UK GREEN BUILDING COUNCIL

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Biodiversity and the built environment

A report by the UK-GBC Task Group

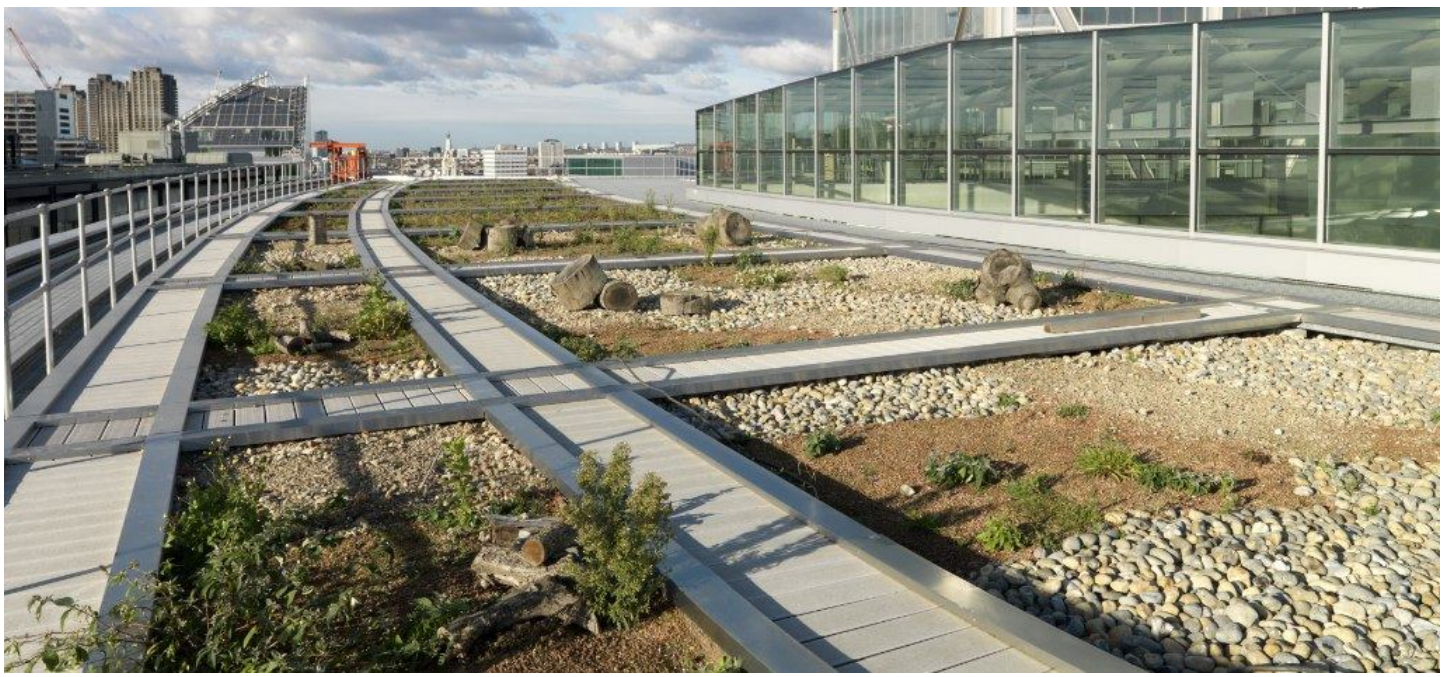
The UK Green Building Council would like to thank the following organisations for their support:

Environment Agency

defra
Department for Environment Food and Rural Affairs

BERR
Department for Business Enterprise & Regulatory Reform

CAMPAIGN FOR A SUSTAINABLE BUILT ENVIRONMENT



About this report

The UK-GBC

The UK Green Building Council (UK-GBC) is an independent, membership-based, not-for-profit organisation committed to dramatically improving the sustainability of the built environment by radically transforming the way it is planned, designed, constructed, maintained and operated.

A crucial feature of our work is the time limited 'task groups' we convene. These working groups bring together experts from within the membership with diverse perspectives - and often competitors - to work collaboratively to address a given challenge. Sharing expertise means that projects have access to a greater knowledge-base than any one organisation could possess alone.

UK-GBC would like to thank the Environment Agency, Defra and BERR for their support in producing this report and the online portal. The findings and recommendations in this report are those of the authors and do not necessarily represent the views of Government.

This report was produced thanks to the following organisations. Particular thanks to Dr Carol Williams from the Bat Conservation Trust for chairing the task group.

Aedas

ALGE Association of Local Government Ecologists

ATKINS

Bat Conservation Trust

Bovis Lend Lease

Canary Wharf Group Plc

The Ecology Consultancy

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Grimshaw

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Oxford Brookes University

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Introduction

BIODIVERSITY

The biological diversity (biodiversity) of wildlife, plants and their habitats is a vital component of healthy, well-functioning ecosystems, which in turn sustain all life on the planet. Recent research from the European Commission highlights how 'the well-being of every human population in the world is fundamentally and directly dependent on ecosystem services'.[1]

Humans depend on biodiversity for:

- **Food** - variety of diet, reliance on pollinators, seed dispersers and the web of organisms that relate to them.
- **Health -** access to nature for both physical and mental health, new drugs and treatments developed from the study of plant and animal species.
- **Resources** - timber, natural fibres, fuel.
- **Ecosystem services** - cleaning air and water, coastal protection, protection from floods and soil erosion.[2] Moreover, biodiversity can be important in helping communities adapt to and mitigate climate change.[3]

According to the RSPB, the economic value of nature's services is immense, but very difficult to calculate. In 1997, a team of leading ecological economists put that value at about $38 trillion a year, roughly equal to the global economy itself. A second study by an international team of scientists and economists, coordinated by Cambridge University and the RSPB, estimates that more than half of the total value is lost when nature is converted for unsustainable human use. The RSPB's conclusion from the two studies is that the irreplaceable value of wild nature worldwide is at least $20 trillion a year.[4]

In spite of the great value of nature, globally we have significantly depleted tropical forest and mangrove areas, as well as vital populations of fish, birds, mammals and reptiles.[5]
In the UK:

- 39% of habitats and 27% of 'priority species' are in decline with some showing accelerated deterioration.[6]
- Bird numbers have been depleted by an average of 6% in the last 30 years.[7]
- Butterfly populations have dropped an average of 55% in the last 30 years.[8]
- And major declines in bees, arable plants and amphibians have also been recorded.[9]

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[1] European Communities, (2008) 'The Economics of Ecosystems and Biodiversity'. Available at: http://ec.europa.eu/environment/nature/biodiversity/economics/pdf/teeb_report.pdf
[2] For a comprehensive account of ecosystem services see European Communities, (2008) 'The Economics of Ecosystems and Biodiversity'. Available at: http://ec.europa.eu/environment/nature/biodiversity/economics/pdf/teeb_report.pdf
[3] Wilby, RL and Perry GLW (2006) Climate change, biodiversity and the urban environment: a critical review based on London. *Progress in Physical Geography*. vol. 30 (1) p 73-98.
[4] RSPB, (2002), 'Unravelling the web: the global value of wild nature' http://www.rspb.org.uk/Images/Global%20values_tcm9-133024.pdf
[5] RSPB, (2002), 'Unravelling the web: the global value of wild nature'http://www.rspb.org.uk/Images/Global%20values_tcm9-133024.pdf
[6] Defra, on behalf of the UK Biodiversity Partnership (May 2006) The UK Biodiversity Action Plan: Highlights from the 2005 reporting round.
[7] Defra (March 2008) Populations of Wild Birds in England. England Biodiversity Strategy Indicators (part H1(a))
[8] Defra (April 2008) Populations of Butterflies in England. Engalnd Biodiversity Strategy Indicators (part H1(b))
[9] Margerison, C (June 2008) A Response from the British Ecological Society and the Institute of Biology to the Environmental Audit Committee Inquiry in to 'Halting UK Biodiversity Loss'. The British Ecological Society

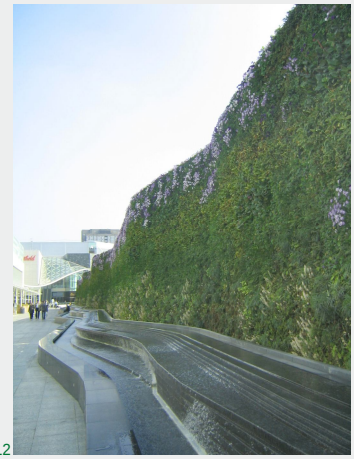
Our built environment has the potential to have major negative impacts on biodiversity. However, if done sensitively, the development and refurbishment of buildings can in fact increase the ecological value of the site.

There is a growing body of research that suggests that access to biodiversity and green spaces is valuable to individuals, businesses and communities. Research by the Commission for Architecture & the Built Environment concludes that property values increase near green spaces, with houses close to parks averaging 8% higher prices than similar properties further away.[10] A report by Natural Economy Northwest found that businesses located in greener settings attract and retain more motivated staff and that green spaces near work places lead to reduced sickness and increased productivity.[11]

CASE STUDY: WESTFIELD LIVING WALL

This project is a 170m x 4.5m high living wall designed by EDAW AECOM for the new Westfield shopping centre at Shepherds Bush, West London. The multi-functional wall is designed to separate the busy pedestrian approach to the shopping centre from an adjacent residential area, providing screening, noise attenuation and evaporative cooling. It was constructed from a modular system and it is predominantly planted with native ferns and woodland wildflowers such as violets, bringing biodiversity and beauty into what would otherwise be a very urban and barren site.

Despite difficult economic conditions, all the restaurant units which overlook the wall have been let. This commercial success has been partly attributed to the attractive outlook provided by the living wall, which has become an attraction in its own right and encourages customers to stay longer when they visit the centre.



