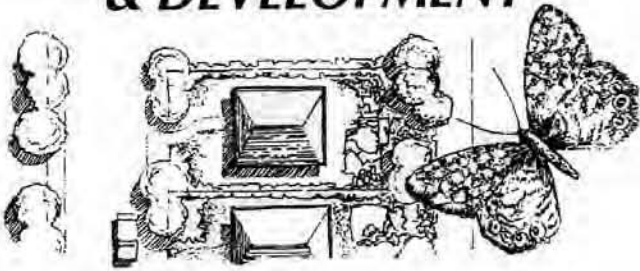


Design Guidelines for NATURE CONSERVATION & DEVELOPMENT



This leaflet is one of a series on environmental issues, produced as supplementary planning guidance to the Unitary Development Plan. It is a brief introduction to encouraging nature conservation, particularly in relation to development proposals, and is not intended as a detailed reference. Many of the approaches are equally applicable to existing developments, refurbishment and new development. It will often be helpful to obtain professional advice on the approaches outlined. A leaflet on Wildlife in Gardens is also available.

COUNCIL POLICY

This is incorporated in the Council's Unitary Development Plan. It is important that nature conservation should be integrated at the planning stage with all new development. Schemes should be designed to retain existing features and habitats of wildlife value on site, and to create new habitats where appropriate. The Council's policy on nature conservation and development proposals is firstly to preserve and enhance existing elements of nature conservation importance, and secondly to take opportunities to create new areas of semi-natural habitat by design and choice of species in landscape schemes; and to incorporate features attractive to wildlife.

BENEFITS OF PLANTING

While this leaflet is specifically about the role of planting in nature conservation, the inclusion of significant planting has other benefits. Some of these are outlined below. They are equally applicable to the retention of existing trees and other planting:

- 1) **VISUAL IMPROVEMENT:** planting is often a key element in the overall appearance of a development and may be vital in creating a setting and in relating new development to its surroundings. Removal of existing landscape features can be highly detrimental to the environment as well as creating local opposition.
- 2) **POLLUTION:** vegetation absorbs pollution from the air, in particular from vehicles, and from rainwater; trees are particularly effective also in producing oxygen.
- 3) **NOISE & PRIVACY:** noise can be reduced and privacy increased through dense planting, and may provide an important psychological effect.

Trees, shrubs and mounding provide excellent screens and psychological barriers to sources of noise.



4) **CLIMATE:** trees and other vegetation are useful in reducing excessive heat build up generated by buildings & hard surfaces, by releasing humidity into the air, as well as providing shade and shelter.

5) **INVESTMENT:** related to visual improvement in that it increases the perceived value of a development. Maintenance savings may also be made through the protection of building surfaces, for example with 'green roofs' and climbing plants on walls. Climbing plants and shrubs can be used to deter graffiti.

In all planting schemes, security considerations should be borne in mind, as the type of planting, and its location and grouping, improve or detract from security; for example by providing undesirable hiding places, or blocking views. The Council's leaflet 'Design for Security' gives advice on this.

PRINCIPLES OF NATURE CONSERVATION

Nature conservation aims to conserve wildlife habitats (such as ponds, meadows and woodland) and maintain or increase the diversity of species which these habitats support. Opportunities for habitat creation should be investigated where wildlife habitats do not exist. Native plants, that is, those of local origin rather than those introduced from abroad, are generally more attractive to wildlife and can be used to create new habitats and favourable conditions for other native plants. Some non-native plants also have nectar/fruit of value to wildlife (see list at end).

a) RETAIN EXISTING SITE FEATURES

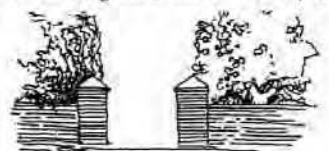
The following features are likely to be of nature conservation value and should be shown on drawings forming part of planning submissions: existing trees (including street trees & dead trees) and wooded areas, hedges and other vegetation, walls and other boundaries, ditches, variations in topography, and areas of water. The size (spread/height) and species of tree, and whether or not it is proposed to retain existing planting and site features, should be clearly shown. There will be a presumption against the loss of mature trees and hedges; other features of nature conservation value should be retained where possible. Such features may contain or support rare species protected under the Wildlife & Countryside Act 1981, for example trees may contain bats (all species protected) and ponds may support the protected great crested newt. Advice on such species and their protection can be obtained from English Nature.

It is important to retain any existing corridors of planting which may continue beyond the site. Linear green habitats are important as they may be used by wildlife to move around the urban environment.



