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Rother
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Rother District Council

Biodiversity Audit

Woodland 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 a parcel of woodland located off Darvel Down in Netherfield (referred to as either the site or woodland 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).

The woodland at Darvel Down is not currently covered by any international, national or local nature conservation designations. It lies within 30m 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 0.2km south-west of Limekiln Wood Complex Local Wildlife Site (LWS), and within 0.6km of Darwell Wood SSSI, to the north-west. Both sites are designated for their woodland habitats.

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 2.5ha in size (centred on grid reference TQ 71110 18977) and consists of a parcel of plantation woodland on the south-western edge of a larger, deciduous semi-natural woodland. The woodland within the site is dominated by Scot's pine *Pinus sylvestris*, with a native shrub understorey. No information on current or past management of the site was available; at the time of the survey visit it did appear to be under regular management, or accessed by members of the public save for a footpath running along the northern perimeter.

The site is surrounded by the village of Netherfield immediately to the south. To the north, east and west, the landscape is dominated by woodland (including the designations listed in Section 1.3) interspersed with pasture fields. A large part of this woodland, including that immediately to the north of the site, 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 woodland at Darvel Down. Detailed descriptions of each habitat type are given in Section 1.16.

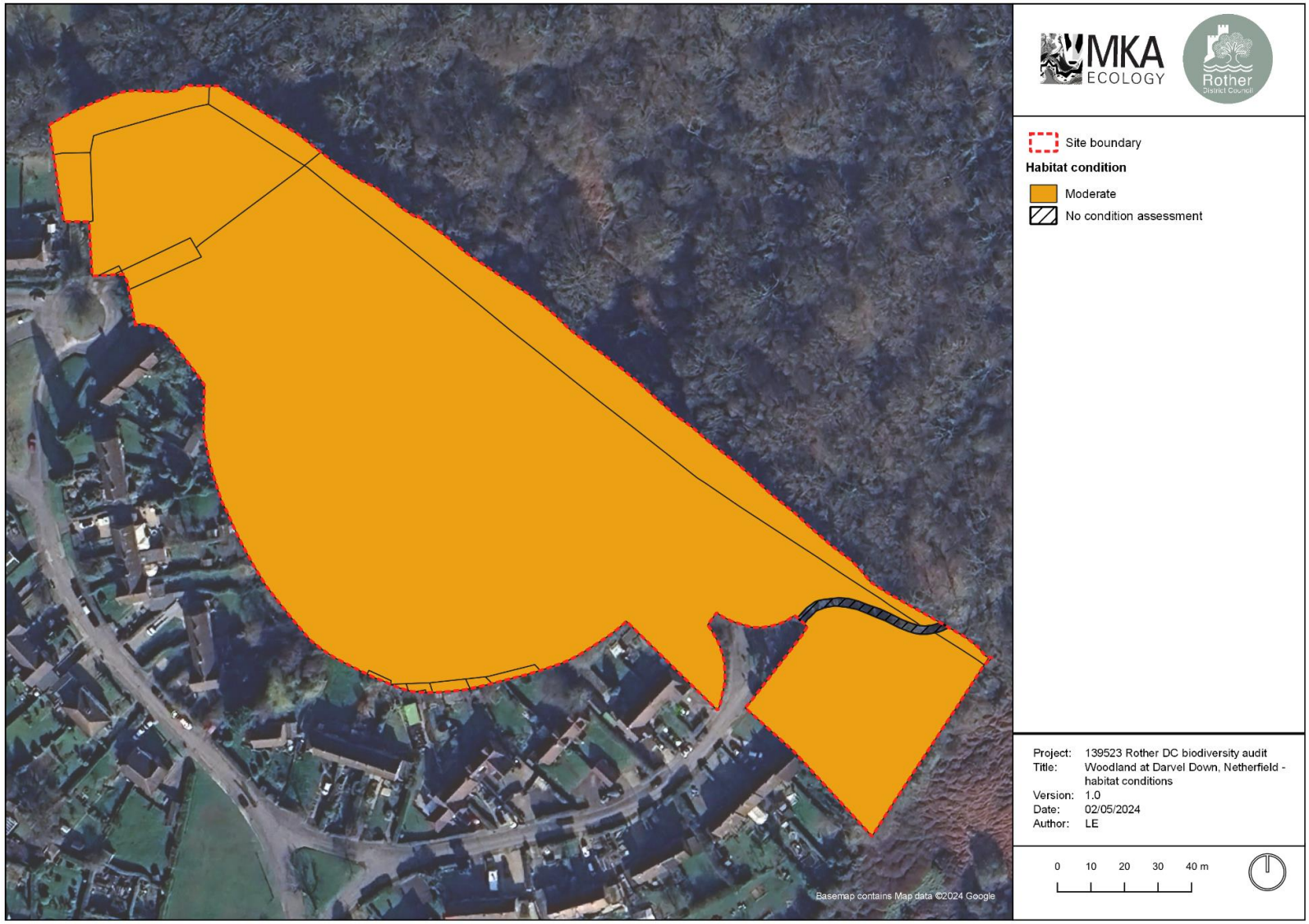
Habitat type	Description
Other Scot's pine woodland	Outside of Scotland, woodland with >80% cover of trees comprising coniferous species; specifically Scot's pine *Pinus sylvestris*.
Developed surface	Areas of road, carpark and paths.

