

A GUIDE TO INCORPORATING BIODIVERSITY INTO DEVELOPMENT



A MANUAL FOR PLANNERS AND DEVELOPERS IN TAYSIDE



Tayside Biodiversity Partnership



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PART 1

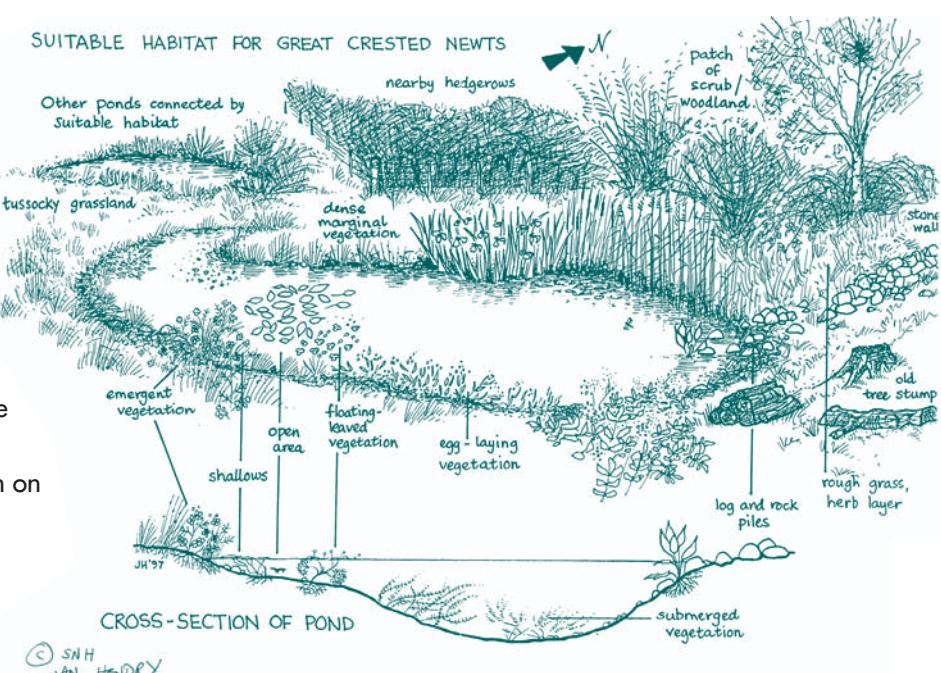
WHY CONSIDER BIODIVERSITY IN DEVELOPMENT?

INTRODUCTION

It is becoming increasingly obvious that biodiversity enhances everyone's quality of life. It can promote business investment, build business performance and be a main player in wider sustainability issues. Local authorities and businesses that own or manage land (housing associations, utility companies and golf clubs, for instance) are now incorporating biodiversity into their core services, at the same time influencing and updating clients in the way they manage their land. No one reason tends to be the driving force to take forward new ideas in biodiversity conservation, but they include:

- Good public relations – a 'win win' opportunity which helps build a positive public profile;
- Corporate social responsibility: building and maintaining links with the local community demonstrates commitment to biodiversity and sustainability issues;
- Sponsorship of a specific project heightens the organisation's "wildlife friendly" reputation which in turn can bring in new business;
- Personal development - staff encouraged to get involved in conservation tasks will raise the organisation's profile and enable staff to work together to gain new skills;
- As a key motivator for volunteers social interaction invariably brings together local communities and schools;
- An individual's interest can influence policies and activities within their own organisation;
- In many cases the most practical cost-conscious way of managing land also happens to be beneficial to wildlife;
- Regulatory pressure encourages new ways to be found to achieve things.

In Scotland it is the duty of every public body and office-holder, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions (part 1, Section 1, The Nature Conservation (Scotland) Act 2004). There is therefore a need for biodiversity to be integrated more fully with the plethora of planning issues both Strategic and Development Control Planners need to consider - in fact, it should run as a thread throughout every aspect of public bodies' work and policy. There is, however, also a need for a wider audience of land use managers, developers, architects and planning consultants to provide general information on how to manage land for specific species or habitat enhancement.

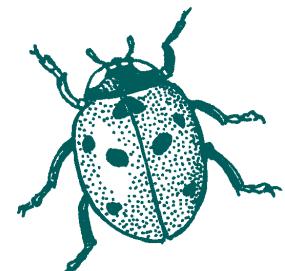


Biodiversity means "all living things: the variety of life on earth – all plants, animals and the places that they live." The term 'biodiversity' (from 'biological diversity') has been widely used since the Rio de Janeiro Earth Summit took place in 1992. The Summit acknowledged that the world's biodiversity was being seriously depleted and as a result, 159 world leaders signed The Convention of Biological Diversity committing their countries to conserve and enhance their biodiversity and contribute to the global resource. The UK's Biodiversity Action Plan was prepared soon afterwards (and reviewed in 2007), and each of the UK countries has prepared a Biodiversity Strategy. Scotland's Biodiversity Strategy - a 25 year vision - was launched in 2004.

The first tranche of the Tayside Biodiversity Action Plan was published in 2002 and was followed in 2003 with the Tayside Biodiversity Partnership's document "Incorporating Biodiversity into Local Services". For the past five years these publications have been supported by lunch-time seminars on subjects such as "Planning for Barn Owls", "Swift Nest Conservation", "Bats and Trees" and "Managing Watercourses for Priority Species". Full day workshops and seminars have also been raising awareness of a wide range of topics, including grassland management, orchards, accommodating wildlife in planning, and urban tree care. At each of these events a comprehensive Information Folder has been included to be shared later at the delegates' workplaces.

There is still a need for more detailed guidance and it is hoped that this Manual, which has been written in consultation with (and for) Planners, will become the basis for discussion and knowledge-sharing. A separate publication, but still part of this Planning Manual, will be a collection of local Case Studies and Best Practice examples. There will also be a series of Biodiversity Advice Notes - downloadable via www.taysidebiodiversity.co.uk, many of them provided by the Partnership's members. This suite of comprehensive information will hopefully introduce a complex subject and make it readily available to planners, developers and land managers.

The biodiversity process is a highly dynamic one, but with a second tranche of Local Habitat Action Plans and Species Action Plans being added to the original Tayside Biodiversity Action Plan, there is an increasing number of targets to work towards – both local ones and those that stem from the UK Biodiversity Action Plan reviewed in 2007. Many of these targets relate to halting the loss of habitat or enhancing a species population - lost usually through changed land use or management. Local authorities, and especially Planners, are key to achieving these targets, but developers and land use managers are also in a position to play a very major part.



Although it is important to safeguard – or enhance – Priority Species, it is often the commonplace birds and plants that are important in a local context. Nationally there is a decline in Song Thrush populations and the once-common Tree Sparrow and Starling are now rare in some locations. 'Improved habitats' can be as important as untouched ones. Urban areas offer a rich mosaic of habitats suitable for an unexpectedly large variety of wildlife. Our buildings have replaced the original cliff-top haunts of species such as Swift and House Martin; older housing provides cave-like roofs for Long-eared Bats and modern properties are ideal for Pipistrelle bats; some industrial buildings offer nesting sites for Kestrels, Barn Owls and Peregrine Falcons. Buildings themselves, plus walls and bridges, can all support Bats, Bees, Beetles and Lichens.

