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Rother
District Council

Rother District Council

Biodiversity Audit

Land at Darvel Down, Netherfield

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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 Land at Darvel Down, Netherfield (referred to in this report as Land at Darvel Down).

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 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 Darvel Down is not currently covered by any international, national or local nature conservation designations. It lies within 0.5km of the River Line Site of Special Scientific Interest (SSSI), which is situated within woodland to the north-east. This SSSI is designated for its geological significance. The site also lies 0.5km south-west of Limekiln Wood Complex Local Wildlife Site (LWS), and within 1km of Darwell Wood SSSI, to the north-west. Both sites are designated for their woodland habitats. A notable road verge is located 0.15km to the north, designated for its meadow flora and currently subject to a hay cut regime.

No habitats within the site boundary are registered as Priority Habitats on Natural England inventories (Natural England 2023c,d). The site is located 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

The site is 0.5ha in size (centred on grid reference TQ 71007 18720) and is a recreational ground located on the outskirts of the village of Netherfield. It consists of two small areas of grassland (one mostly occupied by a playground) connected by a footpath. No information on current or past management of the site was available. At the time of the survey visit, the grassland was unmown.

The site is surrounded by the village of Netherfield immediately to the north, east and west. To the south and in the wider landscape, habitats are predominantly woodland (including the designations listed in Section 1.3) interspersed with pasture fields. A large part of this woodland is registered on Natural England's Priority Habitat Inventory as deciduous woodland (Natural England, 2023c). Sections are also listed on the Ancient Woodland Inventory (Natural England, 2023d).

The table below shows the habitats which are present at Land at Darvel Down. Detailed descriptions of each habitat type are given in Section 1.16.

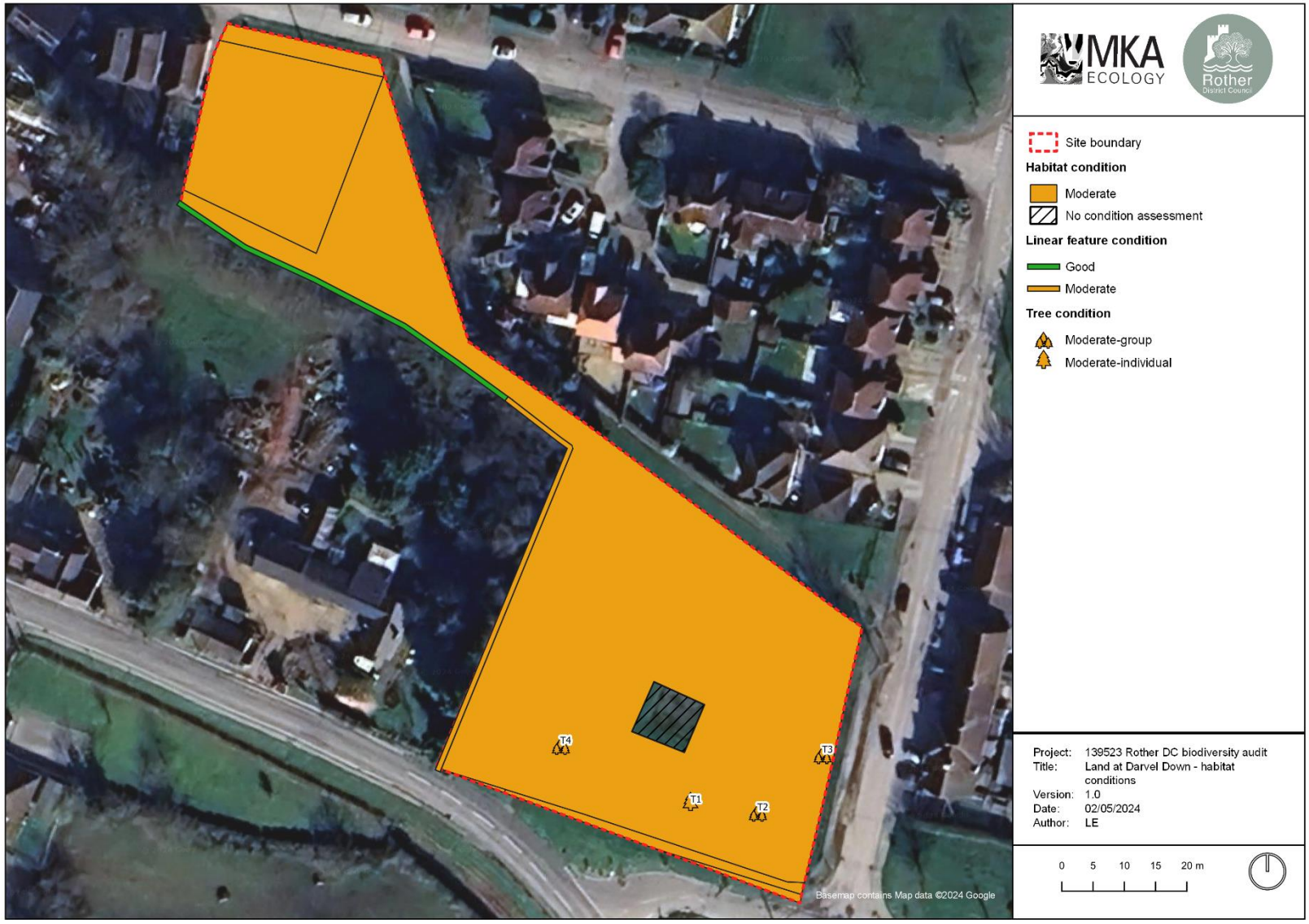
Habitat type	Description
Other neutral grassland	A widespread grassland type, distinguished by an absence of strong calcareous or acidic indicator species, and low occurrence of palatable grasses typical of modified grassland.
Modified (amenity) grassland	Frequently managed grasslands found in recreational 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*.
Developed surface	Areas of road, carpark and paths.
Lines of trees	Native and non-native trees planted in distinct lines throughout the park.
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).