1.5. Maps

The maps presented below show the existing habitats at woodland 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 Scot's pine woodland

Photograph 2: Other Scot's pine woodland

Photograph 3: Other Scot's pine woodland (area of beech plantation)

Photograph 4: Other Scot's pine woodland (deciduous area)

Photograph 5: Hardstanding track

Photograph 6: Wilson's honeysuckle (located adjacent to hardstanding track)

1.7. Priority habitats

There are no Priority Habitats present at this site. However, it is adjacent to Lowland Mixed Deciduous Woodland. 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 woodland at Darvel Down, based on broad habitat types, are shown in the table below.

Habitat type	Total biodiversity units
Other Scot's pine woodland	22.79
Developed land; sealed surface	0.00
Total habitat units	**22.79**

1.9. Invasive non-native species

Wilson's honeysuckle *Lonicera nitida* was recorded within the site (see Figure 1 and Photograph 6). Wilson's honeysuckle is not listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), but can outcompete native woodland and scrub vegetation.

Himalayan balsam *Impatiens glandulifera* was recorded growing in woodland to the north of the site (see Figure 1). This species is listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

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 woodland;
- Presence of reptiles in woodland habitats;
- Potential presence of amphibians (such as great crested newt *Triturus cristatus*) in thick vegetation during their terrestrial phase;
- 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 (one sett recorded during the site visit; see Figure 1); and
- 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 the woodland at Darvel Down, and also measures to provide further opportunities for priority species.

Opportunities - Habitats

Habitat type	Opportunities
Other Scot's pine woodland	The site is located within a BOA for woodland restoration and enhancement, and is situated on the fringe of a large complex of deciduous woodland, some of it ancient. Although Scot's pine woodland is assigned a lower distinctiveness in the Biodiversity Metric than native deciduous woodland, it can provide valuable habitat for native wildlife, and in small pockets such as this site, increase habitat diversity across a woodland complex. Future enhancements at the site should aim to reduce the dominance of Scot's pine, but not remove this species entirely, or alter the composition to entirely deciduous. Nevertheless, the woodland would benefit from a greater botanical diversity in all layers (canopy, understorey, ground flora) as well as greater age diversity. The following interventions should be considered: • Successive thinning operations to create rides and glades, and reduce dominance of Scot's pine (this species should account for less than 80% cover). Leave some trees to develop and mature as standards ('granny pines'). • Increase the number of deadwood and veteran trees. Accelerate the ageing process with veteranising techniques (Woodland Trust, 2014); e.g. ringbark some trees and leave as standing deadwood. • The understorey within the woodland comprises a range of native shrub and tree species. These should naturally replace the Scot's pine within cleared areas without the need for targeted planting. Protection from browsing may be required. • Introduce active management of bramble (strimming) to increase diversity of ground flora.