"The living wall contributes to the environment in many ways. It looks beautiful, acts as a buffer between the scheme and nearby homes, creates a great space for diners, helps filter the air and provides a gigantic new swathe of urban habitat. We predict increasing interest in living walls because of their ability to contribute so positively to almost any environment."

James Haig Streeter, landscape architect and project leader with EDAW[12]

Currently, the local impacts of development on biodiversity, what can be done to minimise them, and how we can actively enhance biodiversity through better design and development are not particularly well understood by construction industry professionals. It is the intention of this report to highlight the gaps in existing information, guidance and assessment methodologies available to the industry and enable the industry to better understand its impact on biodiversity and to recognise the relationship between biodiversity and our built environment.

[10] CABE, (2005) 'Does money grow on trees?'.
[11] Natural Economy Northwest, (2008), 'The economic value of green infrastructure'. http://www.naturaleconomynorthwest.co.uk/resources+reports.php
[12] For more information about Westfield Living Wall and additional case studies visit the UK-GBC 'biodiversity portal' at www.ukgbc.org/info-centre

CASE STUDY: BRITISH LAND

Management of biodiversity is integrated into British Land's business practices, through site specific management plans, and the Sustainability Brief for new developments. Responsibly managed biodiversity brings benefit to the environment and British Land's business operations; reducing risk, building trust, providing natural and human amenity, and enhancing reputation.

Since 2006, British Land has promoted green roofs in their new buildings and across our managed estates. All of our new London office buildings incorporate green roofs or walls to encourage biodiversity and improve building insulation, as well as providing an attractive area for occupiers and enhancing the appearance of the building. We have also reviewed opportunities to retro-fit green roofs to existing properties, such as our head office in Marble Arch and the Broadgate Estate near Liverpool Street Station.[13]

PURPOSE OF THE UK-GBC BIODIVERSITY TASK GROUP

The UK-GBC Biodiversity Task Group was established in June 2008 and brought together a cross section of the construction industry and experts on biodiversity[14] in construction to address the following problems:

1. There is a lot of information that exists on biodiversity and construction, but this is not widely understood, easily accessible or easily navigated. Given the UK-GBC aims to provide clarity for the industry through the provision of clear information and the promotion of best practice, the task group set out to review the existing information and guidance and make recommendations for how to improve this.

2. Government's Sustainable Construction Strategy contains a target on biodiversity,[15] but measuring real progress is difficult. The task group set out to assess this and make recommendations to improve the measurement and collection of data, which in turn could help inform the ongoing delivery of the Sustainable Construction Strategy.

It was decided from the outset to focus on new as opposed to existing developments, as the greatest opportunity to incorporate biodiversity provisions in sustainable building is at the

[13] For more information about the British Land case study and for additional case studies visit the UK-GBC 'biodiversity portal' at www.ukgbc.org/info-centre

[14] See Appendix 1 for a full list of task group members and other stakeholders consulted by the task group.

[15] HM Government, Strategy for Sustainable Construction (June 2008). Target from Biodiversity Chapter 11 for the Strategic Forum to oversee that *'all construction projects over £1m to have biodiversity surveys carried out and necessary actions instigated'* by 2012.

point of planning and design.[16] However, where information or guidance is also relevant to existing buildings, this has been highlighted.

The work of the task group has been based predominantly on the policies and process current in England but equally apply to the parallel processes that exist for the other UK countries. A list of the relevant legislation and policies for all UK countries can be accessed on the UK-GBC website.[17]

TASK GROUP PROCESS

The task group carried out its work through the following means:

- Dedicated workstreams within the task group
- Online consultation with UK-GBC members
- Consultation with expert stakeholders including government agencies and NGOs. These organisations are listed in Appendix 1 and we are grateful for their input.

[16] Supported by results of survey of UK-GBC members – vast majority of respondents give biodiversity credits serious consideration at the point of planning and design. See Appendix 4 for survey results.
[17] For a list of all relevant legislation and policy see ALGE and BSI, PAS 2010 (2006), Planning to halt the loss of biodiversity: Biodiversity conservation standards for planning in the United Kingdom.

Key findings and recommendations

The task group recommendations are as follows:

1. Stakeholders should use the UK-GBC online 'portal' as a first-port-of-call for information on biodiversity and the built environment.
2. Industry should use the UK-GBC sector-specific biodiversity guidance.
3. Existing sustainability tools should be further improved to take biodiversity into account by incorporating the principles of the proposed methodology outlined by the task group.
4. A standard method should be established for collating information about changes to biodiversity as a result of development. Targets can then be set relative to this information.
5. The industry should release information obtained on biodiversity change for use in existing reporting systems.
6. The Department for Communities and Local Government should reinstate the core output indicator for habitat areas and species within Local Development Framework guidance.
7. Guidance on measuring, reporting on, and setting targets for biodiversity should be incorporated into PPS9 and its associated guidance documents.
8. Government should consider the addition of specific features of the built environment to the list of Biodiversity Action Plan priority habitats (e.g. green roofs and other biodiversity features).
9. The Sustainable Construction Strategy should incorporate the recommendations of this report and once a baseline is established, implement an annual cycle of reporting on biodiversity change. The strategy should identify a process for auditing progress against these targets.
10. UK-GBC should encourage any future Global Reporting Initiative construction and real estate sector supplement to develop appropriate biodiversity indicators and then aim to publicise these indicators amongst the UK-GBC membership.

Guidance

A review was undertaken of all information available on biodiversity and the built environment, including reports, documents and websites. The task group found that there is a comprehensive body of information on individual species, groups of species and their associated habitats. As expected, the information is widely dispersed and difficult to locate and there is a lack of immediately accessible and appropriate information for construction industry professionals and ecologists on making the most effective provision for biodiversity at the individual development level. The group recognised that some gaps in available information exist, particularly in relation to making provision for species in designing new low or zero carbon buildings, where industry guidance has failed to keep pace with developments in materials and construction techniques.

The task group concluded that the lack of easily accessible information is a key factor in the perception that biodiversity is a non-essential additional consideration in new developments, imposed by external conservationists, ecologists or government.

It was therefore recommended that one central online 'portal' be established to guide the industry through this information. After consultation with a wide range of stakeholders, it was decided that this portal should be hosted on the UK-GBC website and that portal goes live with the launch of this report.

The portal is available here: www.ukgbc.org/info-centre

This site does not provide a large body of new information, but directs users to the most relevant information in this area. Users of the website will be encouraged to identify any gaps in the information available, which UK-GBC will work with relevant stakeholders to address. The UK-GBC would like to thank the Environment Agency and Defra for their support in developing this portal.

The UK-GBC is committed to maintaining this information source over time so that the industry always has access to the most relevant and current information.

RECOMMENDATION 1: STAKEHOLDERS SHOULD USE THE UK-GBC ONLINE 'PORTAL' AS A FIRST-PORT-OF-CALL FOR INFORMATION ON BIODIVERSITY AND THE BUILT ENVIRONMENT.

In addition to better access to information through the online portal, the task group concluded that UK-GBC members and the wider industry would benefit from sector-specific guidance on enhancing biodiversity in the built environment, relevant to different sectors of the industry.

This guidance has been developed, again in full consultation with relevant stakeholders, and is available in full both through the online portal on the UK-GBC website and in Appendix 2.

The guidance aims to:

- Raise awareness of biodiversity amongst industry professionals
- Ensure biodiversity is incorporated in both new build projects, infrastructure projects and in managing existing buildings.

- Encourage UK-GBC members and non-members to practice high standards in their consideration of biodiversity, via the training of staff, use of ecologists, and establishment of biodiversity monitoring and reporting.
- Enable UK-GBC member and non-member organisations to demonstrate their commitment to biodiversity in the built environment.

Different sectors of the industry clearly have different roles; different abilities to influence a project at a specific point; and they undertake different types of projects. The guidance aims to maximise co-operation between sectors and minimise overlap in responsibilities to the benefit of the whole supply chain.

Guidance has been prepared for the following sectors and will be added to over time:

- **Developer:** applicable to private sector property and infrastructure developers, and for public sector developers such as Local Authorities, Department for Health, Ministry of Defence, National Health Service, Network Rail, Highways Agency, National Offender Management Service, educational authorities and others.
- **Owner/landlord:** applicable to property owners, property fund managers, asset managers, facilities and property managers, and others.
- **Contractor:** applicable to construction contractors and sub-contractors working for public and private sector clients.
- **Consultant:** applicable to architects, planning consultants, cost consultants, building engineers, interior designers, sustainability/environmental consultants, ecological consultants, solicitors, and others.

In putting together this guidance, the task group researched existing schemes and systems that encourage a commitment to biodiversity in developments. The guidance is intended to complement and not duplicate other schemes. The guidance therefore focuses much more on raising awareness amongst the industry of existing tools, schemes and processes. These include:

- The Global Reporting Initiative (GRI) process
- The nature of requirements for Biodiversity Action Plans and Habitat Action Plans and how they fit into the planning process
- TCPA guidance 'Biodiversity by Design'
- The Biodiversity Benchmark process being taken forward by the Wildlife Trusts
- The Code for Sustainable Homes
- The Constructing Excellence KPIs
- Building environmental assessment methodologies (BREEAM, CEEQUAL etc)

RECOMMENDATION 2: INDUSTRY SHOULD USE THE UK-GBC SECTOR-SPECIFIC BIODIVERSITY GUIDANCE.

