BIODIVERSITY NET GAIN ASSESSMENT
WEST BOLDON





CLIENT:	George F White
PROJECT NUMBER:	5303
AUTHOR:	JESSICA WILSON
POSITION:	SENIOR ECOLOGIST
CONTACT DETAILS:	Jessica.wilson@e3ecology.co.uk

E3 ECOLOGY LTD, PASTURE HOUSE, WARK, HEXHAM, NORTHUMBERLAND, NE48 3DG
01434 230982 WWW.E3ECOLOGY.CO.UK MAIL@E3ECOLOGY.CO.UK

DOCUMENT & QUALITY CONTROL

Report Version	Status	Date	Changes	Author	Proof Read	Version Approved by
R01	Draft	August 2022	1st draft	JW	LC	MEM
R02	Final	August 2022	Client Comment Final	JW	LC	Client Aproved
R03	Final	October 2022	Client Comment Final	JW	LC	Client Aproved
R04	Final	October 2022	Client Comment Final	JW	LC	Client Aproved

COPYRIGHT, CONFIDENTIALITY & LIABILITY

This report has been prepared by E3 Ecology Ltd and contains opinions and information produced with all reasonable skill, care and diligence within the terms of the Contract with the client. Any recommendation, opinion or finding stated in this report is based on circumstances and facts as they existed at the time that E3 Ecology Ltd performed the work. No explicit warranty is made in relation to the content of this report. E3 Ecology Ltd assumes no liability for any loss resulting from errors, omissions or misrepresentation made by others.

Copyright to all written or recorded work howsoever held on whatever medium is vested in E3 Ecology Ltd. On settlement of all agreed fees, written work produced specifically for the named clients is thereafter regarded as joint copyright between the named client and E3 Ecology Ltd for the specific purposes for which the report was produced. No attempts should be made to reproduce any element of this report for commercial or other purposes, without explicit written permission from E3 Ecology Ltd.

Further information is provided at Appendix 1 – Copyright, Confidentiality & Liability.

© E3 Ecology Ltd

CONTENTS

A. INTRODUCTION 4
B. METHODOLOGY 7
C. RESULTS 8
C.1 EXISTING AND PROPOSED HABITATS 8
C.1.1 PRE-DEVELOPMENT 8
C.1.2 POST DEVELOPMENT 9
C.2 METRIC SUMMARY 10
C.3 TIMINGS, MANAGEMENT, MONITORING AND REPORTING PROPOSALS 11
D. CONCLUSIONS 12
APPENDICES 13
APPENDIX 1 – COPYRIGHT, CONFIDENTIALITY & LIABILITY 13
APPENDIX 2 – WOODLAND CONDITION ASSESSMENT 14
APPENDIX 3 – HEDGEROW CONDITION ASSESSMENT 17
APPENDIX 4 - PLANNING POLICY AND LEGISLATIVE CONTEXT 20
NATIONAL PLANNING POLICY 20
PROTECTED SPECIES LEGISLATION 22
INVASIVE SPECIES LEGISLATION 23
PROTECTED SITE LEGISLATION 24
PRIORITY SPECIES 25

TABLES

TABLE 1: URBAN TREE SIZE REFERENCES 7
TABLE 2: NATIONAL PLANNING POLICY FRAMEWORK: CONSERVING AND ENHANCING THE NATURAL ENVIRONMENT 20
TABLE 3: SUMMARISED SPECIES LEGISLATION 22
TABLE 4: SUMMARISED INVASIVE SPECIES LEGISLATION 24
TABLE 5: BIODIVERSITY ACTION PLANS 25

FIGURES

FIGURE 1: SITE BOUNDARY 4
FIGURE 2: 500M SITE SETTING 5
FIGURE 3: DEVELOPMENT PROPOSALS 6
FIGURE 4: HABITAT MAP 8
FIGURE 5. INDICATIVE LANDSCAPE/MITIGATION PROPOSALS 9

© E3 Ecology Ltd

A. INTRODUCTION

Following on from ecological studies at the former West Boldon School, E3 Ecology Ltd was commissioned to complete a Biodiversity Net Gain Assessment using DEFRA's Biodiversity Small Sites Metric (beta version, released April 2022) to calculate the anticipated net change in biodiversity value of the site as a result of the proposed development.

An Ecological Impact Assessment (EcIA) of the site (see separate report) recorded the habitats on the proposed development site, which were used to inform this metric assessment.

The site is located in West Boldon, at an approximate central grid reference of NZ 34899 61149. The habitats on site include tall ruderal/ephemeral, modified grassland and hard standing. The site boundary and setting are illustrated in the figures below.



FIGURE 1: SITE BOUNDARY
(Google Earth Pro)

© E3 Ecology Ltd



FIGURE 2: 500M SITE SETTING
(Google Earth Pro)

The proposed development is for the building of 5 residential houses. The development proposals are shown in the figure below:

© E3 Ecology Ltd



FIGURE 3: DEVELOPMENT PROPOSALS

© E3 Ecology Ltd

B. METHODOLOGY

The Biodiversity Metric provides a way of measuring and accounting for biodiversity losses and gains resulting from development or land management change.

Existing (baseline) and proposed (created or enhanced) habitat types, areas and other associated relevant information was inputted into the metric. All measurements are in m^2 and to the nearest metre. QGIS was used to calculate pre-and post-development areas.

Habitat condition assessments are not required for the small sites metric (SSM) as the SSM automatically scores the baseline habitats and, for those habitats that have a range of possible conditions, they are assumed to be in moderate condition for the purposes of the metric with the option to create/enhance such habitats to good condition.[1]

To assign strategic significance, the Local Planning Authority website has been searched for local plans or other accessible resources that would define if any habitats on site are important for their potential biodiversity value or if they form wildlife corridors. DEFRA's MAGIC website[2] has also been consulted for Natural England designated Network Enhancement Zones (1 or 2) and Fragmentation Action Zones. Where habitats within the site have been identified using these resources, they have been classified as "within an area formally identified in local strategy". Where habitats have been classified as ecologically desirable, this has been assessed by E3 Ecology, based on professional judgement using the company's knowledge of the site and adjacent land, for example if it supports key species, habitat types that are limited in the local area or priority habitats. Otherwise, habitats are assessed as "Area/compensation not in local strategy / no local strategy".

