



Introduction

This biodiversity impact assessment calculator has been developed by Thames Valley Environmental Records Centre (TVERC) for use by our Local Authority partners in Berkshire and Oxfordshire. The aim is to provide a clear and unambiguous method to determine whether development applications are achieving net gains for biodiversity. The calculator has been developed in partnership with Local Authority officers. TVERC will continue to develop the calculator in response to feedback from users. The calculator benefits from TVERC's continually updated habitat data for Berkshire and Oxfordshire. This information is not available from any other source.

Licence

This calculator is licenced for use by those submitting applications to Local Planning Authorities that are taking part in the scheme. The calculator is available either from the Local Authority or directly from TVERC. Use by others for applications to Local Planning Authorities outside of the scheme is a breach of the licence.

TVERC Biodiversity Impact Assessment Service

TVERC provides a service to both applicants and Local Authorities to carry out biodiversity impact assessments on your behalf. We use our extensive habitat data to calculate the impact of a development based on information you provide. The habitats and species data are available from TVERC on a project by project basis, but this service provides a cost-effective way of accessing these data for impact calculations. [For more details of this service, please contact TVERC: tverc@oxfordshire.gov.uk](mailto:tverc@oxfordshire.gov.uk)

Instructions for use

The calculator has three sheets. The 'Existing Habitat' and 'Proposed Habitat' sheets are input sheets. The 'Calculations' sheet provides the results of the biodiversity net gain/ net loss calculation. The Existing Habitat and Proposed Habitat sheets have habitats (classified by Phase 1 descriptions) grouped into habitat types. The calculations sheet provides a summary of losses and gains for each habitat type as well as an overall loss/gain.

Users input data into blue fields. All other fields are automatic.

Details of the required information for each field is described below

Existing Habitat' sheet

Please fill in information for the habitats that are present on site prior to development.
Phase 1 habitat description: select your habitat type from the drop down list. Habitats are grouped by broad habitat type.
Habitat area: enter the area (in hectares) for each habitat present on site
Condition: TVERC uses the Farm Environment Plan condition assessments at three levels, Good, Moderate, Poor. Please select the most appropriate description.

The number of biodiversity units is calculated and the score provided in the box at the end of the row.

Hedgerows

For hedgerows we have followed guidance produced by Natural England for accounting for hedgerows. Hedgerow distinctiveness is defined for species-rich hedges, species-poor hedges and line of trees, each with or without an earth bank or ditch. Condition now follows the Natural England guidance as follows:

Attributes and functional groupings (A, B, C & D)	Criteria (the minimum requirements for 'favourable condition')	Description
A1.	Height	>1.5 m average along length
		The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees.
		Newly laid or coppiced hedgerows are indicative of good management and pass this criterion (if undertaken according to good practice)
		A newly planted hedgerow does not pass this criterion (unless it > 1.5 m height)
A2.	Width	>1.5 m average along length
		The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees.
		Outgrowths (e.g. blackthorn suckers) are only included in the width estimate when they >0.5 m in height.
		Laid, coppiced and newly planted hedgerows are treated as for 'height' above.
B1.	Gap – hedge base	Gap between ground and base of canopy <0.5 m for >90% of length
		This is the vertical gappiness of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth.
		Certain exceptions to this criterion are acceptable (see page 65, Defra 2007)
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length
		This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small).
		and
		Access points and gates contribute to the overall gappiness, but are not subject to the >5 m criterion (as this is the typical size of a gate)
		No canopy gaps >5 m
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length
		This criterion picks up management close to the hedgerow that is likely to damage woody species (e.g. cultivation harming roots) or their associated ground flora (e.g. herbicide use).
		o measured from outer edge of hedgerow, and
		Hedgerows adjacent to vegetation such as permanent grassland or woodland automatically meet this criterion.
		o is present on one side of the hedge (at least)
C2.	Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground
		The indicator species used are nettles (<i>Urtica</i> spp.), cleavers (<i>Galium aparine</i>) and docks (<i>Rumex</i> spp.). Their presence, either singly or together, should not exceed the 20% cover threshold.
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species
		Neophytes are plants that have naturalised in the UK since AD 1500. For information on neophytes see the JNCC website and for information on invasive non-native species see the GB Non-Native Secretariat website.
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities
		This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes.