Tools

In reviewing existing guidance, the task group recognised the huge value of each of the commonly used building environmental assessment tools and the important role that they play in engaging the industry on biodiversity. The group reviewed the following existing methodologies:

- **BREEAM** – Building Research Establishment Environmental Assessment Method
- **Code for Sustainable Homes**
- **CEEQUAL** – Civil Engineering Environmental Quality and Award Scheme
- **DREAM** – Defence Related Environmental Assessment Method.
- **LEED –** Leadership in Energy and Environmental Design.

Each of these tools incentivises the consideration of biodiversity in new construction, and tools are therefore a significant driver for changing industry practice.

The task group reviewed the ecology and biodiversity sections of each sustainability tool and identified the major strengths and weaknesses of each. This review analysis can be found in Appendix 3. The group also conducted a survey of the UK-GBC membership, to help inform these recommendations. The results of the survey and analysis of results is available in Appendix 4.

In summary, the task group found:

- There is no common approach to assessment of biodiversity across the principal sustainability tools.
- Sustainability tools could be improved to assess biodiversity in a more meaningful way, which better assesses the value of habitats that are gained and lost.
- Improvements could be made to the tools which focus users on making a genuine contribution to local ecological value, rather than unintentionally encouraging a 'tick-box' approach.
- Sustainability tools do not encourage the industry to appropriately monitor and therefore meaningfully maintain and manage habitats created through development.

The group proposed a new method of assessing biodiversity for inclusion in sustainability assessment tools, to address the problems identified above. The methodology proposed by the group is available in full in Appendix 5. Both BREEAM and CEEQUAL have been consulted on the proposals and their comments incorporated. The principal shortcomings noted in BREEAM are also present in the Code for Sustainable Homes due to the carryover of the assessment methodology from EcoHomes, and the revised methodology proposed by the task group applies to the Code for Sustainable Homes. Members of the task group will continue to refine the proposed methodology, with the aim of piloting the methodology with on-going BREEAM & CEEQUAL projects and will continue to work with both scheme providers and other stakeholders to ensure a credible and achievable outcome.

RECOMMENDATION 3: EXISTING SUSTAINABILITY TOOLS SHOULD BE FURTHER IMPROVED TO TAKE BIODIVERSITY INTO ACCOUNT BY INCORPORATING THE PRINCIPLES OF THE PROPOSED METHODOLOGY OUTLINED BY THE TASK GROUP.

Measuring and reporting on biodiversity

In order for the industry to improve its record on biodiversity it must be able to meaningfully and consistently measure its impact on habitats and species. The task group found this to be currently hindered by there being no common method for assessing the net change in biodiversity that arises from construction activities and the management of existing property assets.

Various steps should be taken to help the industry measure its impact on biodiversity; the task group therefore makes the following recommendations, which require action by the industry, local authorities and central government.

Greater consistency in the methods and metrics used to report on biodiversity change is required for the industry to achieve a deeper understanding of the net change in biodiversity in developed areas. The industry's impact should be expressed in terms of change in both quantity and quality of habitats and species at site level in order to have any real meaning.[18]

Developers currently submit data on biodiversity change as the result of development at the point of applying for planning permission for a project. The task group identified that this data is often presented in a very detailed but inconsistent format to the Local Planning Authority (LPA).

The task group recognises that the industry must not be discouraged from collecting data through a burdensome and additional process and therefore recommends that the industry contribute to the collation of consistent data through existing data collection mechanisms. In developing this, the task group has consulted with members of the Royal Town Planning Institute's Environmental Planning and Protection Network with the aim of encouraging consistency on biodiversity data collection. It is recommended that at the point of submitting a planning application, developers submit data on predicted biodiversity change using the 'summary sheet' formulated through collaboration between the UK-GBC task group and the RTPI. A working draft of this summary sheet is available in Appendix 6: 'Proposed biodiversity and development assessment of change form'. This summary sheet is currently being developed by a further working party of UK-GBC Biodiversity Task Group members and members of the RTPI Environmental Planning and Protection Network and will be published in final form by this further working party when complete.

The task group also identified that the biodiversity information contained within a planning application is rarely made available to other parties. The information obtained through the ecological survey of a site is the property of the client that commissioned the survey, most often a developer or consultant undertaking an ecological survey for inclusion in a planning application. The group advocates that the industry follows best practice and makes data from such surveys available for use by any party that wishes to understand the local ecology, as well as submitting the 'summary sheet' information to the Local Planning Authority. See Appendix 2 for further best practice guidance for the industry.

[18] See recommendation 8 for a discussion of Biodiversity Action Plan reporting on priority habitats and species

RECOMMENDATION 4: A STANDARD METHOD SHOULD BE ESTABLISHED FOR COLLATING INFORMATION ABOUT CHANGES TO BIODIVERSITY AS A RESULT OF DEVELOPMENT. TARGETS CAN THEN BE SET RELATIVE TO THIS INFORMATION.

Local Planning Authorities are required to report on biodiversity change annually and it is intended that the information contained in these summary sheets will be suitable for their reporting purposes. It is also intended that the information contained in these summary sheets is made available by the LPAs to Local ecological Record Centres (LRC)[19], who in turn will feed their information into the National Biodiversity Network (NBN).[20] The relationship between Local Planning Authorities and Local Record Centres is complex and beyond the scope of this report, with a varying level of formal and informal reporting arrangements between LRCs and LPAs who regularly share information on biodiversity change.[21] The collation of consistent data and the release of ecological information obtained by the industry will contribute to a greater understanding of change to habitats and species as a result of construction activity in the UK.

The process of feeding data through existing reporting mechanisms and the planning process is summarised below:

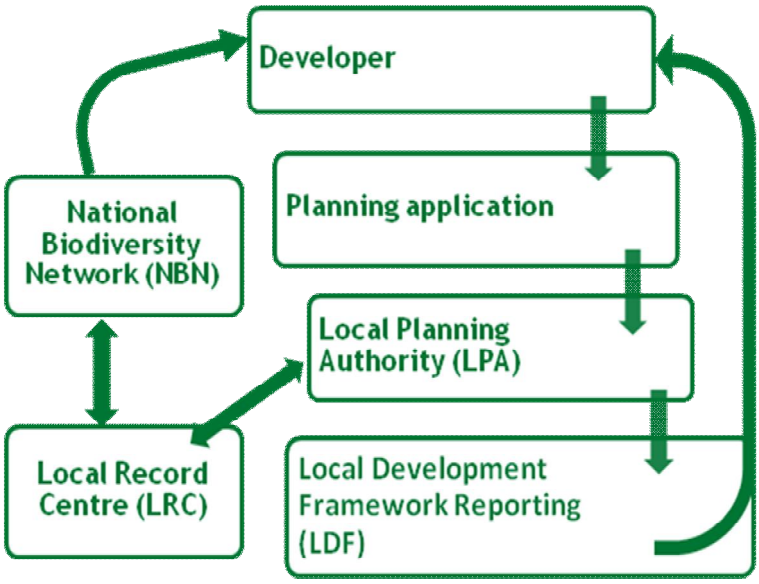


Fig 1: Flow of data between industry, planning authorities and data collection bodies.

[19] Local ecological Records Centres (LRCs) are organisations that have the common objectives of collecting, collating and disseminating a range of environmental information for a given geographical area. Collectively they maintain upwards of 30 million individual species and habitat records, so they are a highly important link in biodiversity data flow, the information they provide being used by a variety of data users. However, LRC coverage of the UK is incomplete, with an estimated 14% of the country by area without an existing LRC. Natural England (2007), 'Review of Local Record Centres in the UK'.

[20] The National Biodiversity Network (NBN) is a collaborative endeavour, which seeks to establish agreed standards for the collection, collation and exchange of biodiversity data and to improve public access to them. This information is vital if we are to understand the distribution and abundance of species and habitats and ensures that informed decisions can be made for the future of the environment. Organisations involved in the NBN include the UK's wildlife conservation organisations, the government and country agencies, many voluntary groups and Local Record Centres. See www.nbn.org.uk.

[21] For a detailed discussion of LRC reporting and data collection see Natural England (2007), 'Review of Local Record Centres in the UK'.

Over time the collection of consistent data will provide a meaningful picture of regional and national biodiversity change associated with development. The improvement in the consistency of biodiversity data will in turn provide a baseline on which to set meaningful targets for the industry as a whole to encourage the industry to improve its performance year on year.

It should also be noted that the adoption of Recommendation 3 outlined above, and the associated increase in ecological data and commitment to long-term management and monitoring that this encourages through the measures presented in Appendix 5 will increase the amount and consistency of information available to LPAs and LRCs. The sector-specific guidance available in Appendix 2 also encourages industry best practice in releasing ecological data to other parties.

RECOMMENDATION 5: THE INDUSTRY SHOULD RELEASE INFORMATION OBTAINED ON BIODIVERSITY CHANGE FOR USE IN EXISTING REPORTING SYSTEMS.

Local authorities are required to report on biodiversity change in their area as a result of their activities through annual reporting, as outlined within the Local Development Framework (LDF) guidance. One of the LDF Core Output Indicators that Local Authorities are required to report against is entitled 'Ways of assessing biodiversity change'.

The Biodiversity Core Output Indicator was updated by the Department for Communities and Local Government (CLG) in July 2008 but this update removed the requirement for local authorities to report on change to priority habitat areas and species, unless the area is already of 'intrinsic environmental value including sites of international, national, regional, sub-regional or local significance'.

Therefore local authorities are no longer required to report on ecological change in an area unless it has already been designated as a habitat of intrinsic environmental value or the presence of priority species has previously been recognised.

RECOMMENDATION 6: THE DEPARTMENT FOR COMMUNITIES AND LOCAL GOVERNMENT SHOULD REINSTATE THE CORE OUTPUT INDICATOR FOR HABITAT AREAS AND SPECIES WITHIN LOCAL DEVELOPMENT FRAMEWORK GUIDANCE.

