

# Biodiversity Net Gain in Greater Manchester - Assessment of offsite need for and supply of biodiversity units

Summary Report

January 2024

# Version Control

Document name: Biodiversity Net Gain in Greater Manchester - Assessment of offsite need for and supply of biodiversity units: Summary Report

Version: 1

Author(s): Derek Richardson, Greater Manchester Ecology Unit  
Samuel Bolton, Greater Manchester Ecology Unit  
Rachel Morrison, Greater Manchester Combined Authority

Editor(s): Rachel Morrison, Greater Manchester Combined Authority  
Sam Evans, Greater Manchester Combined Authority  
Jessica Skeggs, Greater Manchester Combined Authority

Approved by: Sam Evans, Greater Manchester Combined Authority

Approval date: 18<sup>th</sup> January 2024

Previous version: n/a

This report has been funded by Natural Course, EU Life Integrated Project: Project number LIFE14 IPE/UK/027.

# Contents

Executive summary .....	3
Background .....	3
Potential demand for offsite BNG units .....	3
Potential Supply of offsite BNG units.....	3
Comparing need and supply .....	4
1. Objective of the study .....	5
2. Methodology .....	6
2.1. Needs assessment.....	7
2.2. Needs assessment.....	10
3. Results .....	11
3.1. Estimated habitat loss .....	11
3.2. Biodiversity unit loss.....	12
3.3. Supply sites .....	12
3.4. Comparison of need and supply.....	13
4. Conclusion.....	13
5. Next steps .....	14
Appendix 1: BNG metric 3.0 baseline need assumptions.....	16
Appendix 2: BNG metric 3.0 baseline supply assumptions .....	17

# Executive summary

## Background

Developing a clear understanding of future demand for offsite [Biodiversity Net Gain](#) (BNG) is essential to inform the introduction of mandatory BNG across Greater Manchester, and plan for the resources required to secure delivery.

The aim of this study was to model the expected size of the potential market for offsite BNG, in terms of biodiversity units, in Greater Manchester over the next 15 years (from 2022). The study provides an estimate of the type, condition and area of habitat which will likely need to be offset in the short to medium term, and the associated quantity of biodiversity units and their estimated monetary value.

## Potential demand for offsite BNG units

The study identified an initial longlist of 1,470 potential major residential, commercial, and industrial development sites across Greater Manchester. This longlist was refined based on the likelihood that a development site would require offsite BNG, reducing the number of sites to a shortlist of 139, covering 4,446 hectares of land. Across the 10 districts, it was estimated that 1,432 hectares of land on these shortlisted sites will be used for major residential, commercial, and industrial development over the next 15 years.

In total, these developments would require an estimated 4,427 biodiversity units to offset this loss onsite (within the site boundary). Based on a biodiversity unit price of £30,000, this equates to £132.8 million or £8.8 million per annum allocated to offsite BNG over 15 years.

## Potential Supply of offsite BNG units

Across Greater Manchester, 337 potential offsite BNG supply sites, the majority of which in Local Authority ownership, were put forward, covering a total area of 5,314 hectares. These potential offsite BNG supply sites could deliver an estimated 13,456 biodiversity units, from a range of different habitat types. Experience from ground-truthing sites revealed that often a proportion of the site is unfeasible due to various constraints. To account for this risk and provide more realistic estimates, the

estimated potential offset units available were reduced by two-thirds, resulting in 4,485 available units.

The potential market value of these units is £134.6 million or £9.0 million per annum over 15 years, based on a £30,000 unit price.

## **Comparing need and supply**

Comparing need and supply, the need analysis estimated that between 4,427 onsite (within the site boundary) and 4,870 offsite (outside the site boundary due to spatial multipliers increasing the unit need) biodiversity units would be required in total across Greater Manchester. The creation of 4,485 units from potential supply sites would result in either a slight surplus of 58 units (assuming the required minimum 10% biodiversity gain uplift is found onsite) or a slight deficit of -385 units (assuming the required minimum 10% biodiversity gain uplift needed to be found offsite).

However, the figures stated in this report are estimates and the exact amount of biodiversity units which can be delivered by potential supply sites will depend on their proximity to the development in question and relationship to the forthcoming Local Nature Recovery Strategy.

