Nature and development A short guide for planners and developers

For detailed information on the legal requirements to protect and enhance wildlife during development you should seek professional advice from a qualified ecologist. You should also consult the council's Local Plan, the Biodiversity Supplementary Planning Document (SPD) and the Trees and Development SPD, which are available on the council's web site.

Introduction

This short guide provides information on how biodiversity can be protected and enhanced on development sites. Most sites, even the smallest ones, support wildlife, and it is important that this wildlife is protected and that development sites contribute to increasing wildlife in the borough.

This guide is divided into six sections:

- 1. Protecting biodiversity
- 2. Enhancing Biodiversity
- 3. Invasive species
- 4. Useful organisations and references
- 5. Checklists for protecting and enhancing biodiversity
- 6. Recommended species for soft landscaping (provided as a separate document).

1. Protecting biodiversity

Assessing a site for its biodiversity needs to be incorporated into the development project as early as possible. It is important to provide accurate information on biodiversity with your planning application. You can find details of accredited ecologists in your area on the CIEEM web site: www.cieem.net

A Phase 1 Habitat Survey by a qualified ecologist will:

- 1. Assess the ecological value of the site and the impact of the proposed development on biodiversity.
- 2. Obtain existing wildlife and habitat records from Greenspace Information for Greater London (GiGL).
- 3. Identify any further surveys that may be needed.
- 4. Identify measures to protect habitats and wildlife during and following construction.
- 5. Recommend measures to enhance the proposed development for wildlife.

You may also be required to submit bat, bird, reptile, and / or great crested newt surveys and these surveys can only be carried out at certain times of the year. Table 1 below sets out the optimal times of year for surveying different species.

A bat survey will be needed if you plan to demolish a building, carry out works that affect an existing roof or carry out works to trees, regardless of the time of year that the works are carried out.

A nesting bird survey will be needed if you plan to demolish a building, carry out works that affect an existing roof or carry out works to trees or vegetation during the bird breeding season (February to October). A tree survey will be required if trees are present on or adjacent to the site.

Table 1: Ecological Survey SeasonsKey: Optimal Survey Time:Extending into:

	JAN	FEB	MAR		APR	MAY	JUNE	JULY	AUG	SEPT	ост	NOV	DEC
Badgers													
Bats													
(Hibernation Roosts)													
Bats													
(Summer Roosts)													
Bats													
(Foraging/													
Commuting)													
Birds (Breeding)													
BIRDS													
(Over Wintering)													
Dormice													
Great–Crested Newts			AQU/		ATIC	٦	ERRESTRIAL	AL					
Invertebrates													
Natterjack Toads													
Otters													
Reptiles													
Water Voles													
White-Clawed Crayfish													
Habitats/Vegetation													

Table adapted from Validation of Planning Applications (Association of Local Government Ecologists, 2007)

2. Enhancing biodiversity

New development (including redevelopment of sites and extensions of existing buildings) provide opportunities to significantly improve biodiversity and give access to nature for local people on their own doorsteps. Soft landscaping, the use of sustainable drainage systems (SuDS), restoring waterways, providing green roofs and walls, and incorporating bird and bat boxes into buildings, are all ways in which the built environment can provide space for biodiversity.

Using native species in soft landscaping

The use of native plants, trees and shrubs in soft landscaping reduce biodiversity loss and help recreate connections between wildlife rich sites. Non-native plants can benefit some species, for example by providing nectar for bees, but are less likely to benefit a wider range of species.

- All developments should maximise their use of native plants, shrubs and trees in preference to non-natives.
- At least 75 percent of the landscaped area should use native species.
- Any non-native species must be demonstrated to have value for wildlife.
- On development sites adjacent to wildlife sites and water ways, <u>all plants, trees and</u> <u>shrubs</u> introduced to the development site should be native.
- Hard landscaping should be minimised. This will benefit biodiversity and reduce the impacts of climate change.

Habitat creation

Where there is space for larger areas of habitat creation (for example, woodland, meadow, ponds) the following need to be considered:

- The nature of the existing site (underlying geology and soils, habitats present on or adjacent to the site).
- The priorities for habitat creation in the Local Biodiversity Action Plan and the London Biodiversity Action Plan.
- Natural England's London Regional Landscape Framework.
- The All London Green Grid.