Government should also ensure that guidance on measuring, reporting on, and setting targets for biodiversity is incorporated fully into Local Development Frameworks, Regional Spatial Strategies and Supplementary Planning Guidance. This would help both local authorities and the industry; the task group is in dialogue with the Department to help facilitate this.

RECOMMENDATION 7: GUIDANCE ON MEASURING, REPORTING ON, AND SETTING TARGETS FOR BIODIVERSITY SHOULD BE INCORPORATED INTO PPS9 AND ITS ASSOCIATED GUIDANCE DOCUMENTS.

The UK Biodiversity Action Plan (BAP) has established the framework and criteria for identifying priority species and habitat types for conservation. National priorities and targets are set and action is to be taken at a local level. Today there are over 160 Local Biodiversity Action Plans (LBAPs) in England, Scotland and Wales and LBAPs are currently being set up in Northern Ireland.

The BAP system classifies priority habitats into broader habitat groupings. The most relevant broad category for the construction industry is 'Towns, Cities and Development'. However, within this category there is currently only one priority habitat, which is 'Open Mosaic Habitats on Previously Developed Land' applicable to some brownfield land.

The task group recommends that further additions should be made to the broad 'Towns, Cities and Development' category, in order to ensure that features of the built environment are recognised as important in their own right. The group recommends that features of the built environment that provide vital habitat to species and plants should be recognised for their importance such as living roofs and walls and other biodiversity features. This would recognise industry efforts to provide for building-reliant species in new structures where traditional roosting or nesting places would no longer be present due to the need to employ techniques to reduce carbon emissions from housing, such as swift nesting and bat roosting features incorporated into new housing projects.

This would enable Government to encourage local authorities to report annually on biodiversity change across all habitats, including change in urban areas as a result of development, rather than only requiring evidence of change in priority protected areas or species.

The task group believe this would not have a negative impact on the working practices of the industry. The legal protection afforded to those species covered by European or UK legislation is not affected by the BAP process and the well established processes for taking protected species into account during development or maintenance work is independent of BAP reporting.

The list of priority species identified under BAP has not changed substantially in relation to the built environment since the BAP process began and reporting on those species has taken place at a national level in 2002, 2005 and most recently in 2008. The main advantage in including features of the built environment as a BAP habitat would be in having a logical habitat category under which to place the associated species action plans.

This would complement and encourage the growing number of local habitat action plans for the built environment and company BAPs that have already been proactively implemented by local councils and construction industry companies, such as the London Borough of Islington, Stirling in Scotland and companies such as the Canary Wharf Group and British Land. Far from being burdensome, a positive outcome for the industry of this approach would be recognition for action taken to conserve and enhance priority species in the built environment, which is taking place, but is currently not well recognised.

RECOMMENDATION 8: GOVERNMENT SHOULD CONSIDER THE ADDITION OF SPECIFIC FEATURES OF THE BUILT ENVIRONMENT TO THE LIST OF BIODIVERSITY ACTION PLAN PRIORITY HABITATS (E.G. GREEN ROOFS AND OTHER BIODIVERSITY FEATURES).

The Strategy for Sustainable Construction was published in June 2008 as a joint industry and Government initiative intended to 'promote leadership and behavioural change, as well as delivering benefits to both the construction industry and the wider economy'.[22] The biodiversity section of the strategy aims to ensure 'that the conservation and enhancement of biodiversity within and around construction sites is considered throughout all stages of a

[22] http://www.berr.gov.uk/whatwedo/sectors/construction/sustainability/page13691.html

development' and contains the only current industry target for biodiversity that 'all construction projects over £1m to have biodiversity surveys carried out and necessary actions instigated'.

The Department for Business, Enterprise and Regulatory Reform (BERR) and the Strategic Forum for Construction will work together to monitor industry and public sector progress in regard to the actions and deliverables contained in the strategy. Targets, actions and deliverables will be reassessed and refreshed over time and it is therefore recommended by the task group that the findings of this report with regard to assessing, reporting on and setting targets for biodiversity are incorporated into future revisions of the strategy. It is further recommended that a process is identified by which the effectiveness of the strategy target can be measured.

RECOMMENDATION 9: THE SUSTAINABLE CONSTRUCTION STRATEGY SHOULD INCORPORATE THE RECOMMENDATIONS OF THIS REPORT AND ONCE A BASELINE IS ESTABLISHED, IMPLEMENT AN ANNUAL CYCLE OF REPORTING ON BIODIVERSITY CHANGE. THE STRATEGY SHOULD IDENTIFY A PROCESS FOR AUDITING PROGRESS AGAINST THESE TARGETS.

During our research it became clear that currently there are no standardised Key Performance Indicators (KPIs) for corporate performance in relationship to biodiversity impact that are consistently used by UK construction or real estate firms. Whilst the qualitative biodiversity indicators developed by the Global Reporting Initiative (GRI) (EN14 - Strategies, current actions, and future plans for managing impacts on biodiversity) are sufficiently broad to be applicable to the sector, it is felt that the four more performance-based or quantitative indicators (EN11, EN12, EN13 and EN15) have been developed with the mining and quarrying industries in mind and therefore may not be so applicable broadly within the other elements of the UK construction and property sector.

Some of the recommendations made above and in the sector-specific biodiversity guidance in Appendix 2 may assist with bringing a degree of consistency to the key performance indicators within the UK market. However, UK-GBC will continue to engage with the GRI's forthcoming construction and real estate sector working group[23] and will ensure that more appropriate biodiversity performance indicators are developed for the sector.

RECOMMENDATION 10: UK-GBC SHOULD ENCOURAGE ANY FUTURE GLOBAL REPORTING INITIATIVE CONSTRUCTION AND REAL ESTATE SECTOR SUPPLEMENT TO DEVELOP APPROPRIATE BIODIVERSITY INDICATORS AND THEN AIM TO PUBLICISE THESE INDICATORS AMONGST THE UK-GBC MEMBERSHIP.

[23] UK-GBC is committed to working with the GRI's construction and real estate sector working group, as per the next steps of UK-GBC's Organisational Measurement and Reporting Task Group Report (July 2008) that UK-GBC should 'work with the GRI organisation to establish the Sector Supplements and Indicator Protocols that members require to achieve a balanced and reasonable representation of the sustainability performance of our member base'.
http://www.ukgbc.org/site/taskgroups/info?id=3

Conclusion

The construction industry has a crucial role to play in preserving the UK's vital habitats and species. Biodiversity conservation is not traditionally a priority for many in the construction industry but the work of this group and the increasing amount of research into the value of biodiversity both globally in terms of the value of ecosystems services and on a local level shows that enhancing biodiversity is good for business, individuals and communities.

Biodiversity conservation is becoming an increasingly important aspect of sustainability. As awareness of the benefits of biodiversity is raised amongst construction industry professionals through the provision of guidance and access to information, the industry can lead on this agenda. It is vital that the industry works with local government to gain a greater understanding of the impact of development on biodiversity and of the opportunities that exist for project teams to follow best practice and enhance biodiversity on sites.

By developing more meaningful methodologies for measuring and reporting on the quantity and quality of habitats and species and through collating and sharing this data, the industry can come to better understand the collective impact that construction has on our wildlife, and begin to improve performance over time to reach wider goals for sustainable development in the UK.

The work of this task group illustrates that it is possible for the industry to actively promote the diversity of habitats and species within building and infrastructure projects and that the industry has a proactive role to play in encouraging wildlife, not depleting it, through the development and management of new and existing properties.

Appendices

APPENDIX 1: LIST OF TASK GROUP MEMBERS AND OTHER STAKEHOLDERS

Task group members

- Judit Kimpian - Aedas
- Mike Oxford - Association of Local Government Ecologists
- Claire Wansbury - Atkins
- Carol Williams - Bat Conservation Trust (Chair)
- Adam Ajzensztejn - Bovis Lend Lease
- Eleanor Green - Canary Wharf Group
- Ed King - CEEQUAL & Ekologika
- Philip Charles – CIRIA
- Mike de Silva - Davis Langdon
- Phil Lewis – Department for Environment, Food and Rural Affairs
- John Newton - Ecology Consultancy Ltd
- Adam Ingleby – Environment Agency
- Richard Graves - Faber Maunsell
- Michael Pawlyn - Grimshaw Architects and Exploration
- Dave Wakelin - Hilson Moran
- Charlotte Johns – Hines (task group co-ordinator)
- Sophie Walker - Jones Lang LaSalle Upstream Sustainability Services
- Pete Massini - Natural England
- Jake Piper – School of the Built Environment, Oxford Brookes University
- David Mason - Skanska
- Paul Hicking - Stephen George & Partners and ProLogis

Other stakeholders

UK-GBC is grateful to the following organisations that were consulted throughout the process, contributed to the sector-specific guidance and provided case studies:

British Land
Building Research Establishment
Chartered Institution of Water and Environmental Management
Constructing Excellence
Construction Products Association
Department for Communities and Local Government
Department for Business, Enterprise and Regulatory Reform
EDAW AECOM
Greater London Authority
GVA Grimley
Hanson
Homes & Communities Agency
Inbuilt
Institute of Ecology and Environmental Management
Landscape Institute
Lend Lease
National Biodiversity Network
ProLogis
Quarry Products Association
Royal Town Planning Institute & RTPI Environmental Planning and Protection Network
RSPB
Town and Country Planning Association
Wildlife Trusts
Willmott Dixon
WWF

APPENDIX 2: SECTOR-SPECIFIC GUIDANCE

Guidance for a Developer

This guidance is applicable for private sector property and infrastructure developers, and for public sector developers such as: Local Authorities, Department for Health, Ministry of Defence, National Health Service, Network Rail, Highways Agency, National Offender Management Service, educational authorities and others.