The UK's biggest 'nature reserve' is our potential wildlife corridor of private gardens – all 1.25 million hectares of them. All garden owners can help preserve this important 'green corridor' which in turn can link to public parks, sheltered housing complexes, supermarket car parks, industrial estates and roadside verges. When considering a new development in any area, therefore, the wider picture should be considered first and foremost before considering how best to enhance the area in question.

Planners and developers need to protect and enhance biodiversity in its broadest sense. It is possible that there will be no significant habitat or protected species present on a site, but biodiversity is still an important consideration as all new development will be expected to enhance biodiversity and create habitat wherever possible.

TAYSIDE IS SPECIAL

There is much to be proud of within the 7,500 sq.km that make up Tayside (the local authority areas of Perth and Kinross, Angus and the City of Dundee).

The area provides wintering quarters for more than half the entire world population of Pink-footed geese. It houses a third of the UK's breeding population of Ospreys and Britain's most continuous stand of reedbeds plays host to the only breeding site in Scotland of the rare Bearded Tit. The same habitat holds the largest population of Water Rail in Britain and is the national stronghold for breeding Marsh Harriers. Our coast supports internationally important groups of Dolphins and Porpoises and the River Tay's flow is the greatest in Britain. Europe's oldest living thing resides also in Perthshire – the ancient Fortingall Yew (which could be up to 5,000 years old).

SCOTLAND'S BIODIVERSITY STRATEGY

The Strategy "It's In Your Hands", published by the Scottish Executive in 2004, is a key part of Scotland's commitment to fulfilling the UK Government's obligations under the international Convention on Biological Diversity (CBD). It is also a key part of the Scottish Government's own commitment to sustainable development, and the statutory duty to protect and improve biodiversity that is placed on all public bodies by the Nature Conservation (Scotland) Act 2004.

The Strategy sets out a 25-year vision and framework for action for Scotland's biodiversity. It has the following overall aim:

To conserve biodiversity for the health, enjoyment and well being of the people of Scotland now and in the future.

This aim will be achieved through the fulfilment of the following objectives:

1. Species and Habitats - to halt the loss of biodiversity and continue to reverse previous losses through targeted action for species and habitats.
2. People - to increase awareness, understanding and enjoyment of biodiversity and engage many more people in conservation and enhancement.
3. Landscapes and Ecosystems - to restore and enhance biodiversity in all our urban, rural and marine environments through better planning, design and practice.
4. Integration and Co-ordination - to develop an effective management framework that ensures biodiversity is taken into account in all decision making.
5. Knowledge - to ensure that the best new and existing knowledge on biodiversity is available to all policy makers and practitioners.

The Strategy can be downloaded via www.biodiversityscotland.gov.uk.

Biodiversity is all about networks and connections – the web of life; ecosystems. A piecemeal approach to biodiversity conservation and enhancement won't work.

The Scottish Biodiversity Strategy 2004

NATURE CONSERVATION (SCOTLAND) ACT 2004

All public bodies and individual office holders have a statutory duty to further biodiversity in exercising their functions. This applies to the Scottish Government itself, to all government agencies and to local government.

Government Departments and Agencies

All policy makers must consider the implications of any policy or associated instrument on biodiversity in general, and in relation to the objectives of the Strategy in particular. This extends beyond the traditional concerns of the Scottish Government to all departments and agencies and to any policy which might directly or indirectly impact on biodiversity.

Local Government

Local government has an increasingly important role to play in the promotion of sustainable development and biodiversity conservation. Integration is always easier at a more local level and more comprehensible in relation to real issues. Most local authorities in Scotland are now fully supporting the Local Biodiversity Action Plans and take account of them in all their decision making, as well as in their role in education, training and business support. All three Tayside local authorities are key partners in the Tayside Biodiversity Partnership.

Local authorities can play a key role in delivering the landscape objective. This is challenging and will require much forward thinking, strategic planning and engagement with all those who influence the shape and pattern of land and water use. Co-ordination of spatial planning, transport corridors and green space management with rural development and farm support mechanisms offers exciting possibilities for linking rural habitats to each other and to urban greenspace.

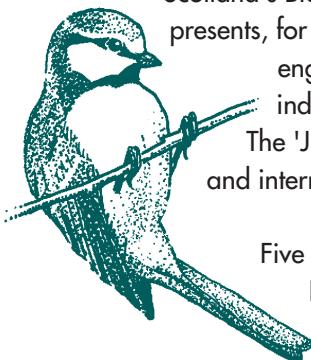
Local authorities also have a major influence on the quality of biodiversity within urban greenspace. Good design, imaginative planting and management specifically for biodiversity all help. There is an important opportunity to promote biodiversity as a key component in community planning. Local authorities can also make sure they safeguard and integrate existing biodiversity when they decide on local planning proposals.

BIODIVERSITY - A KEY GOVERNMENT INDICATOR

Scotland's biodiversity is valuable – not only as a source of wealth as regards our use of the natural world: forest products, agriculture, fishing, winning of aggregates. The tourism industry employs nearly a tenth of Scotland's population and contributes over £4.5 billion to the national economy. We are discovering new uses for the practical application of biodiversity: new medicines, pest management, healthy eating, local eating, etc. Biodiversity provides an opportunity to improve people's health by way of well-managed greenspace whether that encompasses an industrial building, hospital or housing estate, or voluntarily undertaking work in community gardens, orchards or allotments.

All businesses affect biodiversity either directly through their management practices or indirectly through their use of resources as raw materials or their generation of waste. With the publication of the Strategy there are opportunities to make biodiversity part of the mainstream business issue: local and national government, public and non-government agencies all have a role to play in promoting this.

'Scotland's Biodiversity Indicators' published by the Scottish Government in 2007 (Ref. RR Donnelley B53910 11/07) presents, for the first time, a suite of indicators describing the state of Scotland's biodiversity and in the engagement of Scotland's people with its conservation and enhancement. Many of the Scottish biodiversity indicators have close counterparts in other indicator sets reported at Scotland, UK and European scales. The 'JNCC UK Biodiversity Indicators 2007' will provide a basis for assessing progress towards the European and international targets of halting the loss of biodiversity by the year 2010.



Five out of the 22 Scottish indicators show improvement, three show deterioration, and five show no change.

Nine present baseline data for a new measure. Four of the indicators reveal biodiversity responses to climate change: declines in some nesting seabirds are of particular concern. Recovery of otters, estuarine fish, and increase of some breeding and wintering birds shows positive responses to

environmental management and legislation. However, the effects of nitrogen pollution on Scotland's flora continues. Increases of generalist species and declines of those specialising in particular habitats (butterflies, for instance), together with the spread of non-native species are reducing the distinctiveness of Scotland's biodiversity.