# 1. Objective of the study

Developing a clear understanding of future demand and supply for offsite biodiversity units is essential to inform the introduction of mandatory Biodiversity Net Gain (BNG) across Greater Manchester, and plan for the resources required to manage the process of securing delivery.

BNG is an approach to development, that leaves biodiversity in a better state than before. Where a development has an impact on biodiversity, developers will need to provide an increase in appropriate natural habitat and ecological features over and above that being affected, as seen in Figure 1. Through BNG it is hoped that the current loss of biodiversity through development will be halted, and wildlife corridors can be restored.

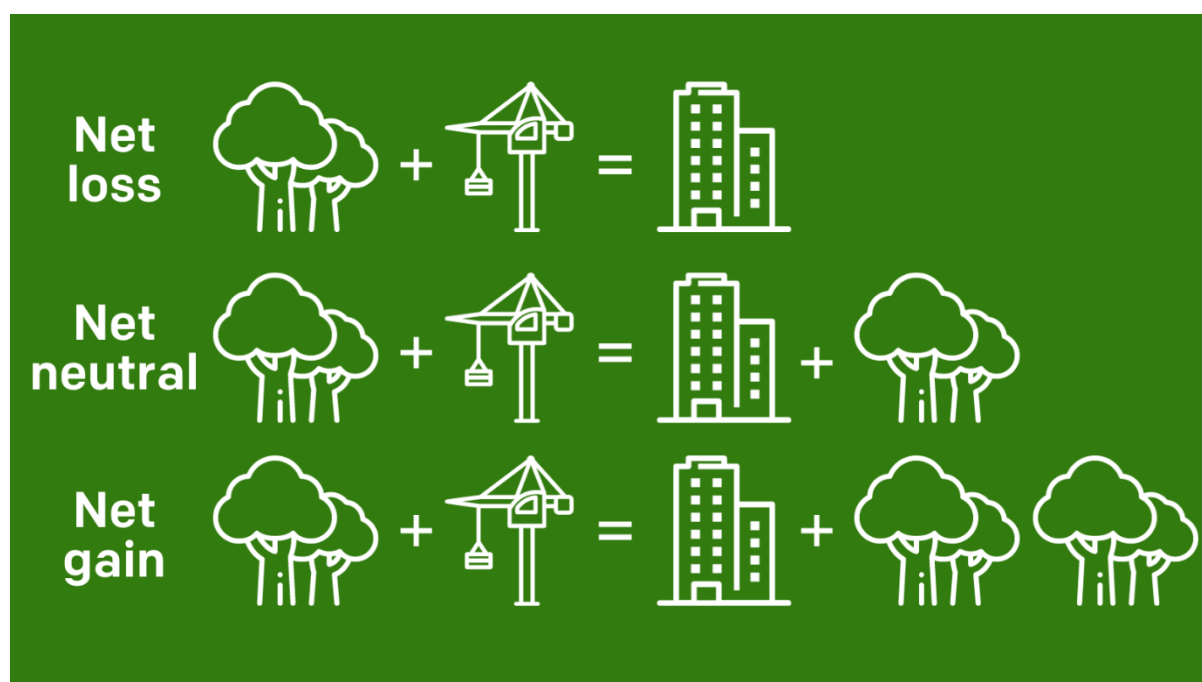


Figure 1: Biodiversity Net Gain

To assess future demand for and supply of biodiversity units on Local Authority owned land, the objective of this study was to model the expected size of the potential market for offsite biodiversity units in Greater Manchester over the next 15 years (from 2022). An estimate of the quantum of demand for biodiversity units was required, as well as the type of habitats these biodiversity units relate to.

The overall outcome of this study was an assessment of the type, condition and area of habitat which will likely need to be offset in the short to medium term, expressed in

terms of biodiversity units by using the Defra Metric v 3.0 (current version at time of writing). This enabled a potential equivalent monetary value of these biodiversity units to be estimated.

The study aims to provide an evidence base for policy and delivery by showing how the market is likely to grow over time and inform plans to identify sufficient offset sites by showing where demand for offset biodiversity units will be high and where supply is located.

It should be noted that this report does not assume that all the allocation sites assessed will necessarily come forward for development and it does not pre-judge the outcome of regional or district level plan examinations.