ORGANISATION

We will work to raise the profile of biodiversity within our organisation's working practice by

- Ensuring staff have appropriate and increasing levels of training in the protection and provision for biodiversity.
- Ensuring we commit adequate resources to training for this purpose.
- Identify a staff member with responsibility for biodiversity awareness within the organisation (biodiversity champion).
- Working to raise awareness of the requirements of biodiversity amongst our suppliers and potential occupiers.
- We will report on Key Performance Indicators by which we will monitor our work with respect to biodiversity.

PROCESSES

We will put in place the processes to:

- Undertake appropriate baseline ecological surveys with a qualified ecologist prior to development, in line with the best practice standards of the Institute of Ecology and Environmental Management and other bodies. Such surveys will include nearby land which is ecologically linked to the site to ensure that adverse impacts on nearby resources are minimised and that there is awareness of all options for habitat enhancement.
- Collect biodiversity information and monitor change at sites where we work; this will include habitat protection, habitat replacement and creation in line with statutory requirements, and also cover the increase in diversity of sustainable habitats and species (i.e. that can be sustained through the life of the project / building / infrastructure) through measures taken that go beyond statutory requirements.
- Undertake appropriate post-construction ecological monitoring surveys to assess the impacts (both positive and negative) of development and ascertain the success of the Biodiversity Action Plan aims and objectives for the development.
- Report biodiversity information (to the Local Authority) and, where necessary, other bodies, based on the data collected as part of an Environmental Management System.
- Where we hand over the site to new owners, we will work to "pass on" our commitment to biodiversity on the site, potentially through a handover manual.
- Also, we will identify measures that not only meet statutory requirements but go beyond them to achieve a net gain for biodiversity.
- Identify the net loss / gain or change for biodiversity resulting from development, and determine what measures will be implemented to protect existing features and/or deliver enhancement.

OUTCOMES

We will produce an annual report outlining our work on biodiversity, detailing how and where we have met and exceeded statutory requirements in our work, in terms of:

- Measures taken to collect biodiversity information
- Key Performance Indicators, such as:
    - Constructing Excellence Impact on biodiversity eKPI
    - % of all applicable projects that achieved all available credits in the appropriate rating system (BREEAM, CEEQUAL, DREEAM, or equivalent scheme)
    - % of projects where an ecology survey is carried out before works commence.
    - % of projects with a Biodiversity Management Plan specific to that project.
    - % of projects with a nominated biodiversity champion.
    - % of direct employees with biodiversity awareness training.
- Measures taken to reduce or compensate for disturbance of habitats
- Creation of new habitats
- Records of sightings of endangered/rare/protected species and provision made for those affected by site works and operations
- Translocation of species
- Reporting on habitats under threat
- An account of how and where our operations have led to the achievement of targets in Biodiversity Action Plans and/or Habitat Action Plans and local plan policies.
- Details of the arrangements put in place for continued monitoring of biodiversity, where we have handed over a site
- Case studies to highlight what we have learned from biodiversity mitigation and enhancement.

For further information, case studies and resources applicable to developers visit the UK-GBC Biodiversity Portal at www.ukgbc.org/info-centre.

Guidance for a Landlord/Owner

This guidance is applicable for: property owners, property fund managers, asset managers, facilities and property managers, and others.

ORGANISATION

We will work to raise the profile of biodiversity within our organisation's working practice by

- Ensuring staff have appropriate and increasing levels of training in the protection and provision of biodiversity.
- Ensuring we commit adequate resources to training for this purpose.
- Identify a staff member with responsibility for biodiversity awareness within the organisation (biodiversity champion).
- Working to raise awareness of the requirements of biodiversity amongst both our clients and our suppliers.
- Reporting publicly on our organisational performance with regards to biodiversity

PROCESSES

We will put in place the processes to:

- Develop a site-specific Biodiversity Strategy or Action Plan for all our managed assets, with the aim of achieving enhancements for selected species and/or habitats identified in the Local, Regional or National Biodiversity Action Plan.
- Incorporate biodiversity objectives within asset management plans
- Where we retain control of sites over the medium-long term we will put in place an arrangement for the monitoring and reporting of wildlife information (to the local authority) as part of an Environmental Management System.
- We will collect biodiversity data and monitor change at sites where we work; this will include habitat protection, habitat replacement and creation in line with statutory requirements, and also cover the increase in diversity of sustainable habitats and species (i.e. that can be sustained through the life of the project / building / infrastructure) through measures taken that go beyond statutory requirements.
- Where we hand over the site to new owners, we will work to "pass on" our commitment to biodiversity on the site, potentially through a handover manual
- Report to local authorities and, where necessary, other bodies, based on the data collected.

OUTCOMES

We will produce an annual report outlining our work on biodiversity, detailing how and where we have met and exceeded statutory requirements in our work, in terms of:

- Measures taken to collect biodiversity information
- Key Performance Indicators, such as:
    - % of projects with Biodiversity Management Plan specific to that site;
    - % of sites with nominated biodiversity champion.
    - % of direct employees with biodiversity awareness training.
- Creation of new habitats
- Records of sightings of endangered/rare/protected species and provision made for those affected by site works and operations
- Reporting on habitats under threat
- An account of how and where our operations have led to the achievement of targets in Biodiversity Action Plans and/or Habitat Action Plans and local plan policies.
- Details of the arrangements put in place for continued monitoring of biodiversity, where we have handed over a site
- Case studies to highlight what we have learned from biodiversity mitigation and enhancement.

For further information, case studies and resources applicable to landlords and owners visit the UK-GBC Biodiversity Portal at www.ukgbc.org/info-centre.

Guidance for a Contractor

This guidance is applicable for construction contractors and sub-contractors working for public and private sector clients.

ORGANISATION

We will work to raise the profile of biodiversity within our organisation's working practice by

- Ensuring staff have appropriate and increasing levels of training in the protection and provision of biodiversity.
- Ensuring we commit adequate resources to training for this purpose.
- Identify a staff member with responsibility for biodiversity awareness within the organisation (biodiversity champion).
- Working to raise awareness of the requirements of biodiversity amongst both our clients and our suppliers.
- Reporting publicly on our organisational performance with regards to biodiversity

PROCESSES

We will put in place the processes to:

- Assess planned construction activities and develop suitable control measures to minimise risk or detrimental impact to biodiversity associated with the site and its surroundings. Control measures should be defined in method statements and management plans
- Ensure programming of works includes biodiversity considerations. Where potential clashes in priorities occur raise these issues with the client as soon as possible.
- Ensuring adequate resources and expertise are assigned to manage biodiversity issues/enhancements on the projects we delivery.
- Assist in the identification of biodiversity net loss/gain for our projects and support local/regional/national biodiversity objectives through consideration of local Biodiversity Action Plans
- Minimise disturbance to soil on areas of development sites that will become greenspace so that soil biota resident in these areas are conserved; and follow Defra's Code of Practice for the sustainable use of soils on construction sites. *[Defra, (July 2008) 'Code of Practice for Sustainable Use of Soils on Construction Sites'. Please note this guidance is currently in draft form only, available at: http://www.defra.gov.uk/corporate/consult/sustainable-soil-construction/index.htm]*
- Minimise as far as practically possible the removal of surrounding vegetation and protect trees from damage or route compaction.
- Establish a system to investigate and assess possible biodiversity enhancements and raise these with client and clients design team.
- Share information with peers and local authorities including: providing information gathered from surveys or reports to local biological records and preparing case studies to highlight learning experience from biodiversity mitigation and enhancement.
- Ensure appropriate baseline ecological surveys with a qualified ecologist have been undertaken prior to development, in line with the best practice standards of the Institute of Ecology and Environmental Management and other bodies.

Such surveys should include nearby land which is ecologically linked to the site to ensure that adverse impacts on nearby resources are minimised and that there is awareness of all options for habitat enhancement

- Assist in collection of biodiversity information and the monitoring of change at sites where we work; this will include habitat protection, habitat replacement and creation in line with statutory requirements, and also cover the increase in diversity of sustainable habitats and species (i.e. that can be sustained through the life of the project / building / infrastructure) through measures taken that go beyond statutory requirements.
- Where we hand over the site to new owners, we will work to "pass on" our commitment to biodiversity on the site, potentially through a handover manual
- Identify measures that not only meet statutory requirements but go beyond them to achieve a net gain for biodiversity.
- Incorporate biodiversity criteria into our responsible sourcing of materials.

OUTCOMES

We will produce an annual report outlining our work on biodiversity, detailing how and where we have met and exceeded statutory requirements in our work, in terms of:

- Measures taken to collect biodiversity information
- Key Performance Indicators, such as:
- Constructing Excellence Impact on biodiversity eKPI
    - % of all applicable projects that achieved all available credits in the appropriate rating system (BREEAM, CEEQUAL, DREEAM, or equivalent scheme)
    - % of projects where an ecology survey is carried out before works commence.
    - % of projects with a Biodiversity Management Plan specific to that project.
    - % of projects with a nominated biodiversity champion.
    - % of direct employees with biodiversity awareness training.
- Measures taken to reduce or compensate for disturbance of habitats
- Creation of new habitats
- Records of sightings of endangered/rare/protected species and provision made for those affected by site works and operations
- Translocation of species
- Reporting on habitats under threat
- An account of how and where our operations have led to the achievement of targets in Biodiversity Action Plans and/or Habitat Action Plans and local plan policies.
- Details of the arrangements put in place for continued monitoring of biodiversity, where we have "handed over" a site
- Case studies to highlight what we have learned from biodiversity mitigation and enhancement.

For further information, case studies and resources applicable to contractors visit the UK-GBC Biodiversity Portal at www.ukgbc.org/info-centre.