Keep root spread clear

Retain existing site features where possible



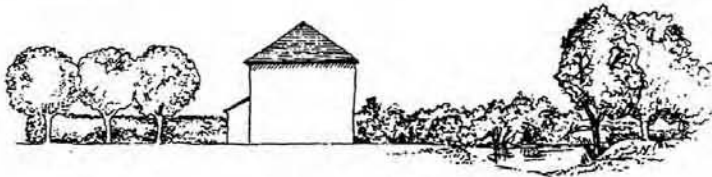
The retention of existing mature trees on development sites requires great care, and the root spread under the canopy of the tree must be protected from physical damage and compaction. Temporary fencing may be necessary to protect existing vegetation during construction works. This should extend 1m. beyond the tree canopy to protect roots. Further advice on trees in relation to development sites is given in Planning Information Leaflet 5, 'Trees: Legislation and Procedure'.

Nature conservation objectives will often coincide with other aims. For example, retention of features outlined above will aid visual integration of new development with its setting, and mature landscape features will soften and contrast well with new buildings. The retention of old boundary walls and hedges is very beneficial to wildlife and they are usually a positive visual feature to conserve.

b) CREATE SEMI-NATURAL HABITAT

The natural progression from grassland through scrub to woodland can be recreated using native planting, even on a small scale, which will provide an ideal source of food for wildlife and create a natural 'country in town' appearance. It can also provide a valuable teaching resource. Larger, more usable spaces should be considered wherever there is room, and links between different open areas should be provided where possible. Where existing areas of natural habitat adjoin the site, habitat creation measures could beneficially be concentrated next to such areas, to provide larger continuous areas of habitat.

Advantages of using a more natural landscape management approach also include financial savings, as it is likely to be less intensive than a more traditional landscape. Sites can be seen as 'service stations' for wildlife and may form a link in a chain of numerous sites of value to wildlife. The introduction of a pond, or other body of water, subject to safety considerations, in a scheme will be effective in attracting wildlife.



A contrast in styles between front and back can work well.

Corners of sites can provide good opportunities for this type of planting, as can parking areas. Different types of planting may be appropriate elsewhere within a development, for example a more formal front boundary to relate to the setting, but this can still include native planting.

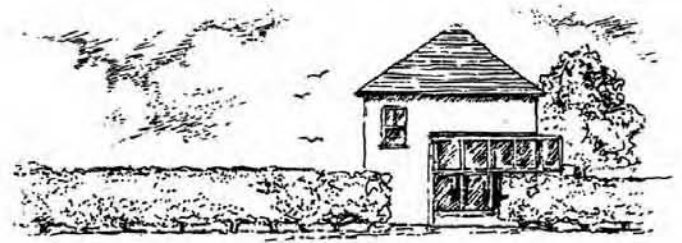
NEW PLANTING

TREES: new tree planting should be predominantly native species. Very young trees ('whips') can be used closely planted for extensive areas in order to build up a mini-woodland. It is important to relate proposed tree species to the site-in one area a particular species may predominate. It is usually advisable to avoid planting large-growing species close to buildings, because of possible damage from roots, and overshadowing. Poplars and willows are best avoided close to buildings.

Suitable species for location.



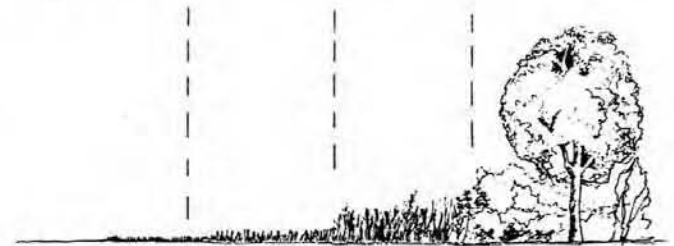
HEDGES: these are particularly beneficial to wildlife as they provide nesting areas and shelter. They should be considered for use as boundary treatment, and can for example be combined effectively with low boundary walls. Thick hedges may provide a degree of sound insulation from traffic, and new techniques have been developed such as 'willow walls' using a mixture of earth and willow cuttings that can form an effective sound barrier in a short time, where space permits. An effective more general form of hedging which is particularly attractive to wildlife is a mixed hedge consisting mainly of hawthorn, with a smaller percentage of other native hedging plants (see plants list at end). The wildlife value of a hedge will be increased the taller and wider it is allowed to grow.



Hedges as boundary.

SHRUBS & PERENNIAL PLANTS: these can form a transition between grass areas and trees, and give structure to a development. Berrying shrubs provide a good source of food for wildlife, although plants having poisonous berries should be avoided in accessible positions. Shrubs and other plants high in nectar will attract butterflies and are good for providing colour (see list at end). The use of shrub level planting for screening should be considered- for example for parking areas or ugly views.