Detailed guidance on habitat creation is provided by a number of organisations, including the Environment Agency, Natural England, the RSPB, the London Wildlife Trust and Buglife.

Where there is not enough space for large areas of habitat creation, soft landscaping should consist of smaller areas of habitat, such as woodland, hedgerows, grassland, wildflower meadow and wetlands. These habitats need to be connected within the site and with any habitats external to the site.

The structure and management of the soft landscaping is very important if it is to provide the benefits expected for wildlife. Mimicking the structure of natural habitats creates a naturalised

landscape for the development and provides a range of niches for different species. For example, tree planting could provide a canopy, an under storey, a shrub layer and ground flora.

- Design the soft landscaping to include woodland, hedges, grassland, wildflower meadow and wetland habitats that connect together across the site.
- Design tree planting to consist of different layers of plants from trees at the highest level, an under storey of small trees, shrubs and grasses / wildflowers at ground level.
- Connect different areas of habitat with green corridors of native vegetation to allow animals and birds to move between them.
- Consider using combinations of plants that occur in nature Natural Vegetation Communities. An ecologist can advise you on how to achieve this.

Hedges

Hedges are often a feature of soft landscape plans but are usually designed for their visual impact and ease of maintenance. Hedges can be designed and maintained to benefit wildlife. The species composition and the way in which hedges are managed have a significant impact on their benefits for biodiversity.

- All species should be native. They should be grown from indigenous root stock or seed, to ensure they are adapted to local conditions. The recommended species composition is:
- •
- o 60 per cent mix of hawthorn and blackthorn
- 40 per cent mix of other species intermixed randomly with the hawthorn and blackthorn. Suitable species include: field maple, elder, dogwood, wayfaring tree, hazel, wild cherry, guelder rose, dog rose, field rose.
- A hedgerow should be planted in a double staggered row with at least 40cm between each row and 4-6 plants planted per metre. The wider the hedgerow, the more valuable it will be for wildlife.
- Trees can be included in the hedgerow. Suitable trees include: oak, ash, alder, beech, field maple, wild cherry, hornbeam, rowan, crab apple and holly. Once planted use a marker stake and tree-tag to help prevent the trees being cut during hedge maintenance operations.
- A strip of grassland at least 2m wide on either side of the newly planted hedgerow should be provided if possible. These strips should be planted with native ground flora. The use of herbicide on the grassland strips should be avoided.
- In general, cut hedges in January or February, to avoid harm to nesting birds and to allow birds to forage during the winter months. Always avoid cutting hedges and trees between March and September.

• Once a hedge is established, cut on a three year pruning cycle. Try to avoid cutting all the hedges in any year. If you do need to cut a hedgerow every year, avoid cutting the grass and other plants at the base each time, especially in the autumn.

Sustainable Drainage Systems

Sustainable Drainage Systems (SuDS) reduce flood risk from surface water runoff. SuDS can also improve water quality by reducing and treating polluted surface water runoff, enhance biodiversity and enhance visual amenity of the development site and its environs.

SuDS need to considered early in the planning process as their design will influence the layout of the development. In general:

- The management and conveyance of surface water runoff should be kept on the surface as much as possible.
- SuDS networks should be designed to match natural drainage routes, infiltration rates and discharges as far as possible.
- Designs should make use of natural gradients to avoid the use of energy pumps and reduce the use of man-made materials.
- Vegetated SuDs are more sustainable and should be given priority over engineered solutions.
- Below-ground storage should be avoided as much as possible.

To ensure biodiversity is protected and enhanced by SuDS:

- A Phase 1 habitat survey should be carried at any early stage to identify habitats and species that need to be protected.
- Existing habitats and vegetation should be retained, including trees.
- The design of SuDS should ensure that any existing aquatic habitats are protected from flooding.
- SuDs features should be located close to, but not directly connected to, existing wetland areas.
- Include vegetated shallow bays and areas of marsh in the design.
- Avoid smooth finishes to surfaces.
- Allow natural colonisation by plants and animals.
- If planting is necessary, only use native plants of local origin from reputable sources.