The 22 Indicators are:

1. Status of UK BAP Priority Species - Scottish Trend
2. Status of UK BAP Priority Habitats -Scottish Trend
3. Abundance of Terrestrial Breeding Birds
4. Abundance of Wintering Waterbirds in Scotland
5. Abundance of Breeding Seabirds in Scotland
6. Change in Vascular Plant Diversity
7. Woodland Diversity Indicator
8. Terrestrial Insect Abundance - Population Trends in Scottish Butterflies
9. Terrestrial Insect Abundance - Trends of Common and Widespread Moths in Scotland
10. Notified Species in Favourable Condition
11. Notified Habitats in Favourable Condition, including geological features
12. Change in Occupied Sites for Otter
13. Freshwater Macro-invertebrate Diversity in Scottish Rivers
14. Percentage Change in Marine Plankton Abundance
15. Number of Estuarine Fish Species Recorded
16. Proportion of Commercially Exploited Fish Stocks at Full Reproductive Capacity
17. Non-Native Species: Terrestrial, Freshwater and Marine Environments (progress in terms of their range)
18. Attitudes to Biodiversity (in 2007)
19. Extent and Composition of Greenspace (percentage of total settlement area covered by greenspace policies)
20. Visits to the Outdoors (proportion of Scottish adult population making visits to the outdoors)
21. Involvement in Biodiversity Conservation (volunteering)
22. Membership of Biodiversity Organisations (Scottish membership of Biodiversity NGOs)



Biodiversity is a key indicator of success in achieving sustainable development. Sustainable development is defined as: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs"

World Commission of Environment and Development (Brundtland Commission) (1987)

ECOLOGICAL ASSESSMENT AND PLANNING CONDITIONS

Strategic Environmental Assessment

SEA Regulations oblige authorities to consider and consult on the environmental impact of programmes and plans covering agriculture, forestry, fisheries, energy, industry, transport, waste management, telecommunications, tourism, town and country planning and land use. Further details are available from <http://www.scotland.gov.uk>.

Environmental Impact Assessments (EIA)

Developments identified under Schedules 1 and 2 of the Environmental Assessment (Scotland) Regulations 1999 will require an Environmental Impact Assessment (EIA) as determined by the Regulations. An Environmental Statement must include information on the potential effects on the landscape and biodiversity. SNH is the statutory consultee for environmental statements prepared under the Regulations.

Ecological Impact Assessments (EclA)

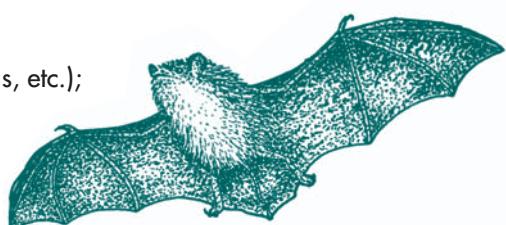
Major developments are defined as:

- 10+ houses/ development area exceeds 0.5ha;
- built development covers 1000sq.m floorspace or exceeds 1ha;
- mineral workings;
- waste development;
- road and rail developments;
- a development that may have a significant impact on a UK Priority or Local Biodiversity Action Plan (LBAP) habitat or species.

However, a completed checklist, and possibly an Ecological Impact Assessment, should be considered for any smaller developments likely to have a significant impact on the local environment.

An EclA follows the principals of an Environmental Impact Assessment (EIA) but is not to the same level of detail. Biodiversity features of interest, significance of impacts on these features and proposed avoidance, mitigation or compensation should be identified. The features of interest should be selected from the UKBAP reviewed list, the Scottish List, and the Tayside LBAP priority list of species and habitats. The EclA should follow the methodology of the Institute of Ecological and Environmental Management (available via <http://www.ieem.net>) and include:

- report on Tayside LBAP species and habitats;
- survey information for relevant species and habitats;
- proactive assessment of species to be safeguarded (e.g. bats, swifts, barn owls, etc.);
- habitat corridors and links to local habitat networks;
- significance of ecological impacts;
- proposed avoidance, mitigation and compensation and how they will be implemented and managed in the long-term;
- residual significance of ecological impacts;



Planning Conditions

Planning conditions for biodiversity should be attached to ensure the protection of biodiversity or to provide enhancement, habitat creation or the long-term management of existing habitats. It is important to consider such conditions at pre-application stage. Where European Protected Species are present on the site, the developer is recommended to obtain ecological advice at a very early stage and to plan the proposed development to fit in with breeding or roosting times.

General conditions should include:

-  Submission of a Landscape or Restoration Scheme incorporating habitat safeguard, enhancement or creation proposals and subsequent preparation and implementation of a Management Plan;
-  Control over the timing of the development to avoid disturbance to species – especially to bats and breeding birds; Protective fencing to prevent damage to habitats during construction work;
-  Submission of a Statement to include measures to protect existing hedgerows and trees, including root compaction or damage, during construction work;
-  Submission of a Statement to include measures to retain or quickly re-establish trees or shrubs that are known food plants for species such as Red squirrel;
-  Submission of a Statement to ensure adjacent watercourses are free from disturbance or pollution during construction work;
-  Requirement for a 'checking survey' for bat (and swift) signs with resultant mitigation if discovered on site;
-  Provision of integral bat "bricks" to safeguard or enhance local populations;
-  Provision of integral swift "bricks" or specially-prepared plastic capping tile/ridge tile to safeguard or enhance local populations;
-  Provision of a variety of suitable bird nestboxes in areas where species are known (such as House sparrows, Swallows or House martins, Barn owls, etc.);
-  Long-term monitoring of habitats and species as part of an agreed Management Plan.

	Legislation	Survey	Licence (from SNH)	Timing of Development	Potential Planning Condition
Demolition or change of use of old building	Wildlife & Countryside Act (WCA) as amended by the Nature Conservation (Scotland) Act 2004 - bats, breeding birds (sparrows, swifts, house sparrows).	Yes - if bats found, contact SNH	May be required	Outwith bird breeding season (March to August) Surveys for bat hibernation roosts must take place during the winter months; maternity roosts and occasional roost surveys should take place between May and September.	Alternative roost sites for bats, nest sites for swallows, swifts, house martin, house sparrow, barn owl to be provided as standard condition
Demolition or change of use of rural steadings, old farm buildings and outhouses	as above, plus barn owls, swallows and house martins Barn owl is a Schedule 1 species which affords greater protection.	to be undertaken at a suitable time of year and submitted within 3 months of the date of consent	May be required	Outwith bird breeding season (March to August) Surveys for bat hibernation roosts must take place during the winter months; maternity roosts and occasional roost surveys should take place between May and September.	Provide alternative nest site in surrounding area, or an integral barn owl ledge as standard condition
Disturbance or felling of woodland and individual trees - Red Squirrels	Protected under Schedule 5 of the WCA, as amended by the Nature Conservation (Scotland) Act 2004	Red squirrels - dreys should be checked between March and May to establish presence and trees containing dreys retained and undamaged by surrounding felling; avoid clear-felling in vicinity or the break up of an existing treeline or shelter belt. Additional survey should be undertaken to check feeding signs.	Yes	Any tree felling work should occur between September and November outwith the Red Squirrel breeding season, but the site should be checked for dreys beforehand.	Retain or re-establish food plants such as willow, alder, birch, rowan and ash, as well as hawthorn, holly and dog rose.