The metric only assesses direct (temporary or permanent) habitat impacts. Where there are potential indirect or species-related impacts, these have been assessed in a separate Ecological Impact Assessment report with appropriate mitigation/compensation provided.

The metric design aims to encourage enhancement, not transformation, of the natural environment[3]. Where possible, habitat created to compensate for loss of a natural or semi-natural habitat aims to be of the same broad type (e.g. new woodland to replace lost woodland) unless there is a good ecological reason to do otherwise (e.g. to restore a heathland habitat that was converted to woodland for timber in the past).

Urban trees, where present on site, have been classified using the 'urban tree helper' within the metric. The biodiversity metric 3.1 user guide provides examples of urban tree sizes (table 7.2). The following reference has been used for size classification:

TABLE 1: URBAN TREE SIZE REFERENCES

Size class	Diameter at Breast Height (cm)	Metric RPA radius (m)	Metric area equivalent (ha)
Small	≤ 30	3.6m	0.0041 ha
Medium	> 30 to ≥ 90	10.8m	0.0366 ha
Large	≥ 90	15.6m	0.0764 ha

Habitats have been assessed in accordance with the criteria listed in the relevant habitat condition assessment sheets where possible and, if necessary, using surveyors' professional judgement to supplement the condition assessments.

[1] Natural England Joint Publication JP040 – Small Sites Metric, Calculation Tool: User Guide (2022)
[2] https://magic.defra.gov.uk/magicmap.aspx
[3] Natural England Joint Publication JP039 – Biodiversity Metric 3.1: User Guide (2022)

© E3 Ecology Ltd

C. RESULTS

C.1 EXISTING AND PROPOSED HABITATS

C.1.1 PRE-DEVELOPMENT

Historic aerial imagery shows that the site has not significantly changed since January 2020.

The EcIA of the site (see separate report) recorded the following habitats on the proposed development site (note: some trees shown in south are outside development boundary and, therefore, have not been included within the metric):



FIGURE 4: HABITAT MAP
(Google Earth Pro)

The above habitats were categorised based on the methodology of the Joint Nature Conservation Committee's Phase 1 Habitat Survey, as outlined in their habitat-mapping manual[4]. However, as the Biodiversity Metric is based on the UKHab classification system, the on-site recorded habitats have been translated into the below habitats for the purposes of the metric.

The 3022m^2 site provides 1.4510 habitat units, and 0 hedgerow units. Baseline habitats are detailed below, with the achieved condition assessment criteria indicated in **bold text.** All baseline habitat within the small site metric are assessed as condition N/A or moderate.

- 118m^2 of developed land; sealed surface – **condition N/A**
- 727m^2 of modified grassland – assessed as **moderate** condition.
- 2177m^2 of ephemeral and ruderal species - assessed as **moderate** condition.

[4] Handbook for Phase 1 habitat survey, A Technique For Environmental Audit, JNCC, 2010

© E3 Ecology Ltd

- 362 m^2 of urban trees comprising 8 small and 8 medium sized trees (calculated in addition to the total site area) – assessed as **moderate** condition and based on details provided within the arboricultural report[5]. Note: some trees in the arboricultural report are outside the development area in the south so have not been included within the metric.

The site lies within the South Tyneside District. Searches of the council local plans and DEFRAs MAGIC map application determined that all baseline habitats were assessed as "Area/compensation not in local strategy / no local strategy".

C.1.2 POST DEVELOPMENT

The development site will comprise 5 residential plots with buildings, hard standing and vegetated gardens with communal areas outside gardens in the south and east. All trees will be retained (though currently not shown in plan below for simplicity).