Individual elements in a SuDs network will need to be designed to protect and enhance biodiversity. The information below describes some of the basic requirements for some SuDs features:

- Green roofs can be extensive (no public access) or intensive (with access to residents or employees). Extensive green roofs require a substrate depth of at least 75mm and should be planted with native wildflower species. They must be designed to enhance biodiversity. Intensive roofs (often called roof gardens) must have 70 per cent coverage of the surface area by vegetation, soil and / or water. Plants on intensive roofs must include native plants and any non native plants must have benefits for wildlife.
- 2. **Swales** reduce the rate of surface water run off at ground level. Swales should limit velocities during extreme events to 1-2 m/s. Maximum side slopes of 1 in 3 should be used where soil conditions allow and the base width should be at least 0.5m.

- 3. **Ponds** provide attenuation of stormwater. Ponds should have a minimum depth of 1.2m for open water areas. The sides should have a maximum slope of 1 in 3.
- 4. **Wetlands** provide attenuation of storm water and can also be used for water treatment. There should be a combination of shallow and deep areas, with a maximum depth of 2m. There should be a length to width ration greater than 3:1 and the sides should have shallow slopes.
- 5. **Filter strips** are vegetated strips of land designed to intercept sediments before water enters swales or other SuDs features. They should be planted with native plants to benefit biodiversity. They should have a minimum width of 6m, with a minimum slope of 1 in 50 and a maximum slope of 1 in 20.

Restoring waterways

Many urban waterways have been culverted or concreted over, straightened and narrowed. This has contributed to flood risk and destroyed the biodiversity value of these environments. Where a waterway runs through or close to a development site, this presents an opportunity to restore the waterway as far as possible to its natural condition. River walls and banks may be naturalised and the river channel may be altered to encourage aquatic wildlife to thrive.

The Environment Agency must be consulted on and approve any proposals that will affect waterways. They can also provide detailed advice on how to improve waterways for biodiversity.

The following principles apply:

- There should be no development (this includes hard standing and any structures such as lighting) within 15 m of the top of the bank of a tidal watercourse.
- There should be no development within 8m of the top of the bank of an ordinary watercourse.
- There should be no development within 5m of the top of the bank of any minor watercourse.
- Paths and lighting should not be included in the specified buffer zone between the waterway and the development.
- The buffer zone should only be planted with native plants of local origin.
- Lighting should be designed to avoid spill onto the buffer and the waterway.

Green Grid

The All London Green Grid (ALGG) aims to create a network of high quality open spaces that connect town centres, public transport hubs, major employment and residential areas with parks and open spaces, the Thames and the green urban fringe.

Policy 2.18 of the London Plan requires the protection, promotion, and management of London's network of green infrastructure. The ALGG Supplementary Planning Guidance provides more information. Details of specific projects can be found in the relevant Area Frameworks at:

http://www.london.gov.uk/priorities/environment/greening-london/improving-londons-parks-greenspaces/all-london-green-grid/all-london-green-grid-area-frameworks

Sites where the ALGG needs to be taken into account are indentified in the council's Local Plan. These include:

- South Dagenham West And Dagenham Leisure Park (SSA SM2)
- South Dagenham East (SSA SM4)
- Goresbrook Village (SSA SM15)
- Abbey Green (BTCSSA 8)

Additional sites may be identified in the ALGG

Green infrastructure provides the opportunity to improve the environment for biodiversity, through the naturalisation of the landscape, use of native plants, restoration of waterways and tree planting.

The design of green infrastructure should ensure that biodiversity is not harmed and biodiversity enhancements are maximised. Phase 1 surveys and protected species surveys should be carried out at an early stage in the project design. Artificial lighting should only be used where essential and must be designed to avoid light spill onto surrounding habitats, such as trees and waterways. The banks of waterways should be protected from disturbance and paths designed to ensure this.

Bird and Bat boxes

Modern buildings do not provide the same nesting and roosting opportunities for birds and bats that exist in older properties. This could be an important contributor to the decline of many species, including house sparrows. Opportunities can be provided in modern buildings by incorporating specially designed bird and bat bricks into the building's walls and into the roof space. This is preferable to attaching bird and bat boxes to buildings, as internal cavities are more attractive to birds such as house sparrows and to bats, provide more protection and are less obtrusive.