	Legislation	Survey	Licence (from SNH)	Timing of Development	Potential Planning Condition
<i>Disturbance or felling of woodland and individual trees - Badgers</i>	Protection of Badgers Act 1992	Confirmation of badger presence will require further mitigation to avoid disturbance or damage to badgers and their setts. Subsidiary or annex sites need to be explored	Yes	Advice from Scottish Badgers and SNH essential	Mitigation to avoid disturbance and damage to both badgers and their setts, including subsidiary and annex setts
<i>Disturbance or felling of woodland and individual trees - Bats</i>	The Conservation (Natural Habitats etc) Regulations 1994; WCA	Yes - if bats found, contact SNH	Yes	The tree may be a winter roosting site; maternity roosts and occasional roost surveys should take place between May and September.	Retain mature trees (adopt British Standard 5837:1991 to ensure protection)
<i>Disturbance or felling of woodland and individual trees - Birds</i>	(all birds) WCA, as amended by the Nature Conservation (Scotland) Act 2004 (some birds) The Conservation (Natural Habitats etc) Regulations 1994	Yes, possibly	May be required	Avoid bird breeding season	Alternative roost sites to be considered as standard condition
<i>Veteran Trees, inc. mature orchard trees</i>	WCA, as amended by the Nature Conservation (Scotland) Act 2004 Bats and some birds: The Conservation (Natural Habitats etc) Regulations 1994	Check for red squirrels, bats and breeding birds. May also host rare lichens, bryophytes and fungi. May also be of cultural value.	Yes	Avoid bird breeding season. Surveys for bat hibernation roosts must take place during the winter months; maternity roosts and occasional roost surveys should take place between May and September.	Retain trees and protect from soil compaction, root damage, drainage impacts (adopt BS5837:1991 to ensure protection).
<i>Hedgerows and Treelines</i>	WCA, as amended by the Nature Conservation (Scotland) Act 2004 There will be a presumption against removing ancient or species-rich hedgerows	Yes		Avoid clearing during the breeding bird season (March to August)	Retain as far as possible; enhance with additional hedgerows of local provenance hawthorn and blackthorn where feasible, especially around the development's perimeter (add standard or berried/fruiting trees to create a treeline). If removed, replace with a new hedgerow within the layout of the development - bear in mind wildlife corridors and habitat network requirements
<i>Greenfield sites</i>	badgers - see above hedges - see above				

	Legislation	Survey	Licence (from SNH)	Timing of Development	Potential Planning Condition
Garden grounds, including orchards and mature fruit trees	WCA, as amended by the Nature Conservation (Scotland) Act 2004	Check for bats and breeding birds. May also host rare lichens, bryophytes and fungi. May also be of cultural value.		Surveys for bat hibernation roosts must take place during the winter months; maternity roosts and occasional roost surveys should take place between May and September.	Retain orchards and mature fruit trees; mature shrubs; individual trees; hedgerows
Loft conversions	WCA, as amended by the Nature Conservation (Scotland) Act 2004 bats swifts house sparrows swallows starlings	Yes	Yes, possibly	Contact SNH immediately if signs of bats found - a roosting site does not necessarily mean the bat is present at the time of survey	For all loft conversions or renovations there will be a requirement for a checking survey by the applicant to look for bat signs (see Bat Conservation Trust and SNH guidance). If bats, or signs of bats are recorded, a bat survey conducted by a qualified surveyor will be required and mitigation agreed. It is also recommended that signs for swifts are also checked and mitigation agreed if discovered by provision of alternative nest site. Further guidance available from Concern for Swifts Scotland.
Wet grassland or ponds	WCA, as amended by the Nature Conservation (Scotland) Act 2004 Common frog, common toad, common newt, palmate newt Great Crested Newts and their habitats are protected by the Conservation (Natural Habitats etc) Regulations 1994	Conduct a survey between mid-March and mid-June (pond survey) or March to September (habitat survey)	Yes if GCNs found on site.	Contact SNH if GCNs are found on site.	Great Crested Newts - condition to survey and avoid impact by careful design and exclusion of particular areas. Translocation would have to be considered if impacts cannot be avoided. Other amphibian species - condition to link appropriate habitats and retention/ enhancement of ponds, wetlands on and adjoining the site.
Riparian corridors - engineering work or canalisation	WCA, as amended by the Nature Conservation (Scotland) Act 2004 water vole, common toad, common frog Otters, Sea, Brook & River Lamprey, Atlantic Salmon, Allis & Twaite Shad, Fresh Water Pearl Mussel, Slender Naiad - the Conservation (Natural Habitats etc) Regulations 1994	Seek advice from SNH as to best time to survey European Protected Species	Possibly	Contact SNH	A scheme needs to be approved in writing before work on site begins; impacts must be avoided through alternative sites or design or works

Wildlife Survey

Best time for undertaking survey - 'S'

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Badgers *		S	S	S								
Red Squirrels **					S	S	S					
Bats - summer roosts ***					S	S	S	S				
Bats - hibernacula ***	S	S								S	S	
Otters	S	S	S	S	S	S	S	S	S	S	S	S
Water voles				S	S	S						
Breeding Birds			S	S	S	S						
Wintering birds	S	S									S	S
Amphibians			S	S	S							
Reptiles				S	S							
Invertebrates					S	S	S	S				
Plants					S	S	S					

* sett recording form available from: <http://www.scottishbadgers.org.uk/downloads.html>

** Red and grey squirrel recording form (for Tayside) available from:
http://www.taysidebiodiversity.co.uk/Biodiversity_Survey_Squirrel.asp

*** advice on bats: <http://www.bats.org.uk>

BIODIVERSITY AND THE LAW

International Obligations

The Convention on Wetlands of International Importance especially as Waterfowl Habitat signed at Ramsar, Iran in February 1971, and amended in 1982, requires signatory states to designate important wetlands for special protection (Ramsar Sites).

Ramsar Site Name	New Site Code	Old Site Code	Area (ha)	Latitude	Longitude
Firth of Tay & Eden Estuary	UK13018	7UK144	6918.42	56 24 30 N	03 05 00 W
Loch Leven	UK13033	7UK007	1611.8	56 11 48 N	03 22 30 W
Loch of Kinnordy	UK13038	7UK074	85.09	56 40 30 N	03 02 40 W
Loch of Lintrathen	UK13039	7UK015	216.81	56 40 40 N	03 11 00 W
Montrose Basin	UK13046	7UK082	984.62	56 42 40 N	02 30 20 W
Rannoch Moor	UK13051	7UK013	1519.43	56 39 20 N	04 35 40 W
South Tayside Goose Roosts	UK13057	7UK062	331.01	056 15 54 N	003 50 00 W

The Berne Convention on the Conservation of European Wildlife and Natural Habitats. Drawn up by the Council of Europe in 1979, ratified by the UK in 1983, included the introduction of Biogenetic Reserves designated by the Council of Europe of heathlands and dry grasslands.