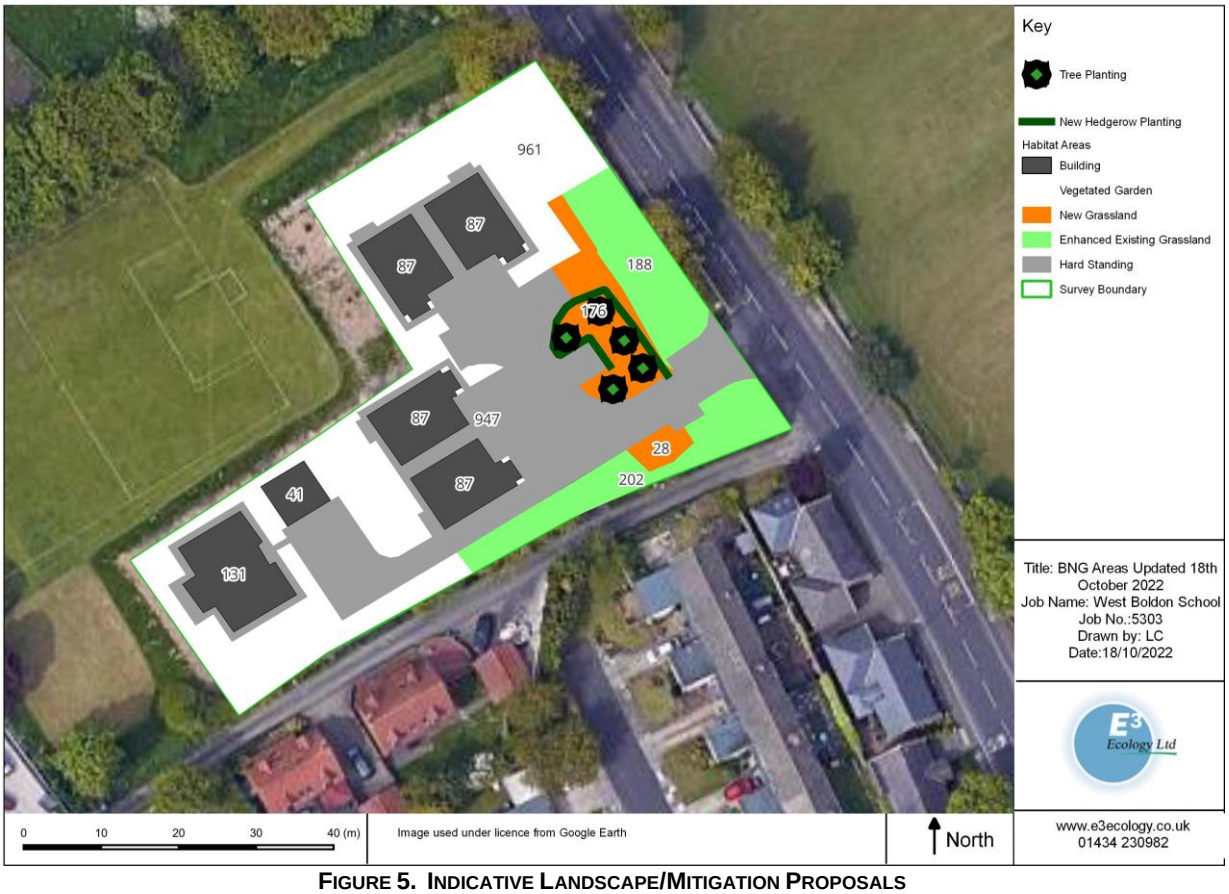


FIGURE 5. INDICATIVE LANDSCAPE/MITIGATION PROPOSALS

C.1.2.1 MEASURES TAKEN TO AVOID AND MINIMISE EFFECTS ON BIODIVERSITY

Existing trees have been retained and will be protected during the construction period in accordance with BS5837-2012.

[5] Elliott Consultancy Ltd, North Road, West Boldon – Arboricultural Method Statement inc Impact Assessment, Ref ARB/CP/2492, April 2021

© E3 Ecology Ltd

C.1.2.2 HABITAT RETENTION & ENHANCEMENT

390m^2 of the modified grassland habitat on site will be retained and enhanced with additional species-rich grassland seed planting/oversowing. Whilst an additional species-rich seed mix appropriate to the area under the trees (semi-shade tolerant mix) will increase the species richness and diversity, it is not considered that this would be enough to increase the condition to good. Therefore, this area has been classed as retained rather than enhanced for the purposes of the metric.

All trees (362m^2) are to be retained during the development.

The remainder of the habitats on site (2632m^2) will be lost to the development.

C.1.2.3 HABITAT CREATION

The following habitats will be created, with the targeted condition assessment criteria indicated in **bold text.** Habitats post development are based upon the landscape drawing with area data calculated using QGIS.

- 1467m^2 of developed land; sealed surface – **condition N/A**.
- 961m^2 of vegetated garden – classified as **poor** condition as the Metric does not allow for higher conditions.
- 204m^2 of modified grassland – assessed as moderate condition based on the habitat meeting five of the seven criteria:
    - **There must be 6-8 species per m^2.**
    - Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm)
    - **Scrub accounts for less than 20% of total grassland area.**
    - **Physical damage evident in less than 5% of total grassland area.**
    - Cover of bare ground between 1% and 10%.
    - **Cover of bracken is less than 20%.**
    - **There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species make up less than 5% of ground cover.**
- 23m^2 of urban trees comprising 5 small trees (calculated in addition to the total site area)
- 35m length of native hedgerow to be planted along within the amenity grassland to the east of site assessed as moderate condition (condition assessment criteria shown in Appendix 3) as it meets conditions **A1 & A2, B1 & B2 and has the potential with management to meet conditions C2 and D1**.

C.2 METRIC SUMMARY

The post-development site will provide 1.0797 units for habitats and 0.2343 units for hedgerow. The table below provides the headline data from the Metric. The excel spreadsheet is provided in digital form for separate review by the Local Planning Authority.

© E3 Ecology Ltd

Headline Results

Headline		BNG Targets Not Met ▲	
Next steps		Scheme alterations or offsite units required	
Total net unit change	*Habitat units*	-0.3712	▲
	Hedgerow units	0.2343	✓
	River units	0.0000	✓
Total net % change	*Habitat units*	-25.59%	▲
	Hedgerow units	% target not appropriate	✓
	River units	% target not appropriate	✓
Habitats units required to meet target		0.5163	
Hedgerow units required to meet target		0.0000	
River units required to meet target		0.0000	

Based on the above values, the metric indicates a predicted net loss of 0.3712 habitat units, constituting a change of -25.59%. However, the metric also predicts a net gain in hedgerow units of 0.2343.

C.3 TIMINGS, MANAGEMENT, MONITORING AND REPORTING PROPOSALS

Developing BNG guidance requires on-site gains (e.g. habitat creation and enhancements) to be delivered within 12 months of the start of construction. If this is not possible, they must be provided before occupation.

The full habitat creation, enhancement and ongoing management details will be provided separately in a detailed management plan (such as a Landscape and Ecology Management Plan or similar) if requested by the council. However, brief principles of the management requirements include:

- Species-rich grassland to be managed to prevent invasives and undesirables and to minimise any scrub encroachment.
- Hedgerows managed to prevent invasives and undesirables, form a continuous canopy and to achieve 1.5m average height and width once established.

"As built" plans will be provided by the developer on completion of construction, and an accompanying updated biodiversity metric submitted to the Local Planning Authority to demonstrate net gain delivery post-construction.

If requested by the council, monitoring will be undertaken on completion (to inform the updating metric), and then in years 2, 5, 10, 20 and 30, with monitoring reports to include recommendations for remedial actions to ensure that the agreed habitats and habitat condition are achieved. These reports will be submitted to the LPA ecologist.

© E3 Ecology Ltd

D. CONCLUSIONS

The Biodiversity Net Gain Assessment demonstrates an anticipated net loss of 0.37 units in the biodiversity value of the site though a net gain in hedgerow units. In addition, although not reflected in this metric due to its limited condition assessment options, there will be some enhancement of the retained grassland. There is potential for enhancement opportunities to be provided around the edge of the playing field such as additional tree planting or enhancing grassland and it is recommended that these options are considered with the council to help balance the small loss of units on site.