- The new development should incorporate a range of artificial nest and roost sites, with the number reflecting the size and scale of the development.
- Features such as bird bricks and internal bat roosts should be designed into the structure of the buildings and should be shown on the soft or hard landscaping plan.
- These features should be specific to the species that occur or are likely to occur in the area. They are likely to include house sparrows; starlings; house martins; swifts; black redstarts; bats.
- Provide these features beneath the eaves of the building if possible, as these locations are preferred by birds.
- All tall buildings should incorporate a row of swift bricks one or two rows below the eaves of the buildings.
- The direction that bird boxes or bricks face is very important. In general avoid south or south-west facing walls, as fledglings will over heat.
- Provide additional bird and bat boxes on suitable trees. External bird and bat boxes should be made of long lasting material, such as woodcrete.

Detailed information is provided by the RSPB and by the Bat conservation Trust.

Front gardens

Front gardens make a big difference to our homes by -

- Reducing the risk of flooding.
- Regulating temperatures.
- Reducing the risk of subsidence.
- Helping wildlife to survive.
- Increasing the attractiveness of your house to potential buyers

Front gardens should be designed to discourage residents from converting them into car parking areas. Where parking is provided, it should be designed to minimise the amount of hard surfacing and to include greenery:

- 1. Only pave an area sufficient for the car or create just two paved tracks for the car wheels.
- 2. Keep as much space as possible for plants, grass and trees.
- 3. Use planter boxes if there is insufficient room for a garden bed.
- 4. Grow climbing plants up blank walls.
- 5. Plant boundary hedges instead of fences.

The Royal Horticultural Society provides further advice on their web site: http://www.rhs.org.uk/Gardening/Sustainable-gardening/pdfs/FrontGardens .

3. Invasive species

Animals and plants that have been introduced to an area where they do not normally occur may become invasive. Species local to the area may be unable to compete and as a result the introduced species may rapidly take over.

The Environment Agency (/www.environment-agency.gov.uk) and Plantlife (www.plantlife.org.uk) provide up to date information on non-native invasive plants and their control.

The invasive non-native plants of main concern that are likely to be found on development sites in Barking and Dagenham are:

Japanese knotweed Himalayan balsam Giant Hogweed

Where a site is to be redeveloped the presence of any invasive species should be identified at an early stage and measures put in place to prevent the spread of this species during and after construction. It is an offence under section 14(2) of the Wildlife and Countryside act 1981 to "plant or otherwise cause to grow in the wild" any plant listed in Schedule nine, Part II to the Act. The Environment Agency provides advice on the measures that can be taken to control invasive species. Where it is intended to use herbicides or pesticides close to water, an application must be made to the Environment Agency.

Developers should also ensure the following species are not introduced to any water bodies, including garden ponds on or adjacent to the development site:

Curly waterweed (Elodea crispa) Pennywort New Zealand pigmyweed Water-primrose Parrot's feather Water fern

Plants, animals and water from garden ponds or other water bodies should not be transferred to other ponds or water bodies. This will help prevent the further spread of these species between gardens and reduce further colonisation of natural habitats by invasive non-native plants.

Where water (for example, a swale, a waterway or a pond) is part of the soft landscaping on a development site, it is preferable to allow plants to colonise naturally. This prevents the accidental introduction of invasive species.

A number of plants have also been identified as potentially invasive and should not be included in soft landscaping schemes. This list of plants is provided in Section 6.

4. References and useful organisations

Organisations

Chartered Institute of Ecological and Environmental Management (CIEEM): www.cieem.net