The Bonn Convention on the Conservation of Migratory Species of Wild Animals. This 1979 Convention is applied in the UK through the Wildlife and Countryside Act 1981 (as amended).

The Washington Convention on International Trade in Endangered Species (CITES), applied in the UK through EC Regulation 3626/82 and parts of the UK Endangered Species (Import Export) Act 1976 and the Control of Endangered Species (Enforcement) Regulations 1997 (SI 1997/1372).

Directive 79/409/EEC on The Conservation of Wild Birds, commonly known as The Birds Directive, amended 5 times between 1981 and 1994. The Directive places a duty on Member States to sustain populations of naturally occurring wild birds by restricting their killing and capture and by sustaining or re-establishing sufficient diversity and area of habitats. It applies to birds, their eggs, nests and habitats. It requires Member States to take measures to preserve a sufficient diversity of habitats for all species of wild birds naturally occurring within their territories in order to maintain populations at ecologically and scientifically sound levels. The key provision was the introduction of Special Protection Areas (SPAs). 175 species of birds are listed in Annex 1 of the Directive; over 50 of these species naturally occur regularly in the UK. Further information is available via www.jncc.gov.uk/page-1359.



Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora

(commonly known as "The Habitats Directive"): European Protected Species are listed in Annex IV of this Directive. EU Protected species distribution information can be downloaded from www.jncc.gov.uk/Publications/JNCC312/UK_species_list.asp. Interim guidance on licensing arrangements can also be found at www.scotland.gov.uk/Publications/2001/10/10122/File-1.

EUROPEAN PROTECTED SPECIES (EPS)

It is an offence to deliberately or recklessly:

- capture, injure or kill a wild animal of a European Protected Species
- harass a wild animal or group of wild animals of European Protected Species
- to disturb such an animal while it is occupying a structure or place it uses for shelter or protection
- to disturb such an animal while it is rearing or otherwise caring for its young
- to obstruct access to a breeding site or resting place of such an animal or to otherwise deny the animal use of the breeding site or resting place
- to disturb such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs

-  to disturb such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young
-  to take or destroy the eggs of such an animal
-  to disturb a dolphin, porpoise or whale (cetacean)
-  to pick, collect, cut, uproot or destroy a wild plant of European Protected Species

It is also an offence to:

-  damage or destroy a breeding site or resting place of such an animal

The Licensing Tests

If a European Protected Species (EPS) is present on a site, then for any development liable to affect it will require licensing by SNH. The circumstances in which licences may be granted are narrowly defined. All three tests must be satisfied for a licence to be issued.

The first test is that the licence application must demonstrably relate to one of the purposes specified in Regulation 44(2). In the case of development, the purpose most likely to be relevant is that found at Regulation 44(2) (e). This purpose is defined as: "preserving public health or public safety or other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment." If the application does not meet this requirement then a licence cannot be issued.

If this test is passed then two further tests must be passed:

- a) there is no satisfactory alternative (to the granting of a licence), and
- b) that the action authorised will not be detrimental to the maintenance of the population of the EPS concerned at a favourable conservation status in their natural range.

An application for a licence will fail if any one of the three tests are not satisfied. If a project would not be detrimental to the favourable conservation status of a protected species, but does not satisfy the criterion that it must be for public health and safety or some other "imperative reason of overriding public interest" no licence will be granted. Similarly, a project may prove to be of overriding public interest and it may also be evident that no satisfactory alternative is available. But a licence would nevertheless be refused if it were established that the favourable conservation status of a protected species within its natural range would be damaged by the proposed action.

If an EPS is therefore known or suspected to be on a site it is essential to seek guidance from the local SNH Area Office as soon as possible. For further details on EPS and licensing see <http://www.scotland.gov.uk/Publications/2001/10/10122/File-1> and www.scotland.gov.uk/Resource/Doc/1221/0050637.pdf

Prior to this, if any species named in Annex 2 of the European Habitats Directive are present on a site a survey must take place before a planning application can be considered. The Planning Division of the Scottish Government stated (16th May 2006): "it is clearly essential that planning permission is not granted without the planning authority having satisfied itself that the proposed development either will not impact adversely on any European protected species on the site or that, in its opinion, all three tests necessary for the eventual grant of a Regulation 44 (the 1994 Regulations) licence are likely to be satisfied. To do otherwise would be to risk breaching the requirements of the (Habitats) Directive and Regulation 3(4). It would also present the very real danger that the developer of the site would be unable to make practical use of the planning permission which had been granted, because no Regulation 44 licence would be forthcoming. Such a situation is in the interests of no-one."

<http://www.scotland.gov.uk/library3/environment/epsg-00.asp>.

Annex 2 Species	Tayside Distribution
Birds	Information held by Local Bird Recorders (via County Museums) and the RSPB.
All Bat species	Widespread. Breeds and roosts in all ages and sizes of property, bridges and trees. Uses linear features such as rivers, treelines and hedges. Contact Bat Conservation Trust or local Bat Group for advice.
Dolphins, Porpoises and Whales	Widespread. Populations of Bottlenose dolphin and Harbour porpoise in most inshore/offshore waters; seasonal passage of whales in offshore waters. Further information from SNH or Marine Conservation Trust.
Grey Seal and Common Seal	Present in Tayside inshore waters. The Firth of Tay & Eden Estuary supports a nationally important breeding colony of Common seal which is part of the east coast population of Common seals that typically utilise sandbanks. Around 600 adults rest, pup and moult, representing around 2% of the UK population of this species.
Otter	Widespread (usually at low densities); found in all Tayside watercourses. Information from County Museums and Local Mammal Recorders.
Wildcat	Known to be present in upland Tayside; negligible distribution information, although new survey underway – contact SNH.
Great Crested Newt	Several sites in Tayside. Contact SNH.
Freshwater Pearl Mussel	Wide distribution; Tayside represents the south-eastern range of the species. Contact SNH.
Atlantic Salmon	Widespread. The River Tay is one of the top three salmon rivers in Scotland. The River South Esk is also very important.
Sea, Brook and River Lamprey	Present in Tayside watercourses.
Allis and Twaite Shad	Present in Tayside watercourses
Geyer's whorl snail	Present in upland Tayside
Round-mouthed whorl snail	Present in upland Tayside
Slender Green Feather-Moss	Tayside is the most northerly Scottish site for this species.
Slender Naiad	Tayside is the most easterly occurrence on the Scottish mainland and the second-largest known population (found in the Lunan Lochs chain).

Construction Timing for Protected Species

Work should be undertaken outwith the animals' breeding season which are as follows:

Badgers	- December to June
Bats	- May to August
Otter	- no specific breeding season
Water vole	- March to October
Barn owls	- February to August
Great Crested Newts	- March to July

It is important to be vigilant as climate change or altitude may change these timings.