## 2. Methodology

To identify the potential need for biodiversity units over the next 15 years, the methodology undertaken included:

1. Identifying future development sites and areas
2. Shortlisting sites based on their likelihood to require offsite biodiversity units
3. Projecting habitat losses
4. Converting projected habitat losses into biodiversity unit loss

Each of these stages are outlined in more detail in Section 2.1.

To identify potential local authority owned supply sites, the methodology undertaken included:

1. Districts providing sites meeting key criteria
2. Satellite mapping of the habitats on each site
3. Projecting uplift (gain) in biodiversity unit value

These stages are outlined in Section 2.2.

This methodology was developed and completed by the Greater Manchester Ecology Unit (GMEU), informed by previous assessment of biodiversity unit demand undertaken by Finance Earth and TEP

## 2.1. Needs assessment

### 2.1.1. Identification of future development areas

The first step was to identify sites with significant potential to require offsite biodiversity units. These sites were initially identified through information concerning development allocations, sites being proposed for allocation or appraised for potential allocation by the 10 districts. This included strategic allocation sites in Greater Manchester's Places for Everyone and draft Local Plans.

Development allocations may not be the only sites and areas expected to deliver a net gain in biodiversity. Development proposals may also come forward on unallocated sites. Environment Agency major capital schemes, United Utilities major capital schemes, National Highways schemes and nationally significant infrastructure projects were considered for inclusion in this study. These were ultimately considered beyond the scope of the project as they are either subject to their own BNG strategies or may not be subject to BNG requirements. As a result, any projected need for offsite biodiversity units presented in this report is likely to be an underestimate of need.

The review of Places for Everyone and Local Plan information produced a long list of 1,470 confirmed or potential development sites.

### 2.1.2. Shortlisting identified sites

The long list of 1,470 sites were then refined to a shortlist using the criteria outlined in Table 1.

Table 1: Shortlisting criteria

Criteria	Reasoning
Site size of over 1 ha (excluding Manchester)	Sites below 1 ha were unlikely to result in substantive BNG offset need. Manchester requested a 0.5 ha limit due to the lack of deep urban greenspace.
No known extant permissions	Extant permissions cannot have BNG applied retrospectively



Sites with meaningful greenspaces (>25% of total site area)	Sites with <25% meaningful greenspace will have a low habitat loss and are likely to be able to find 10% uplift onsite.
Potential to accommodate BNG onsite	Where masterplans showed onsite uplift was possible, these sites were excluded.

This filtering process reduced the number of sites included in the assessment down to a shortlist of 139, covering 4,446 hectares.

### **2.1.3. Projecting habitat losses on shortlisted sites**

Following the shortlisting, estimates of likely habitat losses were calculated. Where up-to-date ecological surveys or masterplans of the development were available, these were used to inform accurate estimates of offsite biodiversity units. Where not available, desktop spatial information was used to assess the type of habitat loss due to future development. Sources of spatial information used included:

- Phase 1 Habitat Maps (GMEU)
- Aerial photography
- Priority Habitat Data (Natural England)
- Land Use (Centre for Ecology and Hydrology (CEH))
- Local Nature Recovery Strategy

Certain sites and areas are excluded from requirements to deliver BNG (where development impacts should avoid habitat losses). These include:

- Sites of Special Scientific Interest (SSSI)
- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)
- RAMSAR sites
- Priority Habitats

Where masterplans were not available to inform potential losses, standard percentage loss assumptions were used. These assumptions were based on experience of housing allocation design and the greenspace retained within housing development footprints for recreation. For housing developments, it was assumed that 30% green space was retained/enhanced within the development footprint. Commercial and industrial developments are often found to retain less greenspace within the development footprint, with the majority of retained greenspace coming in the form of screening around the perimeter of the site. Therefore, for commercial and industrial developments only 10% retained/enhanced greenspace was included. Any existing buildings or hard surfaces were removed from the per hectare loss calculation.

The type and quality of each habitat was assessed on a site-by-site basis. It was assumed that developers will follow the mitigation hierarchy, as best practice set out in the National Planning Policy Framework (2021) and that where habitats could be retained within developments, higher value habitats would be selected. It was assumed that in most cases, ponds, streams, and other open water features would be retained.

