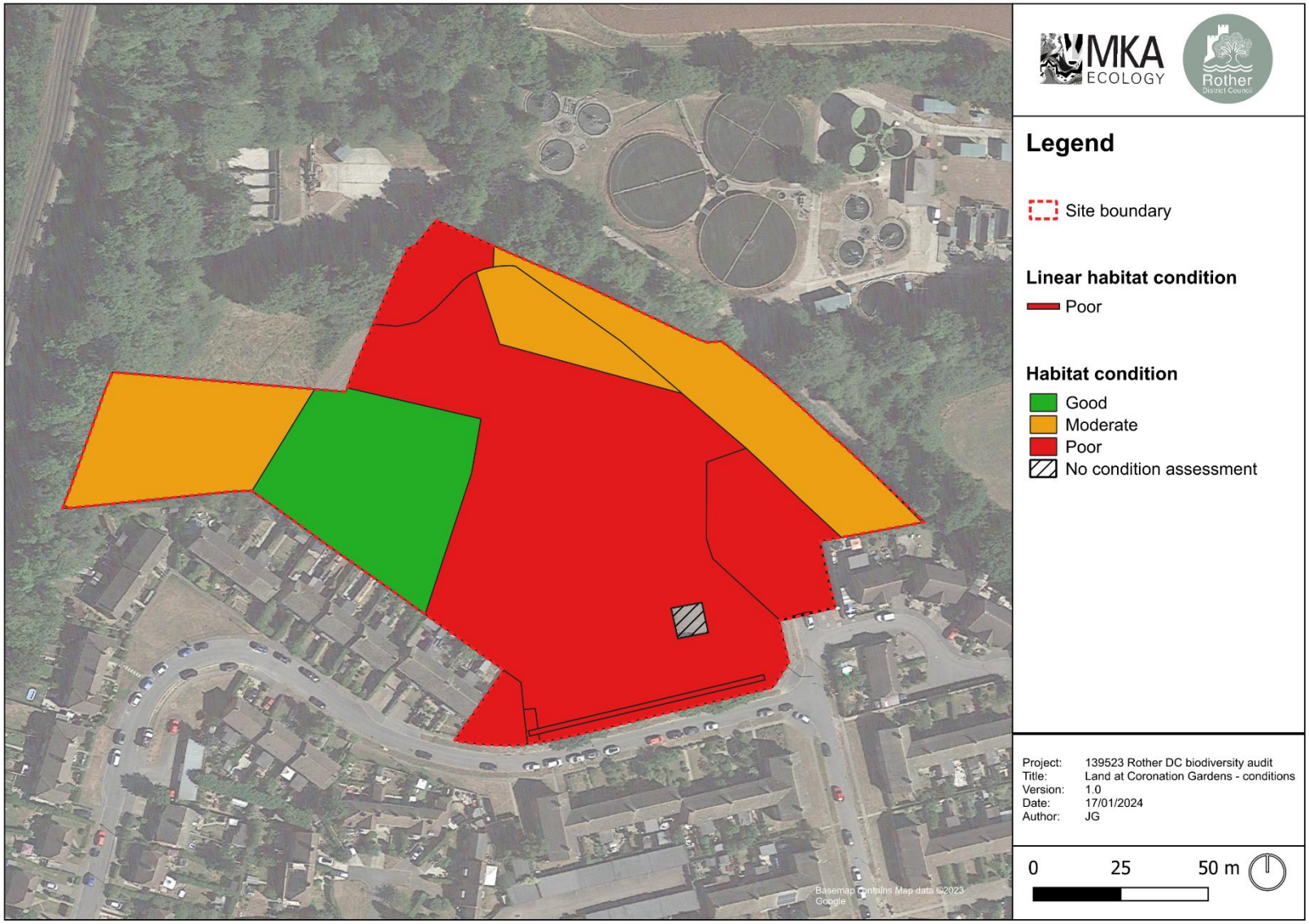


Figure 2: Condition assessments



1.6. Photographs

Photograph 1: Other neutral grassland (western parcel)

Photograph 2: Other neutral grassland (northern parcel)

Photograph 3: Modified grassland (poor condition)

Photograph 4: Modified grassland (good condition) - quadrat

Photograph 5: Mixed scrub

Photograph 6: Amenity grassland

Photograph 7: Other woodland; mixed

Photograph 8: Line of trees

Photograph 9: Developed land; sealed surface

1.7. Priority habitats

There are no Priority Habitats present at this location.

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 Land at Coronation Gardens, Battle, based on broad habitat types, are shown in the table below.