Guidance for a Consultant

This guidance is potentially applicable for: architects, planning consultants, cost consultants, building engineers, interior designers, sustainability/environmental consultants, ecological consultants, solicitors, and others.

ORGANISATION

We will work to raise the profile of biodiversity within our organisation's working practice by

- Ensuring staff have appropriate and increasing levels of training in the protection and provision for biodiversity.
- Ensuring we commit adequate resources to training for this purpose.
- Identify a staff member with responsibility for biodiversity awareness within the organisation (biodiversity champion).
- Working to raise awareness of the requirements of biodiversity amongst both our clients and our suppliers.
- Reporting publicly on our organisational performance with regards to biodiversity

PROCESSES

We will put in place the processes to:

- Supply and work with (as appropriate) qualified ecologists and other environmental specialists and partners to ensure the highest standards are met in mapping and assessing baseline information and in enhancing biodiversity provision.
- Assist with and advise on the collection of biodiversity data and monitor change at sites where we work; this will include habitat protection, habitat replacement and creation in line with statutory requirements, and also include the increase in diversity of sustainable habitats and species (i.e. that can be sustained through the life of the project / building / infrastructure).
- Where the client retains control of sites over the medium-long term we will advise them to put in place an arrangement for the monitoring and reporting of wildlife information (to the local authority) as part of an Environmental Management System.
- Where our clients hand over the site to new owners, we will work to "pass on" our commitment to biodiversity on the site via help/guidance with regards to future monitoring and reporting.
- In all our site-specific projects, to establish baseline data with respect to biodiversity, attempting to identify measures that not only meet statutory requirements but go beyond them to achieve net gain for biodiversity.
- Put in place a monitoring process for our projects and activities to enable us to report on our achievements.
- Report to local authorities and, where necessary, other bodies, based on the data collected.

OUTCOMES

We will produce a report outlining our work for biodiversity, detailing how and where we and our clients have met and exceeded statutory requirements in our work, in terms of:

- An account of how and where our operations have led to the achievement of targets in Biodiversity Action Plans and/or Habitat Action Plans and local plan policies.
- Case studies to highlight what we have learned from biodiversity mitigation and enhancement.
- Key Performance Indicators, such as:
- % of direct employees with biodiversity awareness training.

For further information, case studies and resources applicable to consultants visit the UK-GBC Biodiversity Portal at www.ukgbc.org/info-centre.

APPENDIX 3: REVIEW OF BIODIVERSITY ELEMENTS OF EXISTING ENVIRONMENTAL ASSESSMENT METHODOLOGIES

The table below outlines the major strengths and weaknesses of five existing environmental assessment tools.

Scheme	Advantages	Disadvantages
BREEAM & Code for Sustainable Homes	• Rewards sites that build on land of low ecological value • Rewards protection of existing ecological features • Awarding credits for ecological enhancement has dramatically raised the profile of ecology in the built environment and is partially responsible for the increased prevalence of green roofs on new buildings. • The credits are relatively simply to calculate. • Requires an ecologist to recommend enhancements measures that contribute to Biodiversity Action Plan targets and to promote best practice amongst contractors and asset managers. • Requires a maintenance regime to be implemented for those habitats created	• Complying with the wildlife law contributes to achieving a credit. • Determining what is 'land of low ecological value' can be done by the assessor without having an ecologist appointed by using a checklist • Credits for loss and gain of ecologically valuable habitats are score based on change in native vascular plant number and do not take into account the addition of valuable, non-plant habitats (e.g. brown roofs, bird/bat roosting locations). This does not represent ecological value. • The change in species number calculations can result in tokenism. • Credits are awarded on the value that is installed on 'day one', and don't take in to account the development of habitats over time.
CEEQUAL	• Rewards projects that build on sites of low ecological value. • Encourages consultation with relevant nature conservation bodies • Encourages an Ecological Works Plan to be developed to protect habitats during construction • Rewards control and eradication of invasive plant species if present on site • Rewards sites that conserve and enhance ecological value on site more highly than those that simply mitigate for loss. • Recommends the monitoring of created habitats and features for at least 3 years after completion.	• Valuable habitats are only considered as those that are either statutorily protected or BAP habitats. • Can result in some confusion over what is required for statutorily protected species. • Does not encourage consideration of habitat continuity and green chains. • 'Wildlife habitat' is not well defined, and does not take in to account temporal change.

Table 1: Advantages & disadvantages of existing assessment tools

Scheme	Advantages	Disadvantages
DREAM	• Rewards projects that build on sites of brownfield sites and those that have low ecological value. • Requires full survey and mitigation for protected species to be conducted where appropriate. • Rewards habitat enhancement over simply maintaining and protecting what is already present, to give an increase in site ecological value. • Rewards operational-phase site monitoring and maintenance.	• There is no requirement to conduct surveys of brownfield sites to determine their ecological value. • Rewards legal compliance (protected species and habitat compensation) • Definitions of timescales and levels of enhancement/monitoring are too open to interpretation, and do not give clear guidance.
LEED	• Requires an erosion and sedimentation control plan to be implemented, so protecting soil and water resources. • Rewards development on previously developed land, avoiding habitats for protected species. • Encourages reducing the footprint of the development and minimising the spread of constructions works. • Encourages the use of water efficient landscaping	• The plan does not extend to cover wildlife on site. • Only protected or threatened species are considered in site selection, general habitats are not considered. • There is no assessment of site ecology before or after development. • There are no incentives to increase ecologically valuable habitat on site.

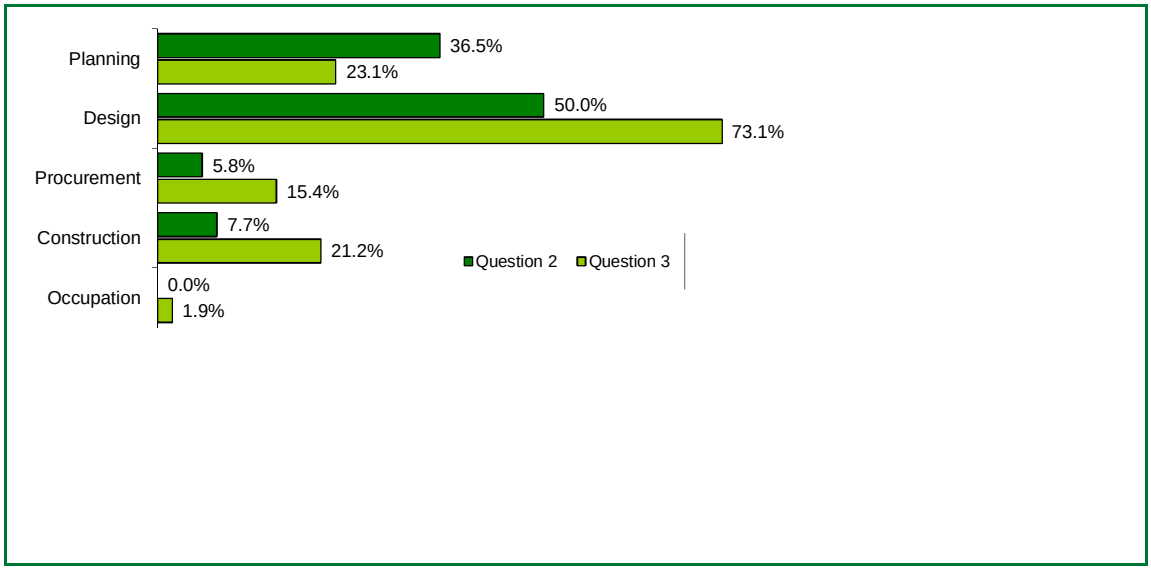
Table 1: Advantages & disadvantages of existing assessment tools

APPENDIX 4: RESULTS OF UK-GBC SURVEY OF MEMBERSHIP ON BIODIVERSITY AND EXISTING ASSESSMENT METHODOLOGIES

In addition to the review of the various tools, a consultation was held with UK-GBC members to establish how widely the tools were used, how and when they were used and the influence they have on the design of new projects. Opinions were also sought on how well the various schemes worked. Summaries of the responses to key questions are given below, and indicate some key issues for provision for biodiversity in the built environment, and the way the various tools work to enhance biodiversity.

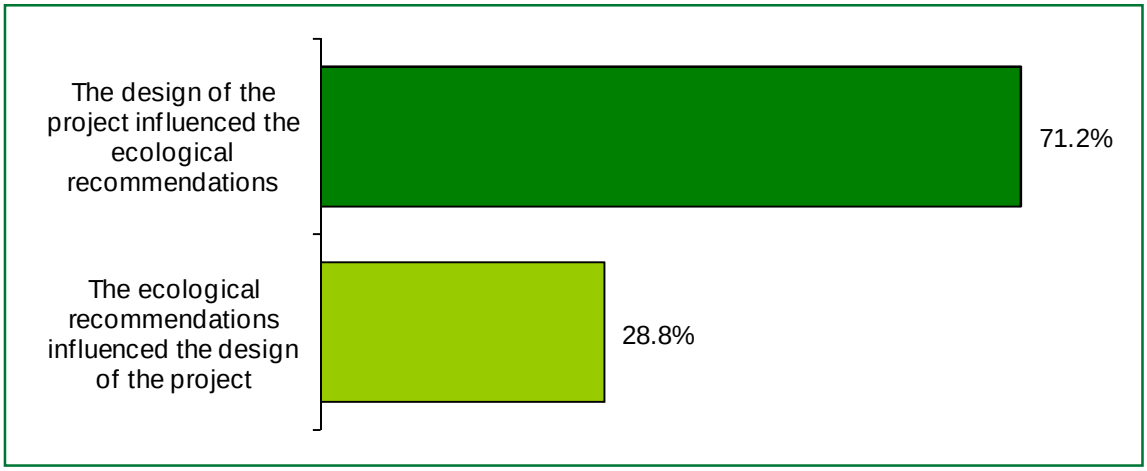
Survey questions, results and analysis

Question 2: When, in your experience, are the rating tools first seriously considered?
Question 3: When are the biodiversity credits first given serious consideration?
NB. For Q3 the total is greater than 100% due to respondents selecting more than one option.