1.5. Maps

The maps presented below show the existing habitats at Land at Darvel Down, 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

Photograph 2: Modified (amenity) grassland - playground

Photograph 3: Line of trees (ecologically valuable) associated with bank

Photograph 4: Line of trees

Photograph 5: Urban trees (T2)

Photograph 6: Urban trees (T1 (far left) and T4 (centre))

1.7. Priority habitats

No Priority Habitats are present at Land at Darvel Down.

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 Darvel Down, based on broad habitat types, are shown in the table below.

Habitat type	Total biodiversity units
Other neutral grassland	3.41
Modified grassland	0.28
Developed land; sealed surface	0.00
Urban trees	0.29
Total habitat units	**3.98**
Linear features type	**Total biodiversity units**
Line of trees (ecologically valuable) associated with bank	0.84
Line of trees	0.30
Total linear features units	**1.14**

1.9. Invasive non-native species

Cherry laurel was recorded within the line of trees (associated with bank). Cherry laurel is not listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), but can outcompete native woodland and scrub vegetation.

No other invasive non-native species were recorded at Land at Darvel Down.

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 lines of trees.
- Presence of reptiles in grassland, woodland and scrub habitats.
- Potential use of the habitats onsite by foraging and commuting bats.

- Potential use of trees onsite by roosting bats.
- Potential presence of hedgehogs *Erinaceus europaeus*.

1.11. Opportunities

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

Opportunities - Habitats

Habitat type	Opportunities
Other neutral grassland	This habitat is currently in moderate condition. To enhance it to good condition, the following interventions are required: • Reduction of undesirable species (creeping buttercup) • Increase botanical diversity. It may be possible to target both of these through manual removal of creeping buttercup, and re-seeding of areas of bare ground created in doing so. The seed mix should include yellow rattle to ensure grasses do not become overly dominant. Due to the recreational use of the site, this approach could be trialled in less intensively used areas, for example around the perimeters of the site, adjacent to the fences and treelines. Restoration efforts in these areas would be supported by a relaxed mowing regime, with irregular cutting (every 4-6 weeks maximum) through the summer months.
Lines of trees and individual trees	The main recommended interventions here are: • Replacement planting of non-native trees with native species when opportunities arise (e.g. as trees reach the end of their natural lifespans) • Infill planting (with native species) to connect the individual groups of trees in the south and east of the site with the lines of trees in the west. A hedgerow could also be planted along the south boundary to complement this.

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 on the lines of trees (the trees within the grassland are too small to have bird boxes mounted on them at present). Bird boxes with varying entrance hole sizes should be used to provide for a range of species.
Reptiles and amphibians	These species groups 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 the lines of trees (the trees within the grassland are too small to have bat boxes mounted on them at present).

1.12. Key targets for the short and long term

Short-term targets

Some key targets for upcoming 5 to 10 years:

- Install bird and bat boxes;
- Infill tree planting where possible;
- Trial creeping buttercup reduction and over-seeding in zones in the grassland.

Long-term targets

Some key targets for long term planning;

- Plant more hedgerows and treelines along the site boundaries;
- Review and adapt grassland restoration efforts.