Additional enhancements are proposed, which are not considered within the metric, including:

- Creation of bat and bird boxes
- Provision of 13mm x 13mm gaps at the base of close boarded fencing to allow for hedgehog foraging.

© E3 Ecology Ltd

APPENDICES

APPENDIX 1 – COPYRIGHT, CONFIDENTIALITY & LIABILITY

Copyright to all written or recorded work howsoever held on whatever medium is vested in E3 Ecology Ltd. On settlement of all agreed fees, written work produced specifically for the named clients is thereafter regarded as joint copyright between the named client and E3 Ecology Ltd for the specific purposes for which the report was produced. No attempts should be made to reproduce any element of this report for commercial or other purposes, without explicit written permission from E3 Ecology Ltd.

Subject to the clause below, the consultant agrees to keep all the information obtained from the client confidential where the client so specifies in writing, except where such information is known to the consultant already or exists already in the public domain until (i) the information enters the public domain; (ii) the consultant is given the same information by a third party; (iii) the consultant is released from its confidentiality requirement by the client; or (iv) 3 years have elapsed since the formation of the contract.

The consultant may disclose in whole or in part any information or knowledge obtained from the client to a third party where required by law, court order or any governmental or regulatory authority. If the consultant becomes aware or has a reasonable belief that the client or any director, officer, agent, employee or subcontractor of the client has breached or is likely to breach any legislation, regulation, court order, or term or condition of any licence permit or consent ('licences'), the consultant shall be entitled to bring all relevant details, as the consultant sees fit, to the attention of the relevant authority, including the police or the statutory nature conservation body. The consultant shall also be entitled to request the relevant authority to remove the name of any officer, director or employee of the consultant from any licence on which they appear.

This report has been prepared by E3 Ecology Ltd and contains opinions and information produced with all reasonable skill, care and diligence within the terms of the Contract with the client. Any recommendation, opinion or finding stated in this report is based on circumstances and facts as they existed at the time that E3 Ecology Ltd performed the work. No explicit warranty is made in relation to the content of this report. E3 Ecology Ltd assumes no liability for any loss resulting from errors, omissions or misrepresentation made by others.

This report has been prepared for the exclusive use of the commissioning party and, unless otherwise agreed by E3 Ecology Ltd or the commissioning party, no other party may use, make use of or rely on the contents of the report. No liability is accepted by E3 Ecology Ltd for any use of this report, other than for the purposes for which it was originally prepared and provided.

Nothing in this report constitutes legal opinion. If legal opinion is required, the advice of a qualified legal professional should be secured.

The contents and layout of this report are subject to copyright owned by E3 Ecology Ltd save to the extent that copyright has been legally assigned to us by another. It may not be copied or used without our prior written agreement for any purpose other than the purpose indicated in this report.

© E3 Ecology Ltd

APPENDIX 2 – WOODLAND CONDITION ASSESSMENT

Condition Sheet: WOODLAND Habitat Type

UKHab Habitat Type(s)

Woodland and forest - Lowland beech and yew woodland
Woodland and forest - Lowland mixed deciduous woodland
Woodland and forest - Native pine woodlands
Woodland and forest - Other coniferous woodland
Woodland and forest - Other Scot's pine woodland
Woodland and forest - Other woodland; broadleaved
Woodland and forest - Other woodland; mixed
Woodland and forest - Upland birchwoods
Woodland and forest - Upland mixed ashwoods
Woodland and forest - Upland oakwood
Woodland and forest - Wet woodland

Habitat Description

See UKHab

This condition sheet is based on the England Woodland Biodiversity Group (EWBG) Woodland Condition Survey Method, available here:
https://woodlandwildlifetoolkit.sylva.org.uk/assess

Condition Assessment Criteria

	Indicator	Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator
1	**Age distribution of trees[1]**	Three age classes present	Two age classes present	One age class present	
2	**Wild, domestic and feral herbivore damage[2]**	No significant browsing damage evident in woodland[2]	Evidence of significant browsing pressure is present in 40% or less of whole woodland	Evidence of significant browsing pressure is present in 40% or more of whole woodland	
3	**Invasive plant species[3]**	No invasive species present in woodland	Rhododendron or laurel not present, other invasive species < 10% cover	Rhododendron or laurel present, or other invasive species > 10% cover	
4	**Number of native tree species**	Five or more native tree or shrub species found across woodland parcel	Three to four native tree or shrub species found across woodland parcel	None to two native tree or shrub species across woodland parcel	
5	**Cover of native tree and shrub species**	> 80% of canopy trees and >80% of understory shrubs are native	50-80% of canopy trees and 50-80% of understory shrubs are native	< 50% of canopy trees and <50% of understory shrubs are native	
6	**Open space within woodland[4]**	10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower	21- 40% of woodland has areas of temporary open space	More than 40% of woodland has areas of temporary open space	

© E3 Ecology Ltd

		threshold of 10% does not apply			
7	**Woodland regeneration**[5]	All three classes present in woodland; trees 4-7cm dbh, saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland	No classes or coppice regrowth present in woodland	
8	**Tree health**	Tree mortality less than 10%, no pests or diseases and no crown dieback	11% to 25% mortality and/or crown dieback or low risk pest or disease present	Greater than 25% tree mortality and or any high risk pest or disease present	
9	**Vegetation and ground flora**	Ancient woodland flora indicators present	Recognisable NVC plant community present	No recognisable NVC community	
10	**Woodland vertical structure**[6]	Three or more storeys across all survey plots or a complex woodland	Two storeys across all survey plots	One or less storey across all survey plots	
11	**Veteran trees**[7]	Two or more veteran trees per hectare	One veteran tree per hectare	No veteran trees present in woodland	
12	**Amount of deadwood**	50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	
13	**Woodland disturbance**[8]	No nutrient enrichment or damaged ground evident	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground	
				Total score (out of a possible 39)	

Condition Assessment Result	Condition Assessment Score
Total score >32 (33 to 39)	Good (3)
Total score 26 to 32	Moderate (2)
Total score <26 (13 to 25)	Poor (1)
Notes	

© E3 Ecology Ltd

Footnote 1 - See EWBG method INDICATOR 1 for more information. If tree species is not a birch, cherry or Sorbus: 0 – 20 years (Young); 21 - 150 years (Intermediate); and >150 years (Old). A recognisable age class should be a consistent recognisable layer across the woodland or stand being assessed. Presence of a few saplings would not indicate that the woodland has an 'age class' of young trees.