Habitat type	Total biodiversity units
Other neutral grassland	2.47
Modified grassland	3.00
Other woodland; mixed	1.78
Developed land; sealed surface	0.00
Total habitat units	**7.24**
Linear features type	**Total biodiversity units**
Line of trees	0.15
Total hedgerow units	**0.15**

1.9. Invasive non-native species

No invasive non-native species were recorded at Land at Coronation Gardens, Battle.

1.10. Constraints

Below are detailed some constraints relating to protected and notable species, which should be considered as part of habitat enhancement or creation programmes. 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 hedgerows, dense scrub and trees.
- Presence of reptiles in grassland, woodland and scrub habitats; particularly adjacent to the railway line in the grassland north-west of the Site.
- Potential presence of amphibians (such as great crested newt *Triturus cristatus*) in thick vegetation during their terrestrial phase, due to the presence of ditches to the north of the site.
- Potential use of the habitats onsite by foraging and commuting 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 Land at Coronation Gardens, Battle, and also measures to provide further opportunities for priority species. Given the location of this site within the BOA for Great Wood, it is suggested that a focus on increasing the cover of woodland is the main objective for this site, alongside amenity objectives.

Opportunities - Habitats

Habitat type	Opportunities

Other woodland; mixed	The site is located within a Biodiversity Opportunity Area characterised by woodland, much of which is ancient. This woodland belt forms part of a wider corridor linking nearby woods together. Expanding and enhancing woodland habitat should therefore be a core objective of biodiversity enhancements at the Site. These could be created using the Miyawaki Method (CTF, 2024).
	• Increase cover of woodland through planting new areas of native woodland on habitats of lower distinctiveness (modified grassland). Intersperse with scrub planting (see above).
	• Reduce cover of non-native tree species in existing woodland. Investigate veteranizing some of these 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, e.g. (Woodland Trust, 2014):
	  ○ *Ring-barking*
	  ○ *Branch breaks*
	  ○ *'Horse – damage'*
	  ○ *Pollarding*
	  ○ *'Monolith stumps': Soft/selective felling of limbs where necessary (i.e., for safety) to leave tall trunks in situ.*
	• Incorporate clearings (rides and glades) into existing and new woodland designs.
	Encourage a more diverse ground flora through re-seeding and planting.

Neutral grassland	These areas are already under a less regular mowing regime to the rest of the grassland habitat. Some further interventions, which could be detailed as part of a management plan for the site:

Habitat type	Opportunities
	• Regular management to keep levels of scrub encroachment and growth of undesirable species below threshold levels; • Implement a slightly more regular rotational mowing regime to create greater variety in sward height. Cut and collect arisings to reduce nutrient inputs; • Increase botanical diversity within the sward as a longer-term goal. Soil sampling is recommended to inform appropriate management. • Expand coverage of this habitat (perhaps beneath the line of trees and around the site boundaries) through sowing wildflower strips on modified grassland areas.
Modified grassland	This habitat is of low distinctiveness and the least valuable at the site in biodiversity terms. However, the central field is clearly of amenity value to the local community. There is scope to convert some of this grassland to woodland (see below), but this should be planned in tandem with amenity objectives for the site. Areas of retained modified grassland could be subject to a less regular mowing regime, to encourage a more diverse range of flowering plants in the sward, similar to the west portion of this habitat parcel. The aim 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.
Amenity grassland	No changes to management suggested here, given current use as a playground.
Mixed scrub	There is scope to expand the extent of mixed scrub across the site, as part of a mosaic with woodland planting (see below), and introduce regular management to increase habitat diversity. • Plant a greater diversity of native scrub species, on lower distinctiveness habitats (e.g. modified grassland); • Introduce a management plan of rotational cutting of scrub, to create open areas and encourage regrowth of a diversity of age classes.
Line of trees	• Increase length/extent through planting native tree species; • 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 (see above).

Opportunities - Species

Species	Opportunities
Invertebrates (saproxylic)	*Standing deadwood piles:* The creation of 'stumperies' with large volume wood (as generated 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 (pollinators)	Increasing the proportion of wildflowers within the grassland will create additional foraging habitat for pollinators.
Invertebrates (generalist)	'Bug hotels,' 'bee banks', and log piles could be installed around the Site.
Birds	Installation of generalist bird boxes where possible, for instance within the line of trees or woodland. Bird boxes with varying entrance hole sizes should be used to provide for a range of species. There could also be a focus on attracting woodland specialists, such as tawny owl *Strix aluco*, or spotted flycatcher *Muscicapa striata*.
Amphibians	Creation of a wildlife pond would add a high value habitat to the existing habitat mosaic, particularly of value to local amphibian populations.
Reptiles	Reptiles could be supported through creation of bespoke reptile refugia and hibernacula, providing additional areas for basking and foraging. This would be particularly beneficial within the grassland in the north of the site, adjacent to the railway.
Bats	Installation of bat boxes where possible, particularly in the woodland.
Hedgehog	Creation of large log and brash piles in woodland and neutral grassland areas.
Hazel dormouse	Installation of dormouse boxes within the woodland, and management for key food plants for this species within the understorey (e.g. hazel, honeysuckle).