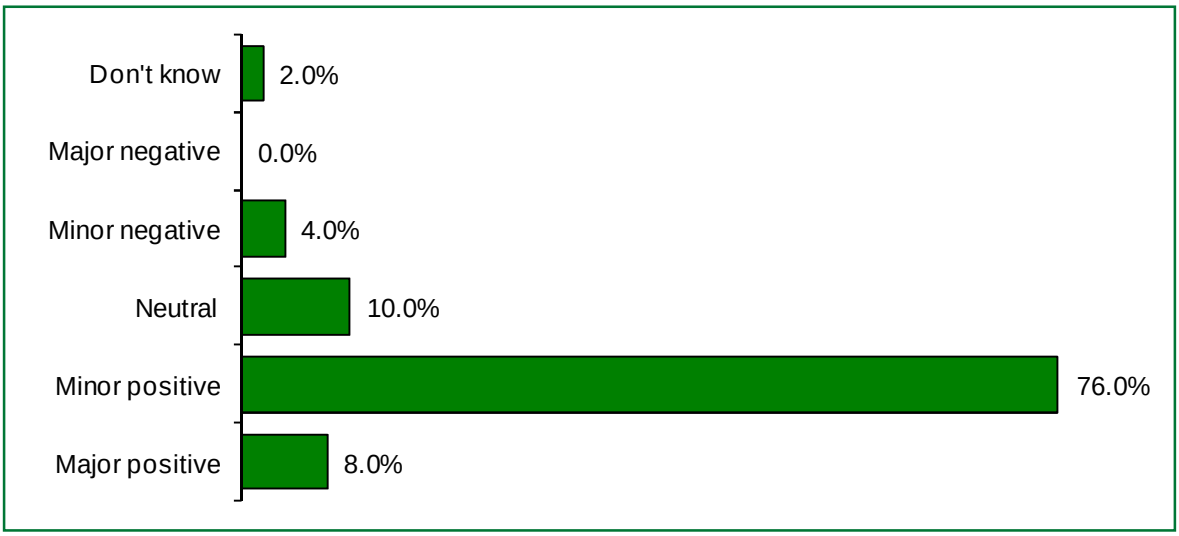
These responses show that in most cases, the biodiversity credits are not part of the initial project development and are included when the programme goes in to detailed design. This suggests that ecology is not a key driver in site selection in the first instance, but becomes increasingly important once the project develops.

Question 4: When considering your most recent example, which of the following statements is most correct?



This response clearly demonstrates that in the majority of cases, ecology responds to a developed design, and not vice versa. This represents a missed opportunity for a large number of developments, where early consideration would enable a much wider range of potential enhancements to be considered, and most likely at reduced cost.

Question 7: What impact do you believe the use of the rating system had on the biodiversity value of your project?



There are not many projects where the assessment process itself is considered to have had a negative result on the site ecological value, with the vast majority of schemes having a minor positive impact. This suggests that the rating tools are having a beneficial influence on biodiversity. An opportunity still remains to increase the proportion of projects that are considered to have a major positive impact on their local surroundings.

When questioned on how the various tools could be improved, responses generally concurred with the findings of the task group, and suggest that the tools used for assessing biodiversity need to be revised to make them a more meaningful assessment.

Below are some key responses to the question ***'Do you think the rating tool you used could be improved, and if so how?'*:**

"I know ecologists generally dislike the simplicity of the credits. There could be more benefit given where the actual improvement in biodiversity has been calculated, plus credit for use of local native and drought tolerant / low water consumption planting (xeriscaping)."

"… it is hard to quantify biodiversity improvements and there is a danger that a precise tool could lead to tick-box improvements to gain points rather than focus on real and lasting improvements"

"BREEAM only considers flora, and does not encourage fauna"

"The BREEAM ecology credits section needs a lot of improvement. Most ecologists that I work with do not like the scoring system and getting ecology credits does not necessarily result in enhancing ecology. To improve it, ask some good ecologists with BREEAM experience how they think it could be improved."

"Method of assessing ecological value is not a strong approach - over complicated and not particularly accurate. Ecological appraisals should be mandated. Enhanced scoring for features such as brown roofs."

"More emphasis on adapting to climate change. Less of a technological approach to species diversity and a more qualitative approach to species appropriate to that site/climate."

"The BREEAM ecology tool is overly complicated and founded on a confused appreciation of species and habitat worth. In application it produces spurious results. This can be dealt with by removing the species and habitat related scoring systems to be replaced by an independent ecological study. Ecologists should unanimously inform how this process is undertaken."

"Move away from arbitrary species per unit area calculations - use the ecologist to assign the value of habitats not a calculator"

However, a small number of comments called for greater simplification of the approach taken and called in to question the role of the professional ecologist:

"Simplification. Avoid requirements for professional ecologist on previously developed/urban sites"

"Not sure need to employ a qualified ecologist for opinion"

"...it would be worth considering the expense to small scale projects in having to appoint an ecologist. I'm not sure how you would get round this though..."

A summary of the key advantages and disadvantages of the schemes assessed is given in Appendix 3. Overall, both the task group review and industry consultation has highlighted many of the concerns put forward in Table 1.[24] The most pressing issue, which is principally a feature of BREEAM and Code for Sustainable Homes, is that the assessment tools do not assess the value of habitats that are gained and lost appropriately.

Having reviewed the advantages and disadvantages of existing assessment tools, the task group has compiled recommendations to apply to all assessment tools. The aim of these recommendations is to capture the best components of each scheme whilst rectifying some of the common failings. The task group recommendations are available in Appendix 4 which outlines the group's proposed methodology for assessing biodiversity and awarding credits in environmental assessment methodologies.

[24] See page Appendix 3 for table 1: advantages and disadvantages of existing assessment tools.

APPENDIX 5: PROPOSED METHODOLOGY FOR ASSESSING BIODIVERSITY AND AWARDING CREDITS IN ENVIRONMENTAL ASSESSMENT METHODOLOGIES

The criteria outlined here have been developed by the task group in consultation with BREEAM and CEEQUAL. During initial consultations both parties raised strong concerns over the task group's suggestion that a professional ecologist should be appointed to the project team as a pre-requisite to achieving credit for biodiversity. The inclusion of an ecologist could potentially increase costs and not be a viable option for smaller projects. The task group accepts this view although still believe strongly that the use of a professional ecologist is still the most valuable mechanism for delivering meaningful ecological benefits through construction. Therefore the proposed methodology offers an alternative route to achieving credits without the requirement for an ecologist, although it heavily incentivises the use of a professional ecologist. This approach has been used successfully in previous editions of BREEAM and the Code for Sustainable Homes.

PRE-REQUISITE

Without achieving these requirements, no credits may be awarded.

The design team and contractors must demonstrate that they have complied with all legal requirements relating to impacts on biodiversity and ecology. The professional ecologist should complete a site assessment and develop appropriate method statements and licence applications where appropriate before any works commence on site (including preliminary site clearance). All method statements and licences shall be fully ratified by the relevant statutory body(s).

CREDITS

Change in ecological value of site

The professional ecologist[25] should conduct an ecological impact assessment. It is not anticipated that full compliance with all requirements of the IEEM Guidelines for Ecological Impact Assessment will be required for all construction projects (other than those required to produce an Environmental Impact Assessment at planning stage). The working group comprised of UK-GBC task group members, BREEAM, CEEQUAL and other stakeholders will prepare guidance for undertaking an ecological impact assessment following the principles of the IEEM Guidelines for Ecological Impact Assessment with the intention of making guidance more accessible and understandable to the wider non-ecologist sectors of the industry and more applicable to smaller projects.

The assessment should cover both the development site itself and connected or adjacent habitats. The cumulative overall impact on the site should be presented. The site should be considered in its context and setting, and the impacts assessed accordingly. Examples may include. The impact assessment must take in to account the baseline ecological conditions and the resultant ecological value of the site as a result of development, inclusive of mitigation and habitat enhancement measures proposed. The ecologist should consider opportunities both within the site boundary and beyond the site boundary, and should investigate the recommendations that will maximise the ecological benefit to be gained by the development. Examples include:

- The extension of an existing green chain

[25] A professional ecologist should be appointed to the design team during the feasibility stage. They should be a member of one of the following organisation and be bound by that organisation's Professional Code of Practice:

- Institute of Ecology and Environmental Management (IEEM)
- Institute of Environmental Management and Assessment (IEMA)
- Chartered Institution of Water and Environmental Management (CIWEM)
- Landscape Institute (Sciences and Management) (LI)
- Association of Wildlife Trusts Ecologists (AWTE)

- Wildlife-friendly boundary protection (hedges rather than fences)
- Ensuring lighting design is appropriate
- Maximising the use of the built structure for biodiversity (green walls, green roofs, bat/bird/invertebrate provision)
- Installation of small mammal/reptile/amphibian hibernacula.
- Reuse of materials won from site for creating habitat
- Maintaining or enhancing habitat corridors

Credits will be awarded based on the magnitude, extent and duration of the impact and whether it is positive or negative. The extent of each factor would be multiplied together and rationalised against the maximum negative or positive score. The task group has recognised that whilst the majority of developments, particularly commercial developments have a choice regarding site location and the associated impacts on biodiversity and ecology, it is also the case that many projects do not have the same degree of flexibility. Examples include major infrastructure projects where ecological impacts are unavoidable due to the scale of the development. For these reasons, it is deemed unfair to excessively penalise projects that have unavoidable negative impacts on biodiversity where the project team has done everything feasible to mitigate the negative impacts.