CLIMBING PLANTS: these also attract wildlife, and take up little space on the ground. They are of great value in covering walls, outbuildings and pergolas, and may be very effective in screening ugly features. Climbers such as honeysuckle & clematis should also be considered for growing through hedging. Care should be taken with ivy on buildings, and it is best avoided on old or unsound brickwork, where it may cause damage.



close mown cut June cut September 'woodland edge

TYPICAL MOWING REGIME FOR TALLER GRASS

LAWNS & WILDFLOWERS: treatment of lawns to encourage wildlife conservation can lead to reduced maintenance costs, and avoid the potentially sterile appearance of large areas of close-mown grass. Opportunities should be taken to grow mini-meadows, and these can coexist happily with close-mown grass. Closer mown grass provides a good contrast to the longer grass beyond, and providing a 'wildlife area' sign will also make it clear that maintenance is not being neglected. Taller grass provides the right habitat for wild flowers. A typical mowing regime for longer grass might involve leaving some grass uncut until late June, with another area left uncut until September, to encourage late summer wild flowers.

The longer grass will provide an excellent habitat for butterflies and grasshoppers and where possible an area should be left uncut until early summer to allow them to overwinter. With longer grass, leave some grass cuttings on the grass for a week, then rake off. This allows seeds to fall back into the soil, whilst raking off will avoid allowing the soil to become too fertile, which would be less suitable for wildflowers. With a close-mown lawn, mow early in the year, then delay further mowing until after mid-May to encourage daisies and plantains.

Ready-made wildflower turf can be purchased, or a grass and wild flower mix can be sown, when creating new areas of grassland. Low fertility soil is preferred for seeding, and there may be opportunities for sowing directly into the subsoil with topsoil removed for use elsewhere. Alternatively wild flowers can be planted into bare patches of existing grass, when the seeds have been grown in pots to a size large enough to be handled.

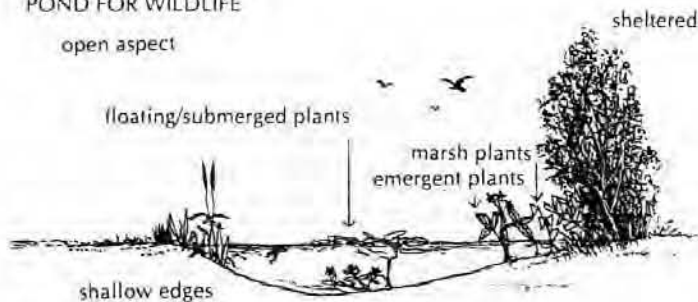
WATER & DAMP SITES

On sites where there is existing wetland or riverside character this should be preserved and possibly reinforced with appropriate planting.

Introducing an area of water will greatly increase the potential for attracting and sustaining wildlife, which may include birds, frogs, toads, and insects. Construction can be quite simple and it will usually form a pleasing visual feature. To construct a wildlife pond, a sunny position away from overhanging branches is best, with one side open, and one side sheltered by shrubs. Edges should be shallow, with a depth of about 600mm minimum at the centre, which will reduce the likelihood of complete freezing. The varying depths will allow different types of plants to grow, from open water and floating plants at the centre to marginal and marsh plants at the perimeter. A flexible waterproof liner is often used at the base, with about 100mm subsoil or sand and gravel on top of the liner. The use of gravel and beach pebbles at the edges of ponds contrasts well with planting and water. If possible use rainwater to fill the pond. Opportunities sometimes exist to create bodies of water larger than ponds, which would have even greater value to wildlife.

An alternative or addition to open water is a bog garden constructed with a liner, water and peat-free compost or similar materials.

POND FOR WILDLIFE



PLANTING & BUILDINGS

Some opportunities for planting in relation to both new development and existing buildings are outlined below. These could beneficially be considered at the design stage for increasing the possibilities of planting:

(a) **WALLS:** both thermal efficiency and protection from damp can be increased through growing climbing plants on walls.

(b) **BALCONIES/TERRACES/COURTYARDS:** these building features all provide excellent opportunities for planting, particularly where users may not have immediate access to larger green areas.

(c) **'GREEN ROOFS'/ROOF GARDENS:** recent developments have made possible the installation of more economical 'green roofs' having considerable implications for the appearance of flat roofs in particular. The roof covering can consist of a grass/wild flower mix and may also be used on sloping roofs. They also have good thermal properties, can reduce maintenance costs, and be beneficial to nature conservation. The creation of more elaborate roof gardens on flat roofs is another possibility.