			This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g. excessive hedge cutting)
--	--	--	---

Condition Assessment	Maximum number of attributes that can fail to meet 'favourable condition' criteria in Figure 2	Multiplier (score)
Good	No more than 2 failures in total and no more than 1 in any functional group.	3
Moderate	No more than 4 failures in total and fails both attributes in a maximum of one functional group.	2
	e.g. fails attribute 1 & 2, 5 & 7 = moderate condition.	
	e.g. fails attributes 1,2,3, & 4 = poor condition	
Poor	Fails a total of more than 4 attributes or both attributes in more than one functional group.	1

Habitat List

This sheet shows each habitat, its distinctiveness score and the calculations for the risk factors for created and restored habitat.

It also shows the scores given for other values used in the calculator.

TVERC has carried out a literature review of habitat creation and restoration to derive the 'time to target condition' values in years. Details of this review are available on request.

TVERC recommends that time to target condition follows the values in the habitat sheet for a realistic assessment of biodiversity impact.

Feedback

TVERC would welcome any feedback on the calculator, including its use and the scores assigned to any of the factors used in the calculation.

TVERC will continue to develop and refine the calculator with its partners to ensure it reflects the value of biodiversity in Berkshire and Oxfordshire.

Therefore any feedback is useful in making the calculator both useable and relevant.

To provide feedback please email: tverc@oxfordshire.gov.uk

tverc@oxfordshire.gov.uk

Berks & Oxon Biodiversity Impact Assessment

Address

Existing

Woodland and Scrub	Size	Quality	Calculations			
Phase 1 Habitat Description	Phase 1 Habitat code	Habitat Area (ha)	Condition	Phase 1 Habitat Distinctiveness	Size	Condition
Parkland/scattered trees - broadleaved	A3.1	0.02	Poor	5	0	1
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
Grassland and Marsh	Size	Quality	Calculations			
Phase 1 Habitat Description	Phase 1 Habitat code	Habitat Area (ha)	Condition	Phase 1 Habitat Distinctiveness	Size	Condition
Neutral grassland - semi-improved	B2.2	0.65	Moderate	4	0.65	2
Neutral grassland - semi-improved	B2.2	0.06	Moderate	4	0.06	2
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
Tall Herb and Fern	Size	Quality	Calculations			
Phase 1 Habitat Description	Phase 1 Habitat code	Habitat Area (ha)	Condition	Phase 1 Habitat Distinctiveness	Size	Condition
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
Heathland	Size	Quality	Calculations			
Phase 1 Habitat Description	Phase 1 Habitat code	Habitat Area (ha)	Condition	Phase 1 Habitat Distinctiveness	Size	Condition
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
Mire	Size	Quality	Calculations			
Phase 1 Habitat Description	Phase 1 Habitat code	Habitat Area (ha)	Condition	Phase 1 Habitat Distinctiveness	Size	Condition
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0
				0	0	0

Score	0
	0.1
Total	
	5.68
Total	
	0
Score	
	0
Total	

Phase 1 habitat	Existing Score	Proposed Score	Difference
Woodland and Scrub	0.1	0	0
Broadleaved woodland - semi-natural	0	0	0
Broadleaved woodland - plantation	0	0	0
Mixed woodland - semi-natural	0	0	0
Mixed woodland - plantation	0	0	0
Scrub - dense/continuous	0	0	0
Scrub - scattered	0	0	0
Parkland/scattered trees - broadleaved	0.1	0.1	0
Parkland/scattered trees - coniferous	0	0	0
Parkland/scattered trees - mixed	0	0	0
Coniferous woodland - semi-natural	0	0	0
Coniferous woodland - plantation	0	0	0
Recently felled woodland	0	0	0
Recently felled woodland - broadleaved	0	0	0
Recently felled woodland - coniferous	0	0	0
Recently felled woodland - mixed	0	0	0
Recently planted woodland	0	0	0
Orchard	0	0	0
Grassland and Marsh	5.68	10	5
Acid grassland - unimproved	0	0	0
Acid grassland - semi-improved	0	0	0
Neutral grassland - unimproved	0	0	0
Neutral grassland - semi-improved	5.68	1	-5
Calcareous grassland - unimproved	0	0	0
Calcareous grassland - semi-improved	0	0	0
Improved grassland	0	0	0
Marsh/marshy grassland	0	10	9.75
Poor semi-improved grassland	0	0	0
Tall Herb and Fern	0	0	0
Bracken - continuous	0	0	0
Bracken - scattered	0	0	0
Other tall herb and fern - ruderal	0	0	0
Other tall herb and fern - non ruderal	0	0	0
Heathland	0	0	0
Dry dwarf shrub heath - acid	0	0	0
Dry dwarf shrub heath - basic	0	0	0
Wet dwarf shrub heath	0	0	0
Lichen/bryophyte heath	0	0	0
Dry heath/acid grassland	0	0	0
Wet heath/acid grassland	0	0	0
Mire	0	0	0
Fen - valley mire	0	0	0
Fen - basin mire	0	0	0
Fen - flood plain mire	0	0	0
Swamp, Marginal and Inundation	0	0	0
Swamp	0	0	0
Marginal and inundation - marginal vegetation	0	0	0
Marginal and inundation - inundation vegetation	0	0	0
Open Water	0.161	0.3716	0.2106
Standing water - eutrophic	0.052	0.1536	0.1016
Standing water - mesotrophic	0	0	0
Standing water - oligotrophic	0	0	0
Standing water - dystrophic	0	0	0
Standing water - marl	0	0	0
Standing water - brackish	0	0	0