The following thresholds are proposed:

Impact Negative impact = -1 Neutral impact = 0 Positive impact = 1	**Magnitude** Minor impact = 1 Moderate impact = 2 Major impact = 3
Extent Local impact = 1 District impact = 2 Regional impact = 3 National impact = 4 International impact = 5	**Duration** Short-term impact (0 – 6 months) = 1 Medium-term impact (6 – 24 months) = 2 Long-term impact (>24 months) = 3

The cumulative score will be used to assign credits, based on the flow diagram on the following page. Details of where credit boundaries will fall in relation to the cumulative score have not been fully developed to date, and will be completed by the proposed working party to follow from the current task group.

Where the project team has a negative impact on biodiversity, and no efforts have been made to mitigate or compensate for loses, no credits may be awarded.

In order to maximise the value of the habitats and features created, the professional ecologist, client and local authority ecologist/wildlife trust should agree objectives for priority habitats and species to be targeted. Where there is an overall negative impact on a statutorily protected species or site, no credits can be awarded.

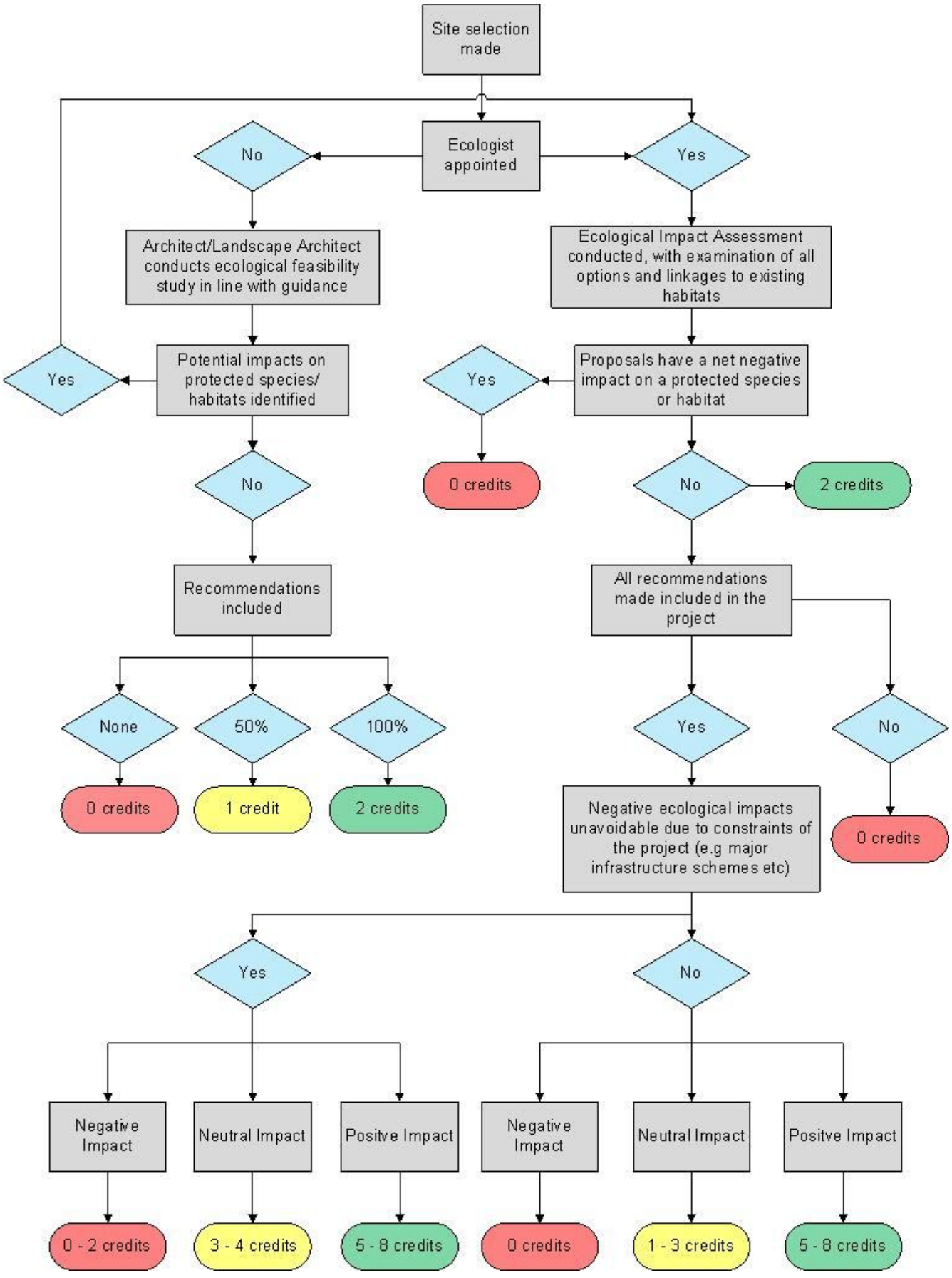


Fig 2: Flow chart illustrating proposed methodology for awarding biodiversity credits

Ecologically responsible development

This credit would reward contractors and developers/landlords for adopting best practice before, during and after construction.

Contractor's requirements	
Where the contractor works with the ecologist to develop and implement a Construction Ecological Management Plan to minimise the impact of the construction process. This should not include items such as timing of site clearance to avoid the bird breeding season, as this should be covered under the pre-requisites. It should however reward where the site has gone beyond what is needed to meet the legal requirements for the site. For example: • Providing adequate training of staff of what to do should any wildlife be noted on site, and having a response procedure established on site; • Minimising lighting (particularly for rural sites) regardless of the recorded presence of bats; • Daily checking of excavations etc for trapped animals.	**1 credit**
Developer/Landlord requirements	
The ecologist and developer/landlord should design a long-term maintenance and monitoring programme for the habitats and features created. This should include items such as: • Monitoring and annual cleaning of bat/bird boxes, • Repeat floristic surveys of grassland/woodland created etc. • Invertebrate sampling The developer/landlord must ensure sufficient funds are put aside to deliver the agreed monitoring and maintenance plan. All monitoring records should be made available to the local authority/wildlife trust and biological records centre.	**1 credit**
The developer/landlord commits to produce a case study report of the habitat enhancement works completed.	**1 credit**
Where the developer forms a partnership with the local wildlife trust or other appropriate organisation to maximise the value of the habitats on site and support the wildlife trust in its objects outside of the development.	**1 credit**

BIODIVERSITY AND DEVELOPMENT ASSESSMENT OF CHANGE FORM
Proposed/Agreed/Implemented

This is not for use in protected species licensing for which standard procedures exist. Please read the guidance document that supports this form. Ensure that an experienced ecologist has informed the information supplied.

Lead Planning Officer _____ **Date** _____

Application No: _____

Applicant _____

Type of Development _____

Location _____ **Natural Area Area** _____

Local BAP Habitats

All BAP habitats in the area	BAP habitat present on site	Before		After	
		Area (ha/km)	Quality*	Area (ha/km)	Quality*

Local BAP Species (present or using the site)

All BAP species found on site	Local BAP species not currently present but for which the site has potential	Before		After	
		Population (counts, transects, etc)	Extent and quality* of supporting habitats (ha/km)	Population (counts, transects, etc)	Extent and quality* of supporting habitats (ha/km)

Built Environment BAP

Potentially appropriate species (depending on location)	Species relevant to site? (Yes/no)	Recommended number of roosts (only indicative at this stage)	Number of roosts provided and type
Crevice dwelling bats		1 in 20 structures	
Bats requiring flight space		1 in 5 public buildings	
Horseshoe bats		1 in 5 public dwelling	
Swifts		1 in 40 buildings	
House martins		1 in 50 buildings	
House sparrows		1 in 40 buildings	
Starlings		1 in 100 buildings	
Swallows		1 in 50 buildings	
Barn Owls		1 per development	
Peregrine		1 per development	

Other Biodiversity Enhancing Measures

	Yes	Supporting document attached
Have the measures to conserve and enhance biodiversity been agreed by Conditions or 106 agreements	☐	☐
Supporting or enabling practical BAP research	☐	☐
Skills development and training of site staff in biodiversity matters	☐	☐
Educating the local community on local biodiversity	☐	☐
Wider monitoring of species or habitats	☐	☐
Working with local conservation organizations and support for collaborative action	☐	☐
Other biodiversity enhancing features eg green roofs and walls	☐	☐
Any existing management to enhance biodiversity	☐	☐
Any additional measures to aid wider (non-LBAP) biodiversity	☐	☐
Measures to aid in connectivity of the landscape for species movement	☐	☐

* Categories: Increased; unchanged; decreased.

APPENDIX 7: CASE STUDIES

A series of case studies illustrating good practice in incorporating biodiversity features in new developments, managing existing properties and in putting in place internal company processes and procedures to promote consideration for biodiversity are available in a separate document.

The following case studies are available to download from the UK-GBC website:

- Case Study 1: Westfield Living Wall – EDAW AECOM
- Case study 2: Horniman Museum Extension Living Roof
- Case Study 3: The Parks – Homes & Communities Agency
- Case study 4: Sideways - ProLogis
- Case study 5: A63 Bypass – Skanska
- Case study 6: Whitstable Community College – Willmott Dixon
- Case Study 7: Jubilee Park – Canary Wharf Group
- Case study 7: British Land
- Case study 9: Stephen George & Partners

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