#### **2.1.4. Converting habitat loss into biodiversity unit loss**

The Biodiversity Metric 3.0 (current version at time of writing) was then used to convert projected habitat losses into biodiversity unit losses. To apply the metric in the absence of detailed surveys, several conservative assumptions were made concerning habitat condition and connectivity (see Appendix 1: BNG metric 3.0 baseline need assumptions). A representative selection of sites was also ground-truthed to check the accuracy of the application of the metric.

Several assumptions were adopted to calculate biodiversity units, these included:

- Habitats of low distinctiveness were assumed to be in poor condition, all others assumed to be in moderate condition, except those habitats which cannot achieve a condition score higher than 1, for example felled woodland and most cropland habitats.
- All habitats were considered to have low strategic significance.
- Connectivity is assumed to be low for terrestrial habitats.

- In the first instance, compensation will be assumed to be delivered within the same Local Planning Authority as the location of impact.

It is likely that once a full onsite habitat assessment and BNG metric calculation has been carried out, allocations will have a more complex mix of habitats, varying in distinctiveness and quality. The result will be a potential increase or decrease in the number of units lost, when compared to the initial estimate.

### **2.1.5. Monetary Value**

The final stage was to convert from biodiversity units into an approximate monetary value and subsequent market size. Market pricing is at present uncertain so for the purposes of this study a value of £30,000 per biodiversity unit is used.

## **2.2. Needs assessment**

### **2.2.1. Identification of offsite BNG supply sites**

To identify prospective offsite BNG supply sites within their ownership, each district was asked to provide sites guided by the following key criteria:

- Sites of more than 1 ha (0.5 ha accepted for some high distinctiveness habitats)
- Sites within core areas identified in the report of the pilot Greater Manchester Local Nature Recovery Strategy as having the highest potential to create the Nature Recovery Network or the Priority Green Infrastructure Layer
- Sites within 5km of known strategic development proposals
- Sites which are not allocated for future development and are unlikely to be subject to development or recreational pressures in the long-term
- Sites with existing ecological value but known to be in unfavourable condition and where the necessary interventions to improve condition are already understood
- Sites where access exists for future maintenance
- Sites where landowners and land managers are known and are considered likely to be receptive to habitat creation proposals

- Sites where the development and the BNG offsite location are in the same character area

### **2.2.2. Satellite mapping of habitats on each prospective supply site**

The habitat types on these prospective supply sites were mapped using land cover data (Centre for Ecology and Hydrology, 2021). This enabled the underlying habitat types to be estimated within each site and the size of each habitat parcel.

### **2.2.3. Estimation of biodiversity unit gain**

Each habitat type was then converted to the closest matching BNG metric habitat types A series of conservative assumptions were used to estimate the prospective biodiversity unit uplift achievable on each site using the Defra metric 3.0:

- Habitat distinctiveness types remained unchanged, only condition was varied
- Condition was only assumed to improve
  - From moderate to good inside a Site of Biological Importance (SBI)
  - From poor to moderate outside of a SBI
- Strategic significance remained unchanged
  - Start and remain within an area formally identified in local strategy inside a SBI (high strategic significance)
  - Start and remain within an ecologically desirable location but not in local strategy (moderate strategic significance)
- Urban and semi-urban habitat parcels within offset sites were removed from the calculations for assessing potential biodiversity enhancement.

## **3. Results**

### **3.1. Estimated habitat loss**

It is estimated that 1,432 hectares of non-brownfield land will potentially be used for major residential, commercial, and industrial development over the next 15 years. This is made up of mostly modified grassland (75%), neutral grassland (10%) and broadleaved woodland (6%). The high percentage of modified grassland losses

suggests that allocations have, in the main, selected lower value habitats for development.

### **3.2. Biodiversity unit loss**

In total, 4,427 biodiversity units are estimated to be required to offset for the loss of habitats through development. Assuming this will be achieved onsite, based on a unit price of £30,000, this equates to £132.8 million, or £8.8 million per annum over 15 years.

If no onsite biodiversity enhancement is achieved and the full 10% biodiversity uplift needs to be provided offsite, this requires 4,870 biodiversity units, due to spatial multiplier factors. Based on a unit price of £30,000, this equates to £146.1 million, or £9.7 million per annum over 15 years.

It should be noted that once smaller developments that are subject to a small sites metric are included, there will be an increased need to meet this unit requirement.