(d) **PERGOLAS:** the provision of overhead planting with climbers can provide attractive contrasts to the rest of the landscape, and also be effectively employed to screen and shade parking areas, refuse areas etc..

(e) **PROVISION FOR WILDLIFE IN BUILDINGS:** nesting sites can be provided by growing climbing plants up walls, and specific provision can be made in both new and existing buildings through the provision of boxes, gaps and ledges. More information is given in the London Ecology Unit publication 'Building Green' (see references). Information on bird tables and nest boxes is given in the Borough's 'Wildlife in Gardens' leaflet.

(f) **USE OF EXCAVATED MATERIAL:** this can be used to create interesting mounding features, or to provide a low fertility soil for the creation of wild flower meadows.

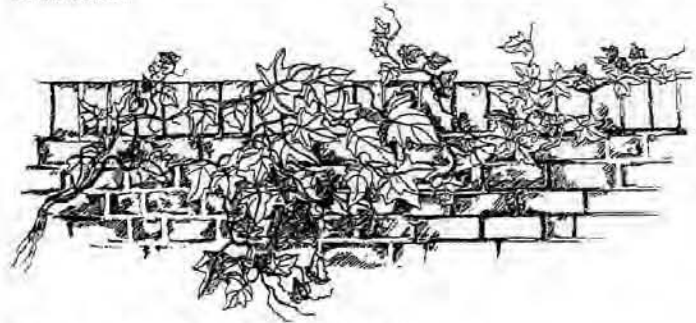
(g) **PATHS & PAVING:** consideration should be given to incorporating free-draining materials such as gravel, timber or brick paviors bedded on sand, rather than completely sealed surfaces, to retain moisture and provide a habitat for invertebrates and mosses.

MAINTENANCE

Resources must be made available for maintenance of new planting, otherwise expenditure may be wasted. Dense planting will restrict weed growth, and thick mulches (for example bark chippings), will help maintain moisture levels as well as restricting weeds. They also improve the appearance of planted areas when they are first planted, and bark chips will provide an additional rotting wood habitat in its own right. Conditions may be attached to planning permissions for the reinstatement of planting which has died, is seriously damaged or diseased, or has been removed.

A management plan should be prepared for sites, including such information as mowing regimes and timing of pruning.

The use of chemicals in maintenance should be minimised to avoid poisoning wildlife. This may worsen problems with pests by interfering with the food chain: natural predators may be killed which may in turn worsen the pest problem when the natural form of control is eliminated. If chemicals are to be used, they should be carefully chosen to affect 'target' species only and must be applied with due care and attention. Herbicides designated for professional use may only legally be applied by operators with an appropriate certificate of competence issued by the National Proficiency Test Council for Agriculture and Horticulture, under the code of Pesticides Regulations 1986. The use of a 'weedwiper' hand-held applicator and addition of a dye to the herbicide will facilitate more precise application. Particular care should be taken near water. It is likely that a longer term approach, designed to encourage predators of the pest species, will be more beneficial.



PLANTING PROPOSALS & PLANNING APPLICATIONS

This section summarises the main elements which should be considered for inclusion as a part of submissions for planning permission; they will not all be applicable to every landscape scheme.


- 1) Plans should show existing trees, hedges, shrubs, habitats and features of wildlife interest on sites.
- 2) Planting proposals: general intentions for both planting and hard landscape should be shown on main application drawings even when details may appear on later detailed submissions.
- 3) Proposed planting plans should show existing trees, hedges and shrubs to be retained and indicate the location, size, and density of new planting.
- 4) Maintenance of planting: this will be covered by a condition on planning permissions that planting which fails within the first five years will have to be replaced.
- 5) Protection of existing planting: a condition may be attached to planning permissions regarding the protection of trees and other planting on sites. Advice on the protection of trees on development sites is given in Design Guideline Leaflet No.5, Trees: Landscape Design and Care.

