Belhaven Hospital Community Gardens

Biodiversity Baseline Assessment

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Note: This report should be read in conjunction with the separate Biodiversity Metric workbook (Belhaven Hospital Community Gardens - Biodiversity Metric - v1.0)

Introduction

Background

This document describes a biodiversity baselining exercise for the Belhaven Hospital community gardens site in Dunbar, East Lothian, located at National Grid Reference NT 66692 78238. The community gardens were created in 2012 when the site comprised areas of lawn and modified grassland. Ten years later, the site comprises a range of habitats mainly targeting food production, but also grassland and other habitats

Biodiversity Net Gain

The approach used here follows the biodiversity baselining method being used in parts of the UK to quantify net gains in biodiversity. Since February 2024, a minimum 10% Biodiversity Net Gain (BNG) has been a mandatory requirement of planning applications in England. This is measured using an Excel workbook tool known as the Biodiversity Metric[1], which compares the value of the pre-development habitats within a proposed development site with that of the proposed post-development habitats (potentially including any offsite habitats) and quantifies the net gain which has been achieved. Habitats are thus used as a proxy for biodiversity more generally. The Biodiversity Metric calculates Biodiversity Units (BUs) for individual habitat patches based on their size, distinctiveness (rarity and diversity) and alignment with conservation priorities in the local planning authority. Habitat condition is yet another multiplier in the calculation of BUs, with poor, moderate or good condition potentially resulting in markedly different BUs. Finally, it should be noted that BNG considers three 'habitat modules' – area habitats, hedgerows and watercourses. Under the BNG regulations, if two or more habitat modules are present on a development site, a minimum 10% gain must be achieved for each module (so the loss of any hedgerow habitat cannot be compensated by e.g. gains in grassland habitat, even if such gains are very significant).

Although a net gain in biodiversity is also a requirement under Scotland's National Planning Framework 4 (NPF4), this does not currently define a minimum net gain target, nor does it mandate the use of a Biodiversity Metric to quantify gains.

Aims of the current work

The aim of the current work is to quantify the biodiversity value of the Belhaven Hospital community gardens using the Biodiversity Metric. Because it is known what habitats were like on site prior to establishment of the community garden, the work also compares the current BUs with historical levels for the site.

Methods

The biodiversity baselining exercise reported in this document is based on habitat information from a survey of the site carried out by Dr Mikael Forup on 5th October 2024. Dr Forup is a Dunbar-based ecologist with over 15 years' professional experience from ecology surveys and assessments across Scotland. The work was done on a voluntary basis, and conclusions and opinions stated in this report are his alone and do not represent those of any organisation.

In the absence of a Scottish equivalent, the work follows the Biodiversity Metric approach to quantifying BNG that is now a legal requirement in England. The habitat survey was therefore carried

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[1] Available from: https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides

out using the UK Habitat classification[2], which is the basis of the Biodiversity Metric, and which has been developed for habitats in England. However, the classification is also suitable for urban and lowland habitats in Scotland. Habitat condition was assessed from a range of habitat-specific factors based on the standard methodology[1].

The cover of habitat patches was calculated using the Google Earth[3] tool.

Results

Habitats

The site measures approximately 0.94ha and is shown in Map 1 at the back of this report. It comprises the habitats listed in Table 1 that form the basis for the BU calculations in the separate Biodiversity Metric workbook (Belhaven Hospital Community Gardens - Biodiversity Metric - v1.0) that accompanies this report.

Table 1: Habitats on site

Habitat Reference Number in Biodiversity Metric	Habitat	Extent	Condition	Notes
A	Modified grassland	194m²	Moderate	Modified grassland dominated by common bent (*Agrostis capillaris*), with common forbs including dock (*Rumex* spp.), white clover (*Trifolium repens*) and others. Subject to intermittent mowing.
B	Other neutral grassland	204m²	Moderate	Sown 'meadow' with a limited range of species but including species such as yellow rattle (*Rhinanthus minor*), bent grass, Yorkshire fog (*Holcus lanatus*), ribwort plantain (*Plantago lanceolata*), red clover (*Trifolium pratense*), cat's-ear (*Hypochaeris* sp.), yarrow (*Alchemilla millefolium*), mouse-rear (*Cerastium fontanum*), vetch (*Vicia* sp.), Devil's-bit scabious (*Succisa pratensis*), common knapweed (*Centaurea nigra*). The vegetation had been cut in the month prior to the survey, and although some plant species were identified from cut remains, it is possible that the survey missed other plant species as a result.
C	Traditional orchard	2,951m²	Moderate	Young orchard planted on rank other neutral grassland with similar species as in area A but also including false oat-grass (*Arrhenatherum elatius*). Trees include apples (*Malus domestica*), hazel (*Corylus avellana*) and blackthorn (*Prunus spinosa*) but also broadleaved species, such as pedunculate oak (*Quercus robur*), silver birch (*Betula pendula*), hawthorn (*Crataegus monogyna*), spruce (*Picea* sp.) and Scots pine (*Pinus sylvestris*).
D	Modified grassland (D1)	816m²	Moderate	The centre of the orchard planting also includes grassland with scattered small trees. The grassland is similar to Area A but also includes common nettle (*Urtica dioica*) and dog-rose (*Rosa canina*).
	Rural trees (D2)	611m²	Poor	C. 30 small trees are present across area D and the combined cover of their canopies has been calculated using the tree helper tool in the Biodiversity Metric. Species include birch, hazel, blackthorn and hawthorn. Apples are absent from this section.