### **3.3. Supply sites**

337 potential offsite BNG supply sites, the majority of which were in Local Authority ownership were put forward to this study, covering a total area of 5,314 hectares. These sites could deliver an estimated 13,456 biodiversity units. The full market value of these 13,456 units, based on an assumed biodiversity unit cost of £30,000 would be £403.7 million. Grassland habitats provide the greatest amount of biodiversity units (51%) followed by woodland (36%) then heath/moorland/wetland (15%).

Experience from ground-truthing offset sites revealed that a proportion the sites are usually unfeasible to take forward, due to unforeseen constraints. To account for this risk and provide more realistic estimates of the provision of offsite biodiversity units available, the total potential biodiversity units from supply sites were reduced by two-thirds. This results in 4,485 units. Taking a unit price of £30,000, the potential value is £134.6 million or £9 million respectively.

### **3.4. Comparison of need and supply**

The need analysis estimated that between 4,427 onsite (within the site boundary) and 4,870 offsite (outside the site boundary and subject to spatial multiplication factors) biodiversity units would be required to offset habitat losses over the next 15 years of development. Based on predicted need and supply of offsite biodiversity units, there is a potential overall surplus of biodiversity unit provision from offset sites across Greater Manchester. However, if the required 10% BNG uplift cannot be found onsite and only a third of offset sites are suitable for biodiversity enhancement, there will likely be a small deficit in biodiversity unit supply verses demand across Greater Manchester.

The distinctiveness of the habitats lost and the requirements of the metric to replace similar or better habitats may preclude some potential supply sites from consideration as an offset. In addition, only a proportion of the proposed supply site may be feasible to deliver biodiversity units, due to other site uses such as recreation or an existing tenant farmer. These factors may result in further offsite sites being rejected, bringing about a greater deficit of available biodiversity units or an overall lower surplus.

## **4. Conclusion**

From the results of the data, it is evident that across every district in Greater Manchester, there will be a need for offsite biodiversity unit provision and/or developers will have to reduce the built footprint of their developments to retain/enhance more greenspace to deliver 10% BNG.

The study identified an initial longlist of 1,470 major residential, commercial, and industrial development sites. This longlist was then refined based on the likelihood that the site would require offsite BNG, reducing the number of sites included in the study to a shortlist of 139 sites, covering 4,446 hectares.

It was estimated that 1,432 hectares of land on these shortlisted sites will be used for major residential, commercial, and industrial development over the next 15 years with 4,427 biodiversity units estimated to be required to offset this. Based on an

assumed biodiversity unit price of £30,000, this equates to £132.8 million, or £8.8 million per annum over 15 years.

Across Greater Manchester, 337 potential offsite supply sites were put forward, covering an area of 5,314 hectares. In total, these potential offsite BNG supply sites could deliver an estimated 13,456 biodiversity units. It should be noted that units will predominantly be gained by habitat enhancement rather than habitat creation. Based on predicted need and supply of offsite biodiversity units, at a Greater Manchester level there is a potential overall surplus of biodiversity unit provision from offset sites, to meet the need created by 15 years of development.

However, it must be recognised that proposed offset sites may not be located within Local Nature Recovery Strategy areas or within close proximity to the development sites that have caused the loss of habitat. If offset sites are matched against developments that are not in the same Local Planning Authority or national character area, the metric applies a penalty, and the offset site will yield less biodiversity units. In addition, only a proportion of the 337 proposed supply sites may be feasible to deliver biodiversity units, due to other site uses such as recreation or an existing tenant farmer. These factors may result in further offsite sites being rejected, bringing about a greater deficit of available biodiversity units or an overall lower surplus.

## 5. Next steps

For a framework of biodiversity unit creation and sales to be developed, several actions are required. These include:

- Further and more detailed assessment of supply sites including constraints, metric calculations, habitat management, monitoring plans and consultation. This may also include the training of staff to carry out these tasks or the identification of suitable delivery partners.
- Development of mechanisms and financial models to enable the supply of units, including clarification of the legal framework around securing onsite and offsite BNG.

- Establishment of an online directory of offset sites where biodiversity units can be marketed by offset providers and purchased by developers requiring units.
- Roles and responsibilities of GMEU, GMCA, district councils and developers in meeting the requirements of BNG in the planning system need to be established and agreed.