Footnote 2 - See EWBG method INDICATOR 2 for more information. Browsing pressure is considered to be significant where >20% of vegetation visible within each survey plot shows damage from any type of browsing pressure listed.

Footnote 3 - See EWBG method INDICATOR 3 for more information. Check for presence of the following invasive non-native species: American skunk cabbage *Lysichiton americanus;* Himalayan balsam *Impatiens glandulifera;* Japanese knotweed *Fallopia japonica;* Cherry Laurel *Prunus laurocerasus;* Shallon *Gaultheria shallon;* Snowberry *Symphoricarpos albus;* Variegated yellow archangel *Lamiastrum galeobdolon subsp. argentatum;* and Rhododendron *Rhododendron ponticum.*

Footnote 4 - See EWBG method INDICATOR 6 for more information. Open space within woodland in this context is temporary open space in which trees can be expected to regenerate (e.g. glades, rides, footpaths, areas of clear-fell). This differs from permanent open space where tree regeneration is not possible or desirable (e.g. tarmac, buildings, rivers). Area is at least 10m wide with less than 20% covered by shrubs or trees.

Footnote 5 - See EWBG method INDICATOR 8 for more information. This indicator measures regeneration potential of the woodland by considering three classes: seedlings; saplings; and young trees of 4-7 cm DBH. All three classes would fall in the 'young' category of the 'age distribution of trees' indicator, the regeneration indicator is gathers additional information by considering regeneration potential i.e. if seedlings, saplings and young trees are all present that means natural regeneration processes are happening.

Footnote 6 - This indicator is looking at structural diversity and is useful to understand in conjunction with the age of trees in a woodland. Vertical structure is defined as the number of canopy storeys present. Possible storey values are: 1) Upper; 2) Complex: recorded when the stand is composed of multiple tree heights that cannot easily be stratified into broad height bands (such as upper, middle or lower); 3) Middle; 4) Lower; and 5) Shrub layer.

Footnote 7- See EWBG method INDICATOR 12 for more information. All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value. Veteran trees can be classified if they have four out of the five following features:

1. Rot sites associated with wounds which are decaying >400 cm^2;
2. Holes and water pockets in the trunk and mature crown >5 cm diameter;
3. Dead branches or stems >15 cm diameter;
4. Any hollowing in the trunk or major limbs;
5. Fruit bodies of fungi known to cause wood decay.

Footnote 8 - See EWBG method INDICATOR 15 for more information. Examples of disturbance are: significant nutrient enrichment; soil compaction from trampling, machinery or animal poaching; litter.

© E3 Ecology Ltd

APPENDIX 3 – HEDGEROW CONDITION ASSESSMENT

UKHab Habitat Type		
Native hedgerow **Native hedgerow - associated with bank or ditch** **Native hedgerow with trees** **Native hedgerow with trees - associated with bank or ditch** **Native species rich hedgerow** **Native species rich hedgerow - associated with bank or ditch** **Native species rich hedgerow with trees** **Native species rich hedgerow with trees - associated with bank or ditch**		
Habitat Description		
See Table TS1-3		
Condition Assessment Criteria		
A series of ten attributes, representing key physical characteristics, are used for this assessment. The attributes, and the minimum criteria for achieving a favourable condition in each, are defined. The attributes use similar favourable condition criteria to the Hedgerow Survey Handbook and the handbook is the recommended source of reference for assessing individual hedgerow attributes.		
Hedgerow favourable condition attributes		
Attributes and functional groupings (A, B, C, D & E)	**Criteria (the minimum requirements for 'favourable condition'**	**Description**
Core groups - applicable to all hedgerow types		
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 for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is > 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, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice[4]).
B1. Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees')	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 of the Hedgerow Survey Handbook).

© E3 Ecology Ltd

B2.	Gap - hedge canopy continuity	· Gaps make up <10% of total length and · No canopy gaps >5 m	This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). 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).
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · measured from outer edge of hedgerow, and · is present on one side of the hedge (at least)	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedge. Undisturbed ground should be present for at least 90% of the hedgerow length, greater than 1m in width and must be present along at least one side of the hedge. This criterion recognises the value of the hedge base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.
C2.	Nutrient-enriched 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 (*Urtica* spp.), cleavers (*Galium aparine*) and docks (*Rumex* 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).

© E3 Ecology Ltd

Additional group - applicable to hedgerows with trees only		
E1. Tree age	At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.	This criterion addresses if there are sufficient mature trees (within the scope of planning timescales) which are of higher value to biodiversity.
E2. Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.

Condition categories for hedgerows without trees		
Category	**Maximum number of attributes that can fail to meet 'favourable condition' criteria in Table TS1-2**	**Metric 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** Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition).	2
Poor	Fails a total of more than 4 attributes; **OR** Fails both attributes in more than one functional group (e.g., fails attributes A1, A2, B1 & B2 = Poor condition).	1

Condition categories for hedgerows with trees		
Category	**Maximum number of attributes that can fail to meet 'favourable condition' criteria in Table TS1-2**	**Metric score**
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 5 failures in total; **AND** Does not fail both attributes in more than one functional group (e.g., fails attributes A1, A2, B1, C2 & E1 = Moderate condition).	2
Poor	Fails a total of more than 5 attributes; **OR** Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).	1

© E3 Ecology Ltd

APPENDIX 4 - PLANNING POLICY AND LEGISLATIVE CONTEXT

NATIONAL PLANNING POLICY

The table below details the key paragraphs from the National Planning Policy Framework (NPPF)[6] relating to the natural environment:

TABLE 2: NATIONAL PLANNING POLICY FRAMEWORK: CONSERVING AND ENHANCING THE NATURAL ENVIRONMENT	
Statement	**Paragraph**
Planning policies and decisions should contribute to and enhance the natural and local environment by: a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate; d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate	*174*
Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework[7]; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.	*175*
Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads[8]. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.	*176*
When considering applications for development within National Parks, the Broads and Areas of Outstanding Natural Beauty, permission should be refused for major development[9] other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of: a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy; b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated	*177*
Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 176), planning policies and decisions should be consistent with the	*178*

[6] National Planning Policy Framework (July 2021), Department for Communities and Local Government,
[7] Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.
[8] English National Parks and the Broads: UK Government Vision and Circular 2010 provides further guidance and information about their statutory purposes, management and other matters.
[9] For the purposes of paragraphs 177 and 178, whether a proposal is 'major development' is a matter for the decision maker, taking into account its nature, scale and setting, and whether it could have a significant adverse impact on the purposes for which the area has been designated or defined.

© E3 Ecology Ltd

TABLE 2: NATIONAL PLANNING POLICY FRAMEWORK: CONSERVING AND ENHANCING THE NATURAL ENVIRONMENT	
Statement	**Paragraph**
special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.	
To protect and enhance biodiversity and geodiversity, plans should: a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity[10]; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation[11]; and b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.	*179*
When determining planning applications, local planning authorities should apply the following principles: a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons63 and a suitable compensation strategy exists; and d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.	*180*
The following should be given the same protection as habitats sites: a) potential Special Protection Areas and possible Special Areas of Conservation; b) listed or proposed Ramsar sites[12]; and c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.	*181*
The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.	*182*

Section 40 of the Natural Environment and Rural Communities Act 2006, places a duty on all public authorities in England and Wales to have regard, in the exercise of their functions, to the purpose of conserving biodiversity.

Planning Practice Guidance[13] states:

[10] Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.
[11] Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.
[12] Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site.
[13] Planning Practice Guidance: Natural Environment (www.planningguidance.communities.gov) Updated July 2019

© E3 Ecology Ltd

- Planning authorities need to consider the potential impacts of development on protected and priority species, and the scope to avoid or mitigate any impacts when considering site allocations or planning applications. (para. 016)
- Information on biodiversity and geodiversity impacts and opportunities needs to inform all stages of development (including site selection and design, pre-application consultation and the application itself). An ecological survey will be necessary in advance of a planning application if the type and location of development could have a significant impact on biodiversity and existing information is lacking or inadequate. (para. 018)
- Even where an Environmental Impact Assessment is not needed, it might still be appropriate to undertake an ecological survey, for example, where protected species may be present or where biodiverse habitats may be lost. (para. 018)
- As with other supporting information, local planning authorities should require ecological surveys only where clearly justified. Assessments should be proportionate to the nature and scale of development proposed and the likely impact on biodiversity. (para. 018)
- The National Planning Policy Framework encourages net gains for biodiversity to be sought through planning policies and decisions. Biodiversity net gain delivers measurable improvements for biodiversity by creating or enhancing habitats in association with development. Biodiversity net gain can be achieved on-site, off-site or through a combination of on-site and off-site measures. (para. 022)

PROTECTED SPECIES LEGISLATION

The table below details the relevant legislation for the protected species covered within the scope of the survey.

TABLE 3: SUMMARISED SPECIES LEGISLATION

Species	Relevant Legislation	Level of Protection
Bats (All species)	• Protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended • Classified as protected species under The Conservation of Habitats and Species Regulations 2017 (as amended) • Bats are also protected by the Wild Mammals (Protection) Act 1996	The WCA (1981) and The Conservation of Habitats and Species Regulations 2017 (as amended) make it an offence to: • Intentionally kill, injure, or take any species of bat • Intentionally or recklessly disturb bats • Intentionally or recklessly damage destroy or obstruct access to bat roosts
Otter	• Protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended • Classified as protected species under The Conservation of Habitats and Species Regulations 2017 (as amended) • Otters are also protected by the Wild Mammals (Protection) Act 1996	The WCA (1981) and The Conservation of Habitats and Species Regulations 2017 (as amended) make it an offence to: • intentionally kill, injure, or take otters • intentionally or recklessly disturb otters • intentionally or recklessly amage destroy or obstruct access to otter holts or any place used by the animal for shelter or protection
Great Crested Newt	• Protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended • Classified as protected species under The Conservation of Habitats and Species Regulations 2017 (as amended)	The WCA (1981) and The Conservation of Habitats and Species Regulations 2017 (as amended) make it an offence to: • intentionally kill, injure, or take great crested newts • intentionally or recklessly disturb great crested newts • intentionally or recklessly damage destroy or obstruct access to any place used by the animal for shelter or protection