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 (subject to feasibility), together with a management plan;
- Reduce non-native species cover within the woodland;

- Trial relaxing mowing regime on modified grassland to create areas of bee lawn;
- Increase sward diversity and reduce scrub and undesirable species within neutral grassland; and
- Install bird, bat and dormouse boxes.

Long-term targets

Some key targets for long term planning;

- Review woodland management plan,
- Increase botanical diversity of neutral grassland;
- Expand bee lawn areas of modified grassland, dependent on results of trial.

1.13. Further monitoring work/other activities

Specific surveys for protected and priority species could be undertaken for hazel dormouse, bats, invertebrates and reptiles. 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) **g3c – Other neutral grassland** **g4 – Modified grassland** **g4a – Amenity grassland**
Description **g3c – Other neutral grassland** Two areas of grassland exhibit a different species composition to the modified grassland that dominates much of the site (see below). The site is situated on slightly acid soils (LandIS, 2024), but in the absence of any strong acid grassland indicators, the grassland is categorised as neutral. In the west parcel, palatable grasses are generally absent, and the sward is dominated by grasses including false oat-grass *Arrhenatherum elatius* and common couch *Elymus repens,* with Yorkshire fog *Holcus lanatus,* cock's-foot *Dactylis glomerata* and meadow foxtail *Alopecurus pratensis* also present. Herbaceous species are present in low frequency, including hogweed *Heracleum sphondylium*, meadow vetchling *Lathyrus pratensis*, cut-leave crane's-bill *Geranium dissectum* and smooth tare *Vicia tetrasperma*. The sward was mostly long at the time of survey, with some paths mown through for access. The strip of neutral grassland in the north of the site contains more palatable grasses such as perennial rye-grass *Lolium perenne*, but in low density; the sward is dominated by common bent *Agrostis capillaris*, Yorkshire fog and rough meadow-grass *Poa trivialis.* Other grasses – sweet vernal-grass *Anthoxanum odoratum*, red fescue *Festuca rubra* and barren brome *Bromus sterilis* are present in low abundance. Herbs include white clover *Trifolium repens*, creeping buttercup *Ranunculus repens* and creeping cinquefoil *Potentilla reptans*. The sward was mostly long at the time of survey, with some paths mown through for access. **g4 – Modified grassland** This is the dominant habitat type at the site, and forms the central recreational field. The majority of the field is species-poor, with the sward (mown short at the time of the survey visit) dominated by perennial rye-grass *Lolium perenne*, white clover *Trifolium repens*, creeping buttercup *Ranunculus repens* and dandelion *Taraxacum agg.* A small parcel in the western corner has a different, more diverse composition, with the same species plus Yorkshire fog *Holcus lanatus* red fescue *Festuca rubra* and a greater number of herbs: bird's-foot trefoil *Lotus corniculatus*, red clover *Trifolium pratense*, selfheal *Prunella vulgaris* and hawkbit *Leontodon sp.* The presence of fine-leaved grasses and herbs suggests this area may have been subject to a different management regime from the rest of the field, with possibly more regular mowing or a different re-seeding plan.

Grassland
g4a – Amenity grassland A section of the main field is designated as a playground, with modified grassland as per the above description interspersed with children's play equipment.
Condition **g3c – Other neutral grassland** Both parcels in Moderate condition. Both grassland areas are limited by species diversity, with fewer than ten species per m^2 recorded, and lack of sufficient variety in sward height. The north parcel is also suffering from encroachment from undesirable species (creeping buttercup), possibly from the adjacent modified grassland. Scrub (bramble and blackthorn) is present in both grasslands, but at low levels not sufficient to affect condition. **g4 – Modified grassland** Predominantly Poor condition, on the basis of low species diversity (fewer than 6 species per $1m^2$), and uniform sward height. The more species-rich parcel in the west of the field is in good condition, with ten species recorded per $1m^2$. **g4a – Amenity grassland** Poor condition, on the basis of low species diversity (fewer than 6 species per $1m^2$), along with uniform sward height.