Phase 1 habitat	Loss / Gain
Woodland and Scrub	0.00
Grassland and Marsh	4.72
Tall Herb and Fern	0.00
Heathland	0.00
Mire	0.00
Swamp, Marginal and Inundation	0.00
Open Water	0.21
Rock Exposure and Waste	0.00
Hedgerows	0.17
Miscellaneous	0.51
Total biodiversity units	5.62

Running water - eutrophic	0.109	0.218	0.109
Running water - mesotrophic	0	0	0
Running water - oligotrophic	0	0	0
Running water - dystrophic	0	0	0
Running water - marl	0	0	0
Running water - brackish	0	0	0
Rock Exposure and Waste	0	0	0
Quarry	0	0	0
Mine	0	0	0
Refuse-tip	0	0	0
Spoil	0	0	0
Hedgerows	0	0	0
Species rich hedgerow	0.00	0.14	0.14
Species rich hedgerow (with bank or ditch)	0.00	0.00	0.00
Species poor hedgerow	0.00	0.00	0.00
Species poor hedgerow (with bank or ditch)	0.13	0.12	-0.01
Line of trees	0.00	0.00	0.00
Line of trees (with bank or ditch)	0.06	0.10	0.04
Miscellaneous	7	7	1
Bare ground	0.76	0.00	-0.76
Built Environment: Buildings/harstanding	0.02	0.78	0.76
Built Environment: Gardens (lawn and planting)	0.00	0.00	0.00
Buildings and Hardstanding	0.00	0.00	0.00
Gardens	0.00	6.48	6.48
Allotments	0.00	0.00	0.00
Caravan site	0.00	0.00	0.00
Buildings	0.00	0.00	0.00
Cultivated/disturbed land - arable	5.97	0.00	-5.97
Cultivated/disturbed land - amenity grassland	0.00	0.00	0.00
Cultivated/disturbed land - ephemeral/short perennial	0.00	0.00	0.00
Introduced shrub	0.00	0.00	0.00
Other habitat	0.00	0.00	0.00
Dry ditch	0.00	0.00	0.00
Boundary removed	0.00	0.00	0.00
Earth bank	0.00	0.00	0.00
Fence	0.00	0.00	0.00
Wall	0.00	0.00	0.00
Artificial sea wall	0.00	0.00	0.00
Reedbed	0.00	0.00	0.00
Cemetery	0.00	0.00	0.00
Green roof	0.00	0.00	0.00
Green wall	0.00	0.00	0.00