Barking and Dagenham Biodiversity Action Plan: <u>http://ukbars.defra.gov.uk</u>

London Biodiversity Action Plan: <u>www.lbp.org.uk</u>

London Wildlife Trust: <u>www.wildlondon.org.uk</u>

RSPB: <u>http://www.rspb.org.uk</u>

Bat Conservation Trust: www.bats.org.uk

Plantlife: <u>www.plantlife.org.uk</u>

Buglife: <u>www.rspb.org.uk</u>

Frog Life: <u>www.froglife.org</u>

Freshwater Habitats Trust: www.freshwaterhabitats.org.uk

Bumblebee Trust: <u>www.bumblebeeconservation.org</u>

Susdrain: www.susdrain.org

Useful references

- Hedgerow planting: answers to 18 common questions (Natural England, 2008)
- Hedge cutting: answers to 18 common questions (Natural England, 2007)
- Impact of Native Plants on Bird and Butterfly Biodiversity in Suburban Landscapes Karin T. Burghardt, Douglas W. Tallamy and W. Gregory Shriver. Conservation Biology Journal Volume 23, Issue 1, February 2009
- Ranking Lepidopteran Use of Native Versus Introduced Plants Douglas W. Tallamy and Kimberley J. Shropshire Conservation Biology Volume 23, Issue 4, August 2009
- Sustainable Drainage Systems Design and Adoption Guide. Essex County Council. December 2012
- Do green roofs provide habitat for bats in urban areas? HUMA PEARCE1, 3 and CHARLOTTE L. WALTERS2 Acta Chiropterologica, 14(2): 469–478, 2012

5. Checklists

Checklist for protecting biodiversity

This is a simplified version of the full check list provided in the Biodiversity SPD.

Identification of site for proposed development

1. Are there trees on or adjacent to the site?

A tree survey will be required – submit with planning application Are there any trees protected by Tree Preservation Orders?

2. Are any works to trees planned (including pruning)?

A bat survey will be required – submit with planning application A nesting bird survey may be required

3. Will any buildings be demolished or roof works take place?

A bat survey will be required – submit with planning application A nesting bird survey may be required

4. Does the site or adjacent land have a nature conservation designation?

The site will need a Phase 1 habitat survey - submit with planning application

5. Are there any trees, hedges, water ways, ponds, grass or plants on the site?

The site may need a Phase 1 habitat survey – seek advice from the local authority's Development Management team or from a qualified ecologist. If required, submit Phase 1 survey with planning application

6. Does the Phase 1 habitat survey recommend further surveys, for example for bats, birds or reptiles?

Commission recommended surveys - submit with planning application.

7. Will the development have a negative impact on species and / or habitats present on the site?

If the answer is yes, you will need to answer the following questions:

- 1. Can an alternative site for the development be found?
- 2. If an alternative site cannot be found, can the development be redesigned to avoid harm to species and habitats?
- 3. If harm cannot be avoided, can the harm be minimised and compensated for.

If the answer to all three questions is no, it is unlikely that planning permission will be granted.

Planning application submitted

The Local Planning Authority will consider if the information submitted by the developer is adequate and accurate. Additional information and / or surveys may be required.

If European protected species, such as bats or great crested newts are present, the Local Planning Authority will apply the three tests set out in the Habitats Regulations. Relevant licences from Natural England may be required if protected species are present.

An Aboricultural Implications Assessment and an Aboricultural Method Statement may be required for trees present on and adjacent to the site. Consult the Trees and Development SPD for further information.

Conditions to protect and enhance biodiversity may be made if planning permission is granted.

Enhancing biodiversity checklist

The following questions are designed to help you identify ways to enhance biodiversity on the proposed development. These should be considered at an early stage in the development project.

1. Can existing habitat be retained in the soft landscape scheme?

For example, retain existing scrub, trees and grassland instead of replacing with manicured landscaping.

2. Can the biodiversity value of existing habitats be increased?

For example, by restoring waterways, under planting trees with native species, managing hedgerows for wildlife.

3. Is there space on site for large scale habitat creation?

For example, woodland, meadow or ponds?

4. Can elements of natural habitat form a significant part of the soft landscaping scheme? Have you included:

- Hedgerows (managed for biodiversity);
- Woodland
- Water features
- Beetle banks / banks for bumble bees
- Grassland
- Wildflower meadow

5. Have you maximised the use of native plants, shrubs and trees in the soft landscaping?

At least 75 per cent of soft landscaping should be native plants.

6. Does the soft landscaping provide connecting corridors of habitat across the site?

7. Does the soft landscaping connect with habitat outside the site?

8. Have green roofs for biodiversity been included in the scheme? Green roofs need a substrate depth of at least 75mm and should only be planted with native plants.

9. Have SUDs been designed to provide benefits for wildlife?

Green roofs, swales, ponds can all be designed to enhance biodiversity.

10. Have bird and bat bricks been incorporated into the built structures?

Bird nest bricks and bat roosting bricks / structures incorporated into the fabric of the building are more likely to be used by most species, than those attached to the outside of the building.