International Sites

Biosphere Reserves (UNESCO 1970) – no Tayside sites

World Heritage Sites (UNESCO 1972) – no Tayside sites

European Sites (EC Habitats Directive 1992 and UK Habitats Regulations 1994)



Special Protection Areas (SPA) (for birds) - list available from: <http://www.jncc.gov.uk/page-1402>



Special Areas of Conservation (SAC) (for habitat and associated animals) – list below

Tayside Special Areas of Conservation (SAC) (for habitat and associated animals)				
EU Code	Name	Local Authority	Grid Ref	Area (ha.)
UK0013044	Barry Links	Angus	NO538321	789.67
UK0012957	Beinn a' Ghlo	Perth and Kinross	NN959728	8084.76
UK0012901	Ben Heasgarnich	Perth and Kinross; Stirling	NN399358	2780.01
UK0012895	Ben Lawers	Perth and Kinross	NN633424	5027.59
UK0012758	Black Wood of Rannoch	Perth and Kinross	NN562552	1100.65
UK0012821	Caenlochan	Aberdeenshire; Angus; Perth and Kinross	NO213767	5204.16
UK0030123	Craigall Gorge	Perth and Kinross	NO174483	53.59
UK0030125	Crieff Woods	Perth and Kinross	NN847184	152.48
UK0012942	Drumochter Hills	Highland; Perth and Kinross	NN664772	9445.56
UK0030152	Dun Moss and Forest of Alyth Mires	Perth and Kinross	NO176573	469.96
UK0012638	Dunkeld–Blairgowrie Lochs	Perth and Kinross	NO045436	428.09
UK0030311	Firth of Tay & Eden Estuary	Angus; City of Dundee; Fife; Perth & Kinross	NO420294	15412.53
UK0030156	Glenartney Juniper Wood	Perth and Kinross	NN763179	101.74
UK0030174	Keltneyburn	Perth and Kinross	NN780504	31.73
UK0030204	Methven Moss	Perth and Kinross	NO011233	83.7
UK0030239	Pitkeathly Mires	Perth and Kinross	NO107143	61.49
UK0012870	Rannoch Moor	Argyll and Bute; Highland; Perth and Kinross	NN348519	10102.96
UK0030262	River South Esk	Angus	NO450567	478.62
UK0019811	River Spey	Highland; Moray; Perthshire	NJ095319	5729.48
UK0030312	River Tay	Angus; Argyll and Bute; Perth & Kinross; Stirling	NN818481	9497.72
UK0030272	Shelforkie	Perth and Kinross	NN859098	111.37

EU Code	Name	Local Authority	Grid Ref	Area (ha.)
UK0030272	Shelforkie	Perth and Kinross	NN859098	111.37
UK0030274	Shingle Islands	Perth and Kinross	NN980512	77.9
UK0012891	Tulach Hill and Glen Fender Meadows	Perth and Kinross	NN859639	1583.05
UK0030240	Turflundie Wood	Fife; Perth and Kinross	NO196142	86.36

UK Obligations (including Scotland)



Wildlife and Countryside Act (1981) as amended by the Nature Conservation (Scotland) Act 2004. The latter places a biodiversity duty on **all** public bodies. This duty relates to locally-present species included in the UK Biodiversity Action Plan (UKBAP): www.ukbap.org.uk, the Scottish Biodiversity List (available from www.biodiversityscotland.gov.uk) and the Local Biodiversity Action Plans (including the Tayside Biodiversity Action Plan).

All birds and some native animals are protected under the Wildlife & Countryside Act 1981 and the Nature Conservation (Scotland) Act 2004. Specific offences relating to damaging nests and eggs can lead to fines of up to £5,000 per nest or egg destroyed, plus a possible custodial sentence of up to six months. Birds have a general protection against deliberate and reckless destruction and damage to the nest while it is in use or being built under the Wildlife and Countryside Act (1981) and Nature Conservation (Scotland) Act 2004. Many species have greater protection against deliberate or reckless destruction, protecting them from disturbance whilst building the nest, disturbance of the adult while on eggs or young and disturbance of the young before they are wholly independent. For example, the Swift is vulnerable to demolition and renovation work with resultant interfering with access to active nests during the breeding season (May to August) or destroying active nests. Advice is available via www.concernforswifts.com.

Barn owls can also be disturbed by building activity, specifically steading conversions. The birds are protected under Schedule 1. They have a long nesting period (from January or February until November). Guidance is available from www.barnowltrust.org.uk.

Several plants and lower plants (lichens, liverworts and lichens) are protected under the Wildlife and Countryside Act (1981) as amended by the Nature Conservation (Scotland) Act 2004. Few are widespread, except the Bluebell - the UK hosts nearly half the world's total population. Since 1998, through the listing of the native bluebell on Schedule 8 of the Wildlife and Countryside Act (1981), it has been illegal for anyone to collect native Bluebells from the wild for sale. The legislation specifically protects the Bluebell from bulb collectors who supply garden centres and the spread of the Spanish Bluebell which readily hybridises with the native Bluebell. One Scottish licence has now been granted for native Bluebell seed to be collected; this is held by Angus-based Scotia Seeds. The British Society for the British Isles website <http://www.bsbimaps.org.uk/atlas/main.php> holds information on locations of plants found at 10km.sq resolution.

The ongoing implementation of the Scottish Biodiversity Strategy, together with the enactment of the Nature Conservation (Scotland) Act 2004, has the potential to encourage high quality development. Improving the quality of the surroundings contributes to the well-being of those people living or working in the area. The bonus is that there is often added value to such developments so both people and wildlife ultimately gain.



Under the Conservation (Natural Habitats, etc.) Amendment (Scotland) Regulations 2007

(www.scotland.gov.uk/Resource/Doc/1221/0050637.pdf) the onus is put on builders and contractors to undertake a survey before work is undertaken as it is an offence to damage or destroy a bat breeding site or resting place.

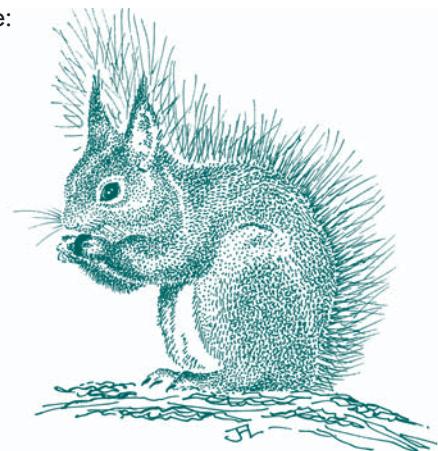


Badgers are protected under the Protection of Badgers Act 1992; if a development is likely to have an impact on this species, it will be a material consideration in the planning process. Further details on badger protection are available via http://www.nfbg.org.uk/Attachments/Resources/47_S4.pdf.



Wild mammals are protected by the **Protection of Wild Mammals (Scotland) Act 2002**. Protection relates to reckless killing or injuring, disturbance and interference with places used for shelter or protection. A lack of knowledge of the presence of species is not a defence against prosecution. Protected species include:

- badger
- pine marten
- red squirrel
- slow worm, adder, common lizard
- water vole



Sites of Special Scientific Interest (protection of habitats and/or species). It should be noted that SNH is a statutory consultee regarding any development on a SSSI; SACs and SPAs also require SNH's statutory consultation. SACs and SPAs additionally require that developments outwith their boundary that will affect their qualifying interest (species or habitats) need to be considered. Further information is available via www.snh.gov.uk.