Phase 1 habitat	Phase 1 code	Distinctiveness		Creation					Restoration				
				Difficulty (low, med, high)	Time to good condition	Product	Risk	Risk factor	Difficulty	Time to good condition	Product	Risk	Risk Factor
Woodland and Scrub													
Broadleaved woodland - semi-natural	A1.1.1	High	6	1	75	75	High	0.4	1	10	10	Medium	0.6
Broadleaved woodland - plantation	A1.1.2	Medium	4	1	30	30	Medium	0.6	1	10	10	Medium	0.6
Mixed woodland - semi-natural	A1.3.1	Medium	4	1	75	75	High	0.4	1	10	10	Medium	0.6
Mixed woodland - plantation	A1.3.2	Medium	4	1	30	30	Medium	0.6	1	10	10	Medium	0.6
Scrub - dense/continuous	A2.1	Medium	4	1	5	5	Low	0.8	1	2	2	Low	0.8
Scrub - scattered	A2.2	Medium-High	5	1	2	2	Low	0.8	1	2	2	Low	0.8
Parkland/scattered trees - broadleaved	A3.1	Medium-High	5	2	20	40	High	0.4	2	10	20	Medium	0.6
Parkland/scattered trees - coniferous	A3.2	Medium	4	2	20	40	High	0.4	2	10	20	Medium	0.6
Parkland/scattered trees - mixed	A3.3	Medium	4	2	20	40	High	0.4	2	10	20	Medium	0.6
Coniferous woodland - semi-natural	A1.2.1	Medium	4	1	75	75	High	0.4	1	5	5	Low	0.8
Coniferous woodland - plantation	A1.2.2	Medium-Low	3	1	30	30	Medium	0.6	1	5	5	Low	0.8
Recently felled woodland	A4	Low	2	1	1	1	Low	0.8	1	1	1	Low	0.8
Recently felled woodland - broadleaved	A4.1	Low	2	1	1	1	Low	0.8	1	1	1	Low	0.8
Recently felled woodland - coniferous	A4.2	Low	2	1	1	1	Low	0.8	1	1	1	Low	0.8
Recently felled woodland - mixed	A4.3	Low	2	1	1	1	Low	0.8	1	1	1	Low	0.8
Recently planted woodland	n/a	Low	2	1	1	1	Low	0.8	1	1	1	Low	0.8
Orchard	n/a	Medium-High	5	1	30	30	Medium	0.6	1	10	10	Medium	0.6
Grassland and Marsh													
Acid grassland - unimproved	B1.1	High	6	3	6	18	Medium	0.6	3	5	15	Medium	0.6
Acid grassland - semi-improved	B1.2	Medium	4	2	5	10	Medium	0.6	2	5	10	Medium	0.6
Neutral grassland - unimproved	B2.1	High	6	3	75	225	Very High	0.2	3	11	33	Medium	0.6
Neutral grassland - semi-improved	B2.2	Medium	4	2	10	20	Medium	0.6	2	5	10	Medium	0.6
Calcareous grassland - unimproved	B3.1	High	6	3	33	99	High	0.4	3	33	99	High	0.4
Calcareous grassland - semi-improved	B3.2	Medium	4	2	10	20	Medium	0.6	2	5	10	Medium	0.6
Improved grassland	B4	Low	2	1	1	1	Low	0.8	1	1	1	Low	0.8
Marsh/marshy grassland	B5	Medium-High	5	3	5	15	Medium	0.6	3	5	15	Medium	0.6
Tall Herb and Fern													
Bracken - continuous	C1.1	Medium-Low	3	1	1	1	Low	0.8	1	1	1	Low	0.8
Bracken - scattered	C1.2	Medium	4	1	1	1	Low	0.8	1	1	1	Low	0.8
Other tall herb and fern - ruderal	C3.1	Medium	4	1	1	1	Low	0.8	1	1	1	Low	0.8
Other tall herb and fern - non ruderal	C3.2	Medium	4	1	1	1	Low	0.8	1	1	1	Low	0.8
Heathland													
Dry dwarf shrub heath - acid	D1.1	High	6	3	5	15	Medium	0.6	2	5	10	Medium	0.6
Wet dwarf shrub heath	D2	High	6	3	30	90	High	0.4	2	5	10	Medium	0.6
Dry heath/acid grassland	D5	High	6	3	5	15	Medium	0.6	2	5	10	Medium	0.6
Wet heath/acid grassland	D6	High	6	3	30	90	High	0.4	2	5	10	Medium	0.6
Mire													
Fen - valley mire	E3.1	High	6	3	100	300	Very High	0.2	3	50	150	Very High	0.2
Fen - basin mire	E3.2	High	6	3	100	300	Very High	0.2	3	50	150	Very High	0.2
Fen - flood plain mire	E3.3	High	6	3	100	300	Very High	0.2	3	50	150	Very High	0.2
Swamp, Marginal and Inundation													
Swamp	F1	Medium-High	5	2	5	10	Medium	0.6	2	5	10	Medium	0.6
Marginal and inundation - marginal vegetation	F2.1	Medium-High	5	1	1	1	Low	0.8	1	1	1	Low	0.8
Marginal and inundation - inundation vegetation	F2.2	Medium-High	5	1	1	1	Low	0.8	1	1	1	Low	0.8
Ponds													
Pond	F1	Medium-High	5	1	5	5	Low	0.8	3	10	30	Medium	0.6
Open Water													
Standing water - eutrophic	G1.1	Medium	4	1	20	20	Medium	0.6	1	12	12	Medium	0.6
Standing water - mesotrophic	G1.2	Medium	4	2	20	40	High	0.4	2	12	24	Medium	0.6
Standing water - oligotrophic	G1.3	Medium-High	5	2	20	40	High	0.4	2	12	24	Medium	0.6
Running water - eutrophic	G2.1	Medium-High	5	3	20	60	High	0.4	2	12	24	Medium	0.6
Running water - mesotrophic	G2.2	Medium-High	5	3	20	60	High	0.4	2	12	24	Medium	0.6
Rock Exposure and Waste													
Quarry	I2.1	Medium	4	1	1	1	Low	0.8	1	1	1	Low	0.8
Refuse-tip	I2.4	Low	2	1	1	1	Low	0.8	1	1	1	Low	0.8
Spoil	I2.2	Medium-Low	3	1	1	1	Low	0.8	1	1	1	Low	0.8
Hedgerows													
Species rich hedgerow	n/a	Medium-High	5	1	5	5	Low	0.8	1	2	2	Low	0.8
Species rich hedgerow (with bank or ditch)	n/a	High	6	1	10	10	Medium	0.6	2	5	10	Medium	0.6
Species poor hedgerow	n/a	Low	2	1	1	1	Low	0.8	1	1	1	Low	0.8
Species poor hedgerow (with bank or ditch)	n/a	Medium-Low	3	1	5	5	Low	0.8	1	2	2	Low	0.8