© E3 Ecology Ltd

TABLE 3: SUMMARISED SPECIES LEGISLATION		
Species	**Relevant Legislation**	**Level of Protection**
Red Squirrel	• Full protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended • Red squirrels are also protected by the Wild Mammals (Protection) Act 1996	The WCA (1981) makes it an offence to: • intentionally kill, injure, or take red squirrels • intentionally or recklessly damage destroy or obstruct access to any place used by the animal for shelter or protection or disturb red squirrels whilst they are using such a place.
Birds	• Protection under the Wildlife and Countryside Act (1981) as amended with the exception of some species listed in Schedule 2 of the Act	The WCA (1981) makes it an offence to (with exceptions for certain species): • Intentionally kill, injure or take any wild bird • Intentionally take, damage or destroy nests in use or being built (including ground nesting birds) • Intentionally take, damage or destroy eggs • Species listed on Schedule 1 of the WCA or their dependant young are afforded additional protection from disturbance whilst they are at their nests
White-clawed Crayfish	• Partially protected by the Wildlife and Countryside Act (1981)	The WCA (1981) makes it an offence to: • Take a white-clawed crayfish from its habitat • Sell, offer for sale, advertise for sale, possess or transport for the purposes of selling any live or dead white clawed crayfish
Badger	• Protection of Badgers Act 1992 • Badgers are also protected by the Wild Mammals (Protection) Act 1996	The Protection of Badgers Act (1992) makes it an offence to intentionally or recklessly: • Damage a badger sett or any part of it • Destroy a badger sett • Obstruct access to, or any entrance of a badger sett • Disturb a badger whilst it is occupying a badger sett
Water Vole	• Full protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended • Water voles are also protected by the Wild Mammals (Protection) Act 1996	The WCA (1981) makes it an offence to: • intentionally kill, injure, or take water voles • intentionally or recklessly damage destroy or obstruct access to any place used by the animal for shelter or protection or disturb water voles whilst they are using such a place
Common reptiles (Slow-worm, Adder, Grass Snake, Common Lizard)	• Partially protected by the Wildlife and Countryside Act	The WCA (1981) makes it an offence to: • intentionally kill or injure these animals • sell, offer for sale, advertise for sale, possess or transport for the purposes of selling any live or dead animals or part of these animals
Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the Wildlife and Countryside Act 1981 of damaging a place of shelter or disturbing those species given full protection under the act is extended to cover reckless damage or disturbance.		

INVASIVE SPECIES LEGISLATION

The table below details the legislation in relation to invasive species and lists those invasive species most likely to be found in this region.

© E3 Ecology Ltd

TABLE 4: SUMMARISED INVASIVE SPECIES LEGISLATION		
Relevant Legislation	**Description of Offence**	**Species** *(Covered by the Legislation and most likely to be found in this Region)*
Listed on Part II of Schedule 9 of the Wildlife and Countryside Act (1981 as amended)	Section 14 of the WCA (1981) states: • if any person plants or otherwise causes to grow in the wild any plant which is included in Part II of Schedule 9, he shall be guilty of an offence.	Himalayan balsam Cotoneaster Montbretia Japanese knotweed Giant hogweed Rhododendron Pirri-pirri bur New Zealand pygmyweed Giant rhubarb Japanese rose

PROTECTED SITE LEGISLATION

CONTEXT IN REGARD TO THE UK'S EXIT FROM THE EUROPEAN UNION

As of 1st January 2021, the UK is no longer bound by the Birds Directive and Habitats Directive. However, the Conservation of Habitats and Species Regulations still applies, which formerly acted to transpose the Birds Directive and the Habitats Directive into English and Welsh law. These are still referred to below for contextual purposes, as designated site citations and conservation objectives may not have been updated following the changes to applicable legislation and may still refer to the Directives.

STATUTORILY DESIGNATED SITES

Ramsar Site

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. The Convention recognises wetlands as important ecosystems and includes a range of wetland types from marsh to both fresh and salt water habitats. The wetlands can also include additional areas adjacent to the main water-bodies such as river banks or coastal areas where appropriate.

Special Protection Area (SPA)

SPAs are classified by the UK Government under the EC Birds Directive and comprise areas which are important for both rare and migratory birds.

Special Areas of Conservation (SAC)

SACs are designated under the EC Habitats Directive and are areas which have been identified as best representing the range and variety of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 unless they are offshore.

Sites of Special Scientific Interest (SSSI)

SSSIs are designated as sites which are examples of important flora, fauna, or geological or physiographical features. They are notified under the Wildlife and Countryside Act 1981 with improved provisions introduced by the Countryside and Rights of Way Act 2000.

National Nature Reserve (NNR)

NNRs are designated by Natural England under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 and support important ecosystems which are managed for conservation. They may also provide important opportunities for recreation and scientific study.

Country Parks

© E3 Ecology Ltd

Country Parks are statutorily designated and managed by local authorities in England and Wales under the Countryside Act 1968. They do not necessarily have any nature conservation importance, but provide opportunities for recreation and leisure near urban areas.

Local Nature Reserves (LNR)
LNRs are designated under the National Parks and Access to the Countryside Act 1949 by local authorities in consultation with Natural England. They are managed for nature conservation and used as a recreational and educational resource.

NON-STATUTORILY DESIGNATED SITES

Non-Governmental Organisation Property
These are sites of biodiversity importance which are managed as reserves by a range of NGOs. Examples include sites owned by the RSPB, the Woodland Trust and the Wildlife Trusts.

Local Wildlife Site (LWS)
These are sites defined within the local plans under the Town and Country Planning system and are material considerations of any planning application determination. They are designated by the local authority although criteria for designation can vary between authorities.

PRIORITY SPECIES

Although not afforded any legal protection, national priority species (species of principal importance, as listed in Section 41 of the NERC Act (2006)), and local and regional priority species, as detailed within the relevant biodiversity action plans, are material considerations in the planning process and as such have been assessed accordingly within this report.

The tables below detail the species/species groups and habitats listed as priorities within the biodiversity action plans of the main Local Planning Authorities' within the north-east of England.

TABLE 5: BIODIVERSITY ACTION PLANS					
Northumberland Biodiversity Action Plan					
Species			**Habitats**		
Barn Owl	Bats	Black Grouse	Blanket Bog	Built Environment	Brownfield Land
Coastal Birds	Common Seal	Dingy Skipper	Calaminarian Grassland	Coastal heathland	Fen, Marsh & Swamp
Dormouse	Farmland Birds	Freshwater Fish	Gardens & Allotments	Heather Moorland	Lowland Heathland
Freshwater Pearl Mussel	Garden Birds	Great Crested Newt	Lowland Meadows & Pastures	Maritime Cliffs & Slopes	Native Woodland
Grey Seal	Hedgehog	Otter	Ponds, Lakes & Reservoirs	Recreational & Amenity Space	Reedbed
Red Squirrel	River Jelly Lichen	Upland Waders	Rivers & Streams	Rocky Shore, Reefs & Islands	Saline Lagoons
Violet Crystalwort	Water Rock-bristle	Water Vole	Saltmarsh & Mudflat	Sand Dunes	Transport Corridors
White-Clawed Crayfish			Trees & Hedgerows	Upland Hay Meadows	Whin Grassland
Durham Biodiversity Action Plan					
Species			**Habitats**		
Barn Owl	Coastal Birds	Farmland Birds	Native Hedgerows	Veteran Trees, Parkland and Wood Pasture	Woodland and Scrub
Nightjar	Spotted Flycatcher	Upland Birds	Ponds, Lakes & Reservoirs	Lowland Fen	Rivers & Streams
Urban and Garden Wildlife	Freshwater Fish	Grass Snake	Blanket Bog and Upland Wet Heath	Calaminarian Grassland	Upland Calcareous Grassland