Regionally Important Geological and Geomorphological Sites (RIGS) are created by locally-developed criteria. At present there are four designated Local Geodiversity Sites in Tayside: Balkello Community Woodland; Dundee Law; Seaton Cliffs (near Arbroath) and Stannergate (near Broughty Ferry). Tayside Geodiversity is currently working to increase this number (further details will be available in due course via www.taysidebiodiversity.co.uk/Geodiversity).



Invasive Species - soil with any Japanese Knotweed or Giant Hogweed in it is classified as "controlled waste" under the Environmental Protection Act (1990) and it is illegal to allow Japanese Knotweed or Giant Hogweed to grow in the wild under the Wildlife and Countryside Act (1981). Work that involves the moving of the plants or roots on or around a development site is illegal. Guidance on control and disposal of the three key invasive species in Tayside (Japanese Knotweed, Giant Hogweed, and Himalayan Balsam) is available from SEPA. Also see www.environment-agency.gov.uk and www.netregs.gov.uk for guidance. DEFRA's Horticultural Code of Practice "Helping to Prevent the Spread of Invasive Non-Native Species" is available via:

<http://www.defra.gov.uk/wildlife-countryside/pdf/wildlife-manage/non-native/prevent-invasive.pdf>.

Nationally Designated Sites

- Sites of Special Scientific Interest SSSI (Wildlife and Countryside Act 1981/85) – see details above
- National Nature Reserves in Tayside: Corrie Fee, Ben Lawers and Loch Leven
- Marine Nature Reserves (no Tayside sites)
- Bird Sanctuaries (Protection of Birds Act 1954) in Tayside: Loch of Kinnordy and Vane Farm (RSPB)
- National Parks (Scotland) Act 2000
- Environmentally Sensitive Areas (Agriculture Act 1986 as amended)
- Natural Heritage Areas (Natural Heritage (Scotland) Act 1991)
- National Scenic Areas in Tayside:
 - Loch Rannoch and Glen Lyon (48,400 ha)
 - Loch Tummel (9,200 ha)
 - River Earn (Comrie to St Fillans)(3,000 ha)
 - River Tay (Dunkeld)(5,600 ha)



Locally Designated Sites

- Local Nature Reserves in Tayside: Montrose Basin; Broughty Ferry; Inner Tay; Trottick Mill Ponds
- Sites of Importance for Nature Conservation or Local Biodiversity Sites (to be determined)

PART 2

PLANNING DECISIONS FOR BIODIVERSITY

Biodiversity is an important material consideration in a wide range of development types. Competent authorities have a duty to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions, so it is recommended that discussions are held between Planning Officers and developers at the earliest stage possible. Organisations such as the RSPB and Scottish Wildlife Trust should also be consulted so that any issues can be raised at the beginning of the process.

BIODIVERSITY POLICY GUIDANCE

In Scotland, the following Planning Guidance should be referred to:

-  National Planning Policy Guidance (NPPG) 14 Natural Heritage 1999;
-  Planning Advice Note (PAN) 60 Planning for Natural Heritage 2000;
-  Circular 18/1986 The Use of Planning Conditions;
-  Circular No. 6/1995 (revised 2000) Nature Conservation: Implementation in Scotland of EC Directives on the Conservation of Natural Habitats and of Wild Flora;
-  Circular 12/1996 Planning Agreements;
-  Circular 15/1999 Environmental Impact Assessment (Scotland) Regulations 1999;
-  Planning Advice Note 58 Environmental Impact Assessment 1999;
-  Guidance on Establishing and Managing Local Nature Conservation Site Systems in Scotland (2006, SNH);
-  Publicly Available Specification PAS 2010 Planning to Halt the Loss of Biodiversity (British Standards).

The latter document, PAS 2010 provides a UK framework to take effective action, through forward planning and development control, to help halt the loss of biodiversity and thus contribute to sustainable development. Its aims include a reduction in the net loss of biodiversity arising from development to zero by 2010. "Countdown 2010" is a European-wide initiative to ensure that governments at all levels take the necessary actions to halt the loss of biodiversity. The UK Government is committed to the aims of Countdown 2010. By adopting PAS 2010 as a Code of Practice competent authorities will demonstrate their intention to comply with policy and statute to achieve good practice standards for biodiversity.

Other guidance worth researching includes: "Biodiversity by Design: A Guide to Sustainable Communities" (2004) available from the Town & Country Planning Association:

<http://www.tcpa.org.uk> and "Planning for Biodiversity: Good Practice Guide" by the Royal Town Planning Institute (RTPI, 1999) available from <http://www.rtpi.org.uk>.

SUSTAINABLE DEVELOPMENT

As already outlined in the Biodiversity Indicators' section of the Manual, the widely accepted definition is "development which meets the needs of the present without compromising the ability of future generations to meet their own needs". The document "A Better Quality of Life: A Strategy for Sustainable Development in the UK" (DETR, 1999) outlines the UK Government's key objectives for sustainability:

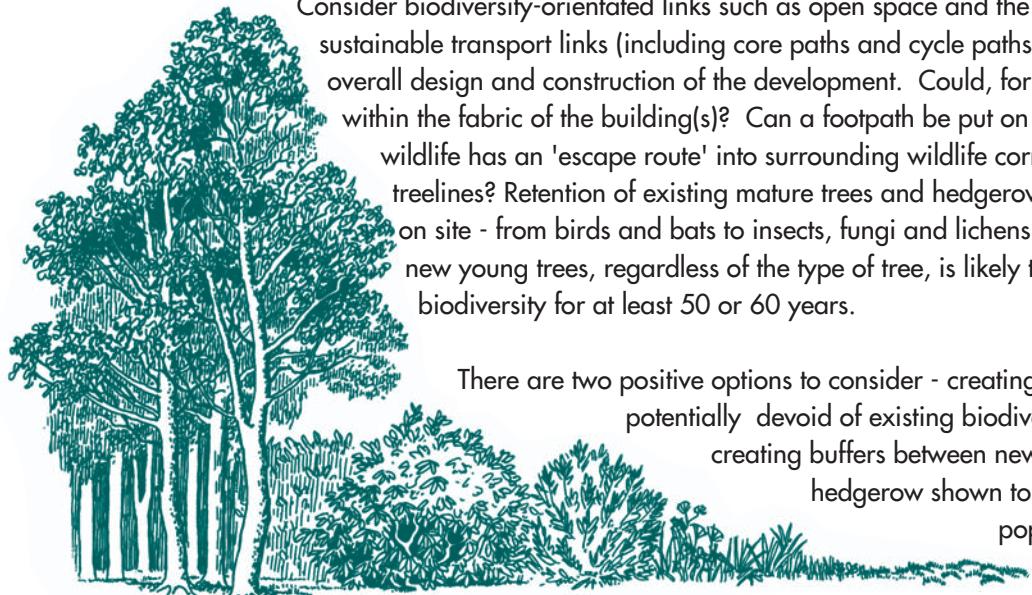
-  Social progress which recognises the needs of everyone;
-  Effective protection of the environment;
-  Prudent use of natural resources;
-  Maintenance of high and stable levels of economic growth and employment.