Heathland and scrub
UKHabs habitat types present (secondary codes in brackets) **h3h: Mixed scrub**
Description **h3h: Mixed scrub** This is a small stand of shorter woody vegetation, linked to the woodland belt. Dominant species are blackthorn *Prunus spinosa* and hazel *Coryllus avellana.*
Condition **h3h: Mixed scrub** Poor condition. Condition is limited by a low diversity of woody species (only two), limited age diversity (all mature) and an absence of clearings within the scrub (although the latter is challenging to achieve with a small parcel like this). However, no invasive non-native plants were recorded, and the scrub is surrounded by unmown neutral grassland, which benefits condition.

Woodland
UKHabs habitat types present (secondary codes in brackets) **w1h – Other woodland; mixed**
Description **w1h – Other woodland; mixed** A belt of woodland runs along the north Site boundary, on a slope. Dominant species within the canopy are non-native Scots pine *Pinus sylvestris* and Leyland cypress *Cupressus x leylandii,* with horse chestnut *Aesculus hippocastanum*, beech *Fagus sylvatica* and aspen *Populus tremula* also present. There is an understorey, dominated by elder *Sambucus nigra*, hawthorn *Crataegus monogyna*, blackthorn and hazel. The ground flora comprises predominantly ivy *Hedera helix*, Alexanders *Smyrnium olusatrum* and cow parsley *Anthriscus sylvestris*. The woodland does not appear to be under any form of regular management.
Condition **w1h – Other woodland; mixed** Moderate condition. Condition of this habitat is limited by the fact the canopy is dominated by non-native species; several native tree species are present, but are mostly confined to understorey layers. The ground flora plant community is not characteristic of a native woodland, and condition is also limited by a relative absence of deadwood features, and veteran trees. No invasive non-native species were recorded however, which is a positive attribute.

Linear features
UKHabs habitat types present (secondary codes in brackets) **w1g6 – Line of trees**
Description **w1g6 – Line of trees** This habitat consists of a single treeline along the southern boundary. Tree species recorded are cherry *Prunus sp.,* whitebeam *Sorbus sp.,* apple *Malus sp.,* silver birch *Betula pendula* and maple *Acer sp;* they appear to be domestic cultivars of native species, or non-native. The trees are all of a similar age (semi-mature).
Condition **w1g6 – Line of trees** Poor condition. Passes criteria relating to continuous tree canopy and tree health. Condition is limited by the absence of native tree species, tree age meaning an absence of veteran features or other niches for wildlife to exploit, and the presence of hardstanding within 6m of the habitat feature.

Urban
UKHabs habitat types present (secondary codes in brackets) **u1b5 – Developed land; sealed surface**
Description **u1b5 – Developed land; sealed surface** There is a small area of hardstanding within the grassland, associated with amenity use.
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/.

CTF (2024) Creating Tomorrow's Forests: The Miyawaki Method for Creating Forests. https://www.creatingtomorrowsforests.co.uk/blog/the-miyawaki-method-for-creating-forests. Accessed 26/01/2024.

LandIS (2024) https://www.landis.org.uk/soilscapes/. Accessed 12/01/2024.

Natural England (2023a) *Biodiversity Metric 4.0 Calculation Tool*. Natural England: York.

Natural England (2023b) *The Biodiversity Metric 4.0 – User Guide*. Natural England: York.

Natural England (2023c) Priority Habitats Inventory (England) Available at: https://www.data.gov.uk/dataset/4b6ddab7-6c0f-4407-946e-d6499f19fcde/priority-habitats-inventory-england. Downloaded 30/10/2023.

Natural England (2023d) Ancient Woodland Inventory (England) Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/ancient-woodland-england/explore. Downloaded 30/10/2023.

Sussex Biodiversity Partnership (2024). *Biodiversity Opportunity Areas.* https://sussexlnp.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 written by Lydia and Joe Gillis, Graduate Ecologist, at MKA Ecology Ltd. Joe has a season's experience as an ecologist. The report has been 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:

- Amenity grassland was categorised separately as 'g4a', a level 4 code of 'g4 - modified grassland'.
- 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:

    - 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.

MKA
ECOLOGY

MKA Ecology Limited, New Cambridge House, Bassingbourn Road, Litlington, Cambridgeshire SG8 0SS
01763 262 211 | info@mkaecology.co.uk | www.mkaecology.co.uk
Company registration no 5858121 | VAT no. 825137440