1.13. Further monitoring work/other activities

Specific surveys for protected and priority species could be undertaken for bats, invertebrates 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) **g3c – Other neutral grassland** **g4a – Amenity grassland**
Description The site consists mostly of grassland, split into two parcels linked by a path. This habitat is situated on slightly acid soils with loam and clay (LANDIS, 2024). Due to the absence of strong acidic indicator species, the grassland types are categorised as below. **g3c – Other neutral grassland** This refers to all areas of grassland outside the playground. The sward was long (10-20cm) at the time of the survey visit, showing a diverse range of grass species including sweet vernal grass *Anthoxanum odoratum*, soft brome *Bromus hordeaceus*, rough meadow-grass *Poa trivialis*, red fescue *Festuca rubra*, Yorkshire fog *Holcus lanatus* and meadow foxtail *Alopecurus pratensis*. Perennial rye-grass *Lolium perenne* is present but not dominant within the sward. Amongst the grasses, cuckoo-flower *Cardamine pratensis*, hawkbit *Leontodon sp.,* common sorrel *Rumex acetosa* and creeping buttercup *Ranunculus repens* are the dominant forb species. Field wood-rush *Luzula campestris* is locally dominant in the east half of the southern parcel. Species diversity is generally high, with nine species recorded in four out of five quadrats within the grassland (see comments on condition below). **g4a – Amenity grassland** This refers to the grassland within the playground in the northern parcel, enclosed by a fence. The sward was shorter here than in surrounding grassland, with patches of bare ground showing high recreational pressure. Species recorded within this sward are perennial rye-grass, cock's-foot *Dactylis glomerata* and annual meadow grass *Poa annua*, with creeping buttercup, daisy *Bellis perennis*, greater plantain *Plantago major*, dandelion *Taraxacum agg.* and clover *Trifolium sp.* the dominant forbs.
Condition **g3c – Other neutral grassland** **Moderate condition:** The grassland fails to reach good condition due to presence of above threshold levels of undesirable species (creeping buttercup), and species diversity below a threshold level of 10 species per m^2 (average of 8 species per m^2 recorded in quadrats). Due to management at the time of the survey visit, it passes criteria for varied sward height.

Grassland
g4a – Amenity grassland **Moderate condition:** The grassland fails to reach good condition due to an absence of varied sward height (the grassland was all short at the time of the survey visit), and physical damage affecting >5% of the grassland area (in this case compaction and bare ground from recreational pressure). It should be noted that it passes the criterion for species richness, with nine species recorded per m^2.

Trees
UKHabs habitat types present (secondary codes in brackets) **Urban trees**
Description **Urban trees** There are four individual or groups of trees in the southern grassland parcel. All trees are immature. T1: A small, non-native conifer; T2: A group of two small pine trees T3: A group of two deciduous trees; one ash *Fraxinus excelsior*, one maple *Acer sp.* T4: A group of goat willow trees.
Condition **Urban trees** All trees are in **moderate condition.** All fail to reach good condition as they are immature, and have not developed sufficient mature or veteran features to support ecological niches for wildlife. Apart from T4, all trees are predominantly non-native, and therefore fail this criterion too.

Lines of trees
UKHabs habitat types present (secondary codes in brackets) **w1g6iii – Line of trees (ecologically valuable) associated with bank** **w1g6 – Line of trees**
Description **w1g6iii – Line of trees (ecologically valuable) associated with bank** This feature lines the southern boundary of the north parcel of grassland, adjacent to the playground. Tree species include pedunculate oak *Quercus robur* and beech *Fagus sylvatica*, with holly *Ilex*

Lines of trees
aquifolium, honeysuckle *Lonicera periclymenum*, cherry laurel *Prunus laurocerasus,* hawthorn *Crataegus monogyna* and hazel *Coryllus avellana* forming an understorey. **w1g6 – Line of trees** This feature lines the west boundary of the southern parcel of grassland. Tree species include Leyland cypress *Cupressus leylandii* and poplar *Populus sp.,* with elder *Sambucus nigra* and goat willow *Salix caprea* in the understorey.
Condition **w1g6iii – Line of trees (ecologically valuable) associated with bank** **Good condition.** This habitat passes all condition criteria, including being composed of >70% native tree species; the trees being mature and supporting veteran features, and with no gaps in canopy cover. **w1g6 – Line of trees** **Moderate condition.** This habitat fails to reach good condition due to tree species being predominantly non-native (Leyland cypress and poplar) and the trees not supporting veteran features with potential for wildlife. The habitat does form a continuous canopy cover and connects directly with the adjacent tree line onsite.

Urban
UKHabs habitat types present (secondary codes in brackets) **u1b – Developed land; sealed surface**
Description **u1b – Developed land; sealed surface** A square of hardstanding, associated with sports equipment, is located in the centre of the site.
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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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.

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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.

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:

    - 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