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[2] Available from: https://ukhab.org/
[3] Available at: https://earth.google.com/

Habitat Reference Number in Biodiversity Metric	Habitat	Extent	Condition	Notes
E	Horticulture	16.4m²	N/A	Tree nursery, all trees <1m in height. A condition assessment is not required for this habitat.
F	Traditional orchards	680m²	Moderate	Nuttery comprising hazel, cobnut (*Corylus maxima*) and walnut (*Juglans regia*) and well as willows (*Salix* spp. Common nettle and docks are common in the field layer.
G	Bramble scrub	269m²	N/A	Dense bramble scrub with rosebay willowherb (*Chamaenerion angustifolium*). A condition assessment is not required for this habitat.
H	Bramble scrub	31.2m²	N/A	Dense bramble scrub. A condition assessment is not required for this habitat.
I	Allotments	1,249m²	Good	Vegetable plots overseen and managed by individual volunteers and therefore considered a best fit with the 'allotment' habitat type in the UK Habitat Classification.
J	Allotments	187m²	Poor	Stand of young willows grown and harvested for basket making. Given its limited extent within the allotment-style area, considered a best fit with that habitat.
K	Horticulture	260m²	N/A	Polytunnel and raised vegetable beds. A condition assessment is not required for this habitat.
L	Native hedgerow	143m	Moderate	Managed *Prunus* hedge.
M	Developed land; sealed surface	22.8 m²	N/A	Shed. A condition assessment is not required for this habitat.
N	Artificial unvegetated, unsealed surface	2,491.9m²	N/A	Gravel paths and informal bare earth paths. A condition assessment is not required for this habitat.

Biodiversity Metric calculations

The separate workbook shows the baseline calculations for the site based on the information in Table 1. Figure 1 is a screen grab showing the headline results.

Figure 1: Headline results for the Belhaven Hospital community gardens

As can be seen, area habitats within the site currently represent a value of 6.13BUs. The single hedgerow on site represents 0.57BUs. No watercourses are present.

It is known that the site comprised modified and amenity grassland prior to the establishment of the community gardens in 2012. Assuming a similar condition as recorded in 2024 (i.e. moderate), Figure 2 is a screen grab showing the headline results for the original modified grassland alone.

Figure 2: Headline results for the pre-community gardens modified grassland

Belhaven Hospital Gardens	Return to results menu		
Headline Results			
Scroll down for final results ⚠			
On-site baseline		Habitat units	3.75
		Hedgerow units	0.00
		Watercourse units	0.00

By comparing the values shown in Figures 1 and 2, the area habitats within the community gardens have increased in value by 2.38BUs, representing an increase of 63.5%, whereas for hedgerows the gain is the entire 0.57BUs.

Discussion and Conclusions

Establishing a community garden at Belhaven Hospital has increased the number of habitats within the site and in turn increased area BUs by a very high margin (63.5%) as well as created hedgerow BUs where previously none existed. The gardens therefore represent a valuable resource to local biodiversity, and in line with NPF4 and the principles of the mitigation hierarchy, the site should be protected from development.

Traditional orchards in particular represent a rare and highly distinctive habitat which can support a wide range of notable fauna, and neutral grassland can develop into lowland meadow, which is another highly distinctive habitat which can support rare fauna and flora.

BUs calculated from habitats are a proxy for biodiversity, such as the presence of protected or otherwise notable species of e.g. mammals, birds and invertebrates, but replacing a single habitat type, lawn and modified grassland, with a much greater variety of open and wooded habitat is indeed likely to provide the structural diversity that will benefit a much greater range of both faunal and floral species.

The Biodiversity Metric is the best tool currently available to define baselines and quantify potential or realised gains in a transparent way. Moreover, it is a very useful tool for highlighting where further gains can be made through targeted site management. For example, habitats in the Biodiversity Metric workbook which are currently in a poor or moderate condition can be targeted for improvement to increase the condition. Some of this is also likely to happen automatically over time; e.g. as the orchard habitat matures, the condition is predicted to increase from moderate to good.

Maps

Map 1: Habitat compartments at Belhaven Hospital Gardens (see Table 1 for a description of compartments)