© E3 Ecology Ltd

TABLE 5: BIODIVERSITY ACTION PLANS					
Great Crested Newt	Reptiles	Chalk Carpet Moth	Upland Dry heath and Acid Grassland	Upland Haymeadows	Upland Screes and Rock Habitats
Cistus Forrester	Dark Green Fritillary	Dingy Skipper	Brownfield Sites	Built Structures	Coastal Habitats
Glow Worm	Grayling	Green Hairstreak	Lowland Heath	Lowland Meadows & Pasture	Magnesian Limestone Grassland
Least Minor Moth	Mud Snail	Northern Brown Argus	Transport Corridors	Waxcap Grassland	
Northern Dart	Round Mouthed Whorl Snail	Small Pearl-bordered Fritillary			
White Clawed Crayfish	White-letter Hairstreak	Badger			
Bats	Brown Hare	Dormouse			
Harvest Mouse	Hedgehog	Otter			
Pine Marten	Polecat	Red Squirrel			
Water Vole	Water Shrew	Black Poplar			
Juniper	Pale Bristle-Moss	Yellow Marsh Saxifrage			
Newcastle and North Tyneside Biodiversity Action Plan					
Habitats			**Species**		
Brownfield Land	Transport Corridors	Open Water & Wetland	Amphibians	Dingy Skipper	Otter
Rivers and Watercourses	Managed Urban Greenspace	Native Woodland	Urban Birds	Water Vole	Red Squirrel
Lowland Grassland	Scrub, Shrub & Hedgerow	Buildings and Structures	Hedgehog	Slow Worm	Bumblebee
Estuary & Coastal			Brown hare	Farmland Birds	Bats
Tees Valley Biodiversity Action Plan					
Species				**Habitats**	
Barn Owl	Ringed Plover	Grey Partridge	Tree Sparrow	Traditional Orchards	Semi-natural Broadleaved Lowland Woodland
Little Tern	Corn Bunting	Shelduck	Wagtail Yellow	Reedbeds	Rivers & Streams
Bittern	Swift	Purple Milk-vetch	Water Violet	Arable field Margins	Roadside Verges
Globeflower	Pepper saxifrage	Tufted Sedge	Knotted hedge-parsley	Lowland Meadows	Sand Dunes
Yellow Star of Bethlehem	Burnt Orchid	Green Winged Orchid	Strawberry Clover	School Grounds	Maritime Cliffs and Slopes
Flat Sedge	Small Leaved Lime	Black Poplar	Lyme Grass	Grazing Marsh	Hedgerows
Scarlet Wax Cap	White-letter Hairstreak	Grayling	Dingy Skipper	Gardens and Allotments	Saline Lagoons
Blomer's Rivulet	Crescent Striped	Forester	Large Red-Belted Clearwing	Marsh and Saltmarsh	Ponds, Lakes & Reservoirs
Fen Wainscot	Shore Wainscot	Eccentric Grass Snail	Moss Chrysalis Snail	Parks and Recreation Grounds	Lowland Heath
Moss Chrysalis Snail	Bats (except common pipistrelle)	Brown Hare	Harvest Mouse	Brownfields	Churchyards and Cemeteries
Harbour Seal	Water Vole	Common Lizard	Slow Worm		
Great Crested Newt	Bullhead	Salmon	Brown Trout		
European Eel	Brook Lamprey	Sea Lamprey	River Lamprey		
Cumbria Biodiversity Action Plan					
Species			**Habitats**		

© E3 Ecology Ltd

TABLE 5: BIODIVERSITY ACTION PLANS					
Red Wood Ant	Wall Mason Bee	a ground beetle *Dyschirius angustatus*	Rivers	Lakes, Ponds and Tarns	Hedgerows
a ground beetle *Bembidion testaceum*	Oxbow Diving Beetle	Barn Owl	Traditional Orchards	Wood-Pasture & Parkland	Semi-natural Woodland
Song Thrush	Pearl Bordered Fritillary	High Brown Fritillary	Lowland Dry Acid Grassland	Calcareous Grassland	Hay Meadows and Pastures
Marsh Fritillary	Netted Carpet	Least Minor	Coastal and Floodplain Grazing Marsh	Heathland	Fen, Marsh and Swamp
a caddisfly *Glossosoma intermedium*	Freshwater Crayfish	Variable Damselfly	Bogs	Montane Habitats	Rock habitats
White-faced Dragonfly	Atlantic Salmon	Schelly	Calaminarian Grasslands	Previously developed land	Coastal Habitats above High Water
Vendace	Southern silver Stiletto-fly	Northern Silver Stiletto-fly	Coastal Intertidal Habitats	Coastal Saline lagoons	Coastal Subtidal Habitats
River Jelly Lichen	a lichen *Lobaria amplissima*	Pink Waxcap			
Medicinal Leech	Whiskered Bat	Brandt's Bat			
Natterer's Bat	Daubenton's Bat	Noctule			
Common Pipistrelle	Soprano Pipistrelle	Brown Long-eared Bat			
Red Squirrel	Water Vole	Hazel Dormouse			
Sandbowl Snail	a whorl snail *Vertigo geyeri*	Slender Green Feather-moss			
Great Crested Newt	Natterjack Toad	Pillwort			
Juniper	Northern Hawksbeard	Small White Orchid			

© E3 Ecology Ltd