Effective protection of the environment and prudent use of natural resources requires not just the safeguarding of species and habitats, but also ongoing management and monitoring. The use of traditional materials and techniques is environmentally sound as well as being sustainable. Use of softer, natural materials can also provide more appropriate, and attractive, habitats for a wide range of wildlife. Buildings should not be viewed alone, but as an element of the wider environment which includes boundary walls, hedges and trees, verges, gardens or surrounding grounds, nearby watercourses and water features. All these should be managed in such a way to achieve mutual benefit for the local community and surrounding biodiversity alike.

INFORMATION

It is important to find out what wildlife exists on the site - this can be carried out by an initial desk study into the historic data already available, and followed up by a field study to confirm the historic data and check current conditions. Where a protected or priority species is known or suspected, a detailed survey should be undertaken by a local specialist. It is essential that the survey work is carried out at an appropriate time of year. Large developments that will have an impact on the environment will require an Environmental Impact Assessment. An ecologist should monitor the site before, during and after the works are completed.

Consider biodiversity-orientated links such as open space and the wider landscape, recreation needs, sustainable transport links (including core paths and cycle paths), sustainable urban drainage, and the overall design and construction of the development. Could, for instance, swifts and bats be accommodated within the fabric of the building(s)? Can a footpath be put on the edge of an open space area to ensure wildlife has an 'escape route' into surrounding wildlife corridors, watercourses or adjacent hedge or treelines? Retention of existing mature trees and hedgerows will safeguard a wide range of wildlife on site - from birds and bats to insects, fungi and lichens. Felling mature trees and replacing with new young trees, regardless of the type of tree, is likely to set back (or totally eliminate) the existing biodiversity for at least 50 or 60 years.



There are two positive options to consider - creating new biodiversity resources where a site is potentially devoid of existing biodiversity, or enhancing the existing resource by creating buffers between new developments by retaining a mature hedgerow shown to be a foraging route for the local bat population, or for including existing grassland or orchard trees into the development's proposed open space.

Each application should be accompanied by a completed biodiversity checklist:

DEVELOPMENT CHECKLIST QUESTIONS

-  Is more information about the site's biodiversity needed?
-  Has historic data been gathered and designated sites been identified?
-  Have impacts been considered, and avoided, at design stage?
-  Has appropriate consultation taken place?

-  Has an appropriate survey been undertaken, at the right time of year?
-  Is there internal or external expertise available to help inform a decision?
-  What habitat links have been considered outwith the development?
-  Is more information about the development and its potential effects needed?
-  Has a Biodiversity Inventory been completed?
-  Have adequate mitigation measures been identified and the significance of the effects made clear?
-  Have arrangements been made for appropriate planning conditions to be monitored during the construction phase?
-  Is there a compensation proposal?
-  Has appropriate consultation taken place regarding the compensation proposed?
-  Is adequate aftercare management outlined as part of the planning proposal?
-  How can the enhanced knowledge gained about biodiversity be relayed to the public?
-  Can the local community be drawn into taking the process forward and taking responsibility for future maintenance or awareness raising?

Pre-application and Application Stages:

Developers -

- * Seek advice.
- * Consider timescales and include leeway for unexpected discoveries.
- * Consider seasonal constraints (breeding birds, bat hibernation/summer roosts, etc.).
- * Find out about licences and seek advice on acquiring them at an appropriate juncture in proceedings.
- * Find out what the planners need.
- * Discuss planning conditions and legal agreements.
- * Assess the biodiversity value of the site and its surroundings, formal wildlife designations, presence of UKBAP and LBAP species and habitats - and consult widely with ecological consultants and appropriate organisations.
- * Consider redesigning to reduce impacts or compensation measures.
- * Are the biodiversity constraints or objectives fully documented?
- * Are all parties aware of the constraints and objectives?
- * Seek advice (again).

Planners -

Pre-application stage: advise applicant of their responsibility to address biodiversity issues - refer them to this guidance and other sources of information

- * Consider whether biodiversity is likely to be an issue.
- * Request an appropriate survey report and seek the views of consultees.
- * Request additional information where necessary and negotiate amendments.
- * Where mitigation may be necessary, consider attachment of a planning condition or legal agreement to ensure the implementation of the mitigation.
- * Mitigation measures may be insufficient to safeguard a species or its local population - check the Compensation section.
- * Where seeking information on a protected species will exceed the determination period, discuss with applicant.



- * Seek specialist advice from relevant organisations.
- * Encourage applicants to recognise the biodiversity opportunities in open space, recreation, access (footpaths and cycleways), sustainable urban drainage systems and balancing ponds, sustainable design and construction and floodplain management.
- * Where a pre-application survey is not undertaken, briefly assess biodiversity value or ask for survey to be undertaken if considered appropriate.

Post-application Stage

Developers -

- * Acquire the necessary licence if necessary.
- * Plan ahead for the mitigation work and ensure it is carried out competently.
- * Are those persons actually carrying out the work on site (a) aware of the reasons for the approach being taken; (b) told of the importance attributed to this approach; (c) have an understanding for the approach being taken; (d) have the competence to do the job properly?
- * Monitor the planning conditions.
- * Feedback to the Planning authority, LBAP and community.

Planners -

- * Monitor the planning conditions.
- * Ensure mitigation work is adhered to and undertaken competently.
- * Monitor the biodiversity outcomes and report to the Tayside Biodiversity Partnership any net gain in biodiversity.
- * Consider the potential for ongoing performance monitoring of key sites to input results into the UK Biodiversity Action Reporting System (BARS): this ensures that local action is reported to national (and international) level.

SURVEYS

Ecological scoping surveys should include:

-  an assessment of the status and extent of all protected species in the wider area and especially the population involved on the development site (including UKBAP and LBAP species and habitats);
-  an assessment of the overall impact of the development, taking into consideration mitigation and compensation measures;
-  recommendations to enhance the biodiversity value of the area;
-  if appropriate, a compensation strategy to include statement of compensation, timetabled methods and the need for any licence from Scottish Natural Heritage.



AVOIDANCE

Ensure that there are no adverse impacts to designated local, national or international sites. Statutorily protected habitats and species must be preserved. Existing habitat features of benefit to wildlife – including BAP habitats and species – should be retained within the development.

Features such as hedgerows, mature trees and wildlife corridors linking habitats should be retained wherever possible to prevent fragmentation of habitats and the break up of species populations. A Landscape Plan is encouraged to give a wider view of the impact of the development and how good design and site layout can enhance the existing biodiversity rather than damage it.



Have all adverse effects on species and habitats been avoided – and fully justified - wherever possible?

MITIGATION

Minimise damage to habitats and species wherever possible. Planning conditions can require a mitigation strategy in line with any recommendations outlined in the Environmental Statement.

Contact the local Scottish Natural Heritage office