SELECTIVE PLANTS LIST

Space only permits an indication of the possible range of planting

NATIVE* TREES	Latin name (if different)	Size
Alder	<i>Alnus glutinosa</i>	M
Birch	<i>Betula pendula</i>	M
Cherry	<i>Prunus avium</i>	M
Crab Apple	<i>Malus sylvestris</i>	S
Field Maple	<i>Acer campestre</i>	M
Rowan	<i>Sorbus aucuparia</i>	S/M
Whitebeam	<i>Sorbus aria</i>	S/M
Ash	<i>Fraxinus excelsior</i>	L
Beech	<i>Fagus sylvatica</i>	L
Hornbeam	<i>Carpinus betulus</i>	L
Oak	<i>Quercus robur</i>	L

HEDGES

Beech	<i>Fagus sylvatica</i>	
Dogwood	<i>Cornus sanguinea</i>	
Hawthorn	<i>Crataegus monogyna</i>	
Hazel	<i>Corylus avellana</i>	
Holly	<i>Ilex aquifolium</i>	
Hornbeam	<i>Carpinus betula</i>	
Field Maple	<i>Acer campestre</i>	
Wild Privet	<i>Ligustrum vulgare</i>	
Dog Rose	<i>Rosa canina</i>	
Guelder Rose	<i>Viburnum opulus</i>	
Pussy Willow	<i>Salix caprea</i>	

CLIMBING PLANTS

Clematis		mainly non-native
Honeysuckle	<i>Lonicera</i>	
Hop	<i>Humulus lupulus</i>	
Climbing Hydrangea	<i>Hydrangea petiolaris</i>	non-native
Ivy	<i>Hedera helix</i>	
Jasmine	<i>Jasminium</i>	non-native
Virginia Creeper	<i>Parthenocissus</i>	non-native

SHRUBS / PERENNIALS / ANNUALS attractive to butterflies (in addition to native wildflowers listed below; these plants are mainly non-native).

Butterfly Bush	<i>Buddleia</i>
California Lilac	<i>Ceanothus</i>
Lavender	<i>Lavandula</i>
Bergenia	
Ice Plant	<i>Sedum</i>
Primrose	<i>Primula</i>
Coneflower	<i>Rudbeckia</i>
Chrysanthemum	
Heliotrope	<i>Heliotropum</i>
Marigold	<i>Calendula</i>
Sunflower	<i>Helianthus</i>
Verbena	

SHRUBS WITH BERRIES

Barberry	<i>Berberis</i>
Cotoneaster	
Elderberry	<i>Sambucus nigra</i>
Honeysuckle	<i>Lonicera</i>
Firethorn	<i>Pyracantha</i>
Snowberry	<i>Symphoricarpos alba</i>
Viburnum	

NATIVE WILDFLOWERS

Spring meadow:	
Cowslip	<i>Primula veris</i>
Daisy	<i>Bellis perenis</i>
Speedwell	<i>Veronica chamaedrys</i>
Summer meadow:	
Oxeye Daisy	<i>Leucanthemum vulgare</i>
Knapweed	<i>Centaurea</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Border (some non-native):	
Angelica	
Aubretia	
Crane's Bill	<i>Geranium</i>
Forget-me-not	<i>Myosotis</i>



Hollyhock
Honesty
Michaelmas Daisy
Snapdragon
Sunflower

Althaea
Lunaria
Aster
Antirrhinum
Helianthus



PLANTS FOR PONDS

Submerged:	
Curly Pondweed	<i>Potamogeton crispus</i>
Hornwort	<i>Ceratophyllum demersum</i>
Spiked Water Milfoil	<i>Myriophyllum spicatum</i>
Floating:	
Amphibious Bistort	<i>Polygonum amphibium</i>
Fringed Water Lily	<i>Nymphaea peltata</i>
Emergent:	
Burr Reed	<i>Sparganium erectum</i>
Flowering Rush	<i>Butomus umbellatus</i>
Lesser Reedmace	<i>Typha latifolia</i>
Marginal:	
Water Forget-me-not	<i>Myosotis scorpiodes</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
Marsh plants:	
Marsh Marigold	<i>Caltha palustris</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Purple Loosestrife	<i>Lythrum salicaria</i>

* The term 'native' refers to plants of local origin, as opposed to those which have been introduced to this country.

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- Jacklyn Johnson and John Newton (1993) Building Green. London Ecology Unit.
- L.B. Richmond upon Thames Design Guidelines Leaflet 2: -Car Parking in Front Gardens.
- Design Guidelines Leaflet 5: -Trees: Landscape Design, Planting and Care.
- Design Guidelines Leaflet 8: -Wildlife in Gardens.
- Design Guidelines Leaflet 10: -Design for Security.
- Planning Information Leaflet 5: -Trees: Legislation and Procedure.
- Recycling Leaflet: -Recycling Bio-degradable Waste. Unitary Development Plan.



FURTHER INFORMATION

list of contacts:
Planning Division. (Urban Design/Development Control)
Recreation & Amenities Division. (Ecology Officer)
London Ecology Unit.
London Wildlife Trust.