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.
Birds	Installation of bird boxes to compensate for lack of veteran features on trees. Target woodland specialists, including tawny owl *Strix aluco* and spotted flycatcher *Muscicapa striata* (this species recorded during the site visit) alongside generalist boxes.
Reptiles and amphibians	These species groups could be supported through creation of bespoke refugia and hibernacula, providing additional areas for basking and foraging.
Bats	Installation of bat boxes on trees to compensate for lack of veteran features.
Hedgehog	Hedgehog hibernation boxes may be installed at the bases of the hedgerows, ideally positioned near to species-rich grassland.
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:

- Introduce thinning programme for Scot's pine, including veteranisation techniques;
- Introduce active management of bramble stands;
- Install bird, bat and dormouse boxes, and refugia for reptiles and amphibians.

Long-term targets

Some key targets for long term planning;

- Monitor regrowth of canopy, understorey and ground flora and introduce remedial actions (e.g. protection from browsing control) if necessary.

1.13.Further monitoring work/other activities

Specific surveys for protected and priority species could be undertaken for invertebrates, birds, bats, dormice 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.

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

Woodland
UKHabs habitat types present (secondary codes in brackets) **w2b: Other Scot's pine woodland**
Description **w2b: Other Scot's pine woodland** The site consists of a parcel of plantation woodland on the south-western edge of a larger, deciduous semi-natural woodland. The woodland canopy within the site is dominated by Scot's pine, with this species accounting for approximately 90% of total cover. There is a small section of beech *Fagus sylvatica* plantation in the centre of the site. Towards the east end, a strip of woodland adjacent to the hardstanding track takes on a more semi-natural appearance and is dominated by pedunculate oak *Quercus robur* with hazel *Corylus avellana* understorey. Hazel was also recorded as an understorey shrub amongst the Scot's pine, along with sweet chestnut *Sativa castanea*, hawthorn *Crataegus monogyna*, buckthorn *Rhamnus cathartica,* rowan *Sorbus aucuparia* and honeysuckle *Lonicera periclymenum*. There are also a small number of poplar *Populus sp.* standards. A path runs around the perimeter of the site, but otherwise there is mostly a dense ground cover dominated by bramble *Rubus fruticosus agg.* and bracken *Pteridium aquifolium*. In the deciduous section in the east, the bramble gives way to a more diverse ground flora including scaly male-fern *Dryopteris affinis*, pendulous sedge *Carex pendula* and cow parsley *Anthriscus sylvestris*. Ground flora recorded in other areas of the woodland where bramble is not dominant include ancient woodland indicators for south-east England: wood sedge *Carex sylvatica*, bluebell *Hyacinthoides non-scripta,* wood sorrel *Oxalis acetosella,* enchanter's nightshade *Circaea lutetiana* and wood speedwell *Veronica montana*.
Condition **w2b: Other Scot's pine woodland** **Moderate condition.** This habitat scores 27, which is towards the lower end of the band for this condition (>26-32). It scores highly on criteria for presence of native tree and shrub species (which is notable given its habitat classification as a non-native plantation), as well as woodland regeneration and structural complexity (despite the similar age structure of the Scot's pine, the native understorey is quite complex). The dominance of Scot's pine (which is as classified non-native in the UK outside of Scotland), absence of veteran trees and absence of significantly sized deadwood means it scores poorly on other criteria.

Urban
UKHabs habitat types present (secondary codes in brackets) **u1b – Developed land; sealed surface**
Description **u1b – Developed land; sealed surface** A hardstanding track bisects the woodland in the east 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/.

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.

PTES (2016) *Build a log pile for stag beetles.* People's Trust for Endangered Species (PTES). Available at https://ptes.org/wp-content/uploads/2016/11/Build-a-log-pile-for-stag-beetles.pdf

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 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.

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