Condition	
Good	3
Moderate	2
Poor	1

Distinctiveness	
High	6
Medium-High	5
Medium	4
Medium-Low	3
Low	2
None	1

Risk	
Very High	0.2
High	0.4
Medium	0.6
Low	0.8
N/a	1

Proposal	
Yes	
No	

Time to target	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
15	
20	
25	
29	
30	
33	
35	
50	
75	
100	

1
2
5
6
10
11
12
20
21
29
30
33
50
73
75
100

Line of trees	n/a	Low	2	1	1	1	Low	0.8	1	1	1	Low	0.8
Line of trees (with bank or ditch)	n/a	Medium-Low	3	1	1	1	Low	0.8	1	1	1	Low	0.8
Miscellaneous													
Bare ground	J4	Medium	4	1	2	2	Low	0.8	1	2	2	Low	0.8
Built Environment: Buildings/harstanding	n/a	None	1	1	1	1	Low	0.8	1	1	1	Low	0.8
Built Environment: Gardens (lawn and planting)	n/a	Low	2	1	1	1	Low	0.8	1	1	1	Low	0.8
Buildings and Harstanding	n/a	None	1	1	1	1	Low	0.8	1	1	1	Low	0.8
Gardens	n/a	Medium-Low	3	1	1	1	Low	0.8	1	1	1	Low	0.8
Allotments	n/a	Medium-Low	3	1	1	1	Low	0.8	1	1	1	Low	0.8
Caravan site	J3.4	None	1	1	1	1	Low	0.8	1	1	1	Low	0.8
Buildings	J3.6	None	1	1	1	1	Low	0.8	1	1	1	Low	0.8
Cultivated/disturbed land - arable	J1.1	Low	2	1	1	1	Low	0.8	1	1	1	Low	0.8
Cultivated/disturbed land - amenity grassland	J1.2	Medium-Low	3	1	1	1	Low	0.8	1	1	1	Low	0.8
Cultivated/disturbed land - ephemeral/short perennial	J1.3	Medium-Low	3	1	1	1	Low	0.8	1	1	1	Low	0.8
Introduced shrub	J1.4	Medium-Low	3	1	1	1	Low	0.8	1	1	1	Low	0.8
Other habitat	J5	None	1	1	1	1	Low	0.8	1	1	1	Low	0.8
Dry ditch	J2.6	Medium	4	1	1	1	Low	0.8	1	1	1	Low	0.8
Boundary removed	J2.7	None	1	n/a	1	n/a	None	1	n/a	1	n/a	None	1
Earth bank	J2.8	Medium	4	n/a	1	n/a	None	1	n/a	1	n/a	None	1
Fence	J2.4	None	1	n/a	1	n/a	None	1	n/a	1	n/a	None	1
Wall	J2.5	Medium	4	1	1	1	Low	0.8	1	1	1	None	1
Reedbed	n/a	High	6	1	5	5	Low	0.8	2	29	58	High	0.4
Cemetery	n/a	Medium	4	n/a	1	n/a	None	1	n/a	1	n/a	None	1
Green roof	n/a	Medium	4	1	1	1	Low	0.8	1	1	1	Low	0.8
Green wall	n/a	Medium	4	1	1	1	Low	0.8	1	1	1	Low	0.8