## Appendix 1: BNG metric 3.0 baseline need assumptions

Habitat Type	Area (hectares)	Distinctiveness	Condition	Strategic Significance	Strategic Significance	Suggested Action to Address Habitat Loss	Total Habitat Units	Area Lost	Units Lost
Modified grassland	1	Low	Poor	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	Same distinctiveness or better habitat required	2	1	2
Other neutral grassland	1	Medium	Poor	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	Same broad habitat or a higher distinctiveness habitat required	4	1	4
Lowland dry acid grassland	1	Very High	Poor	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	Bespoke compensation likely to be required	Any Loss Unacceptable	1	Unacceptable Loss
Upland acid grassland	1	Medium	Fairly Poor	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	Same broad habitat or a higher distinctiveness habitat required	6	1	6
Other woodland; broadleaved	1	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	Same broad habitat or a higher distinctiveness habitat required	8	1	8
Lowland mixed deciduous woodland	1	High	Moderate	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	Same habitat required	12	1	12
Mixed scrub	1	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	Same broad habitat or a higher distinctiveness habitat required	8	1	8
Ruderal/Ephemeral	1	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	Same distinctiveness or better habitat required	4	1	4
Reservoirs	1	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	Same broad habitat or a higher distinctiveness habitat required	8	1	8
Wood-pasture and parkland	1	Very High	Poor	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	Bespoke compensation likely to be required	Any Loss Unacceptable	1	Unacceptable Loss
Lowland Heathland	1	High	Poor	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	Same habitat required	6	1	6
Floodplain Wetland Mosaic (CFGM)	1	High	Poor	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	Same habitat required	6	1	6

## Appendix 2: BNG metric 3.0 baseline supply assumptions

UKCEH Habitat Classification	BNG Metric 3.0 Habitat Classification used	Baseline Biodiversity Units (per hectare)	Biodiversity Units Delivered (per hectare)	Biodiversity Unit Gain (per hectare)
<b>Habitat parcels outside SBI's</b>				
Acid Grassland & Heather Grassland	Upland acid grassland (Poor to Moderate quality)	4.4	7.5	3.1
Arable and Horti & Modified grassland	Modified grassland (Poor to Moderate quality)	2.2	3.7	1.5
Bog	Fens (upland and lowland) (Poor to Moderate quality)	8.8	10.7	1.9
Broadleaved Woodland	Other woodland; broadleaved (Poor to Moderate quality)	4.4	7.5	3.1
Coniferous Woodland	Other woodland; mixed (Poor to Moderate quality)	4.4	7.5	3.1
Fen, Marsh, and Swamp	Fens (upland and lowland) (Poor to Moderate quality)	8.8	10.7	1.9
Freshwater	Ponds (Non Priority Habitat - Poor to Moderate)	4.4	7.0	2.6
Heather	Upland Heathland (Poor to Moderate quality)	6.6	8.8	2.2
Inland Rock	Inland rock outcrop and scree habitats (Poor to Moderate quality)	6.6	10.5	3.9
Neutral Grassland	Other neutral grassland (Poor to Moderate quality)	4.4	7.5	3.1
<b>Habitat parcels inside SBI's</b>				
Acid Grassland & Heather Grassland	Upland acid grassland (Moderate to Good quality)	9.2	12.4	3.2
Arable and Horti & Modified grassland	Modified grassland (Moderate to Good quality)	4.6	6.2	1.6
Bog	Fens (upland and lowland) (Moderate to Good quality)	18.4	20.4	2.0
Broadleaved Woodland	Lowland mixed deciduous woodland (Moderate to Good quality)	13.8	14.9	1.1
Coniferous Woodland	Other woodland; mixed (Moderate to Good quality)	9.2	12.4	3.2
Fen, Marsh, and Swamp	Fens (upland and lowland) (Moderate to Good quality)	18.4	20.4	2.0
Freshwater	Ponds (Priority Habitat - Moderate to Good)	13.8	17.8	4.0
Heather	Upland Heathland (Moderate to Good quality)	13.8	16.1	2.3
Neutral Grassland	Lowland meadows (Moderate to Good quality)	18.4	23.0	4.6
Inland Rock	Inland rock outcrop and scree habitats (Moderate to Good quality)	13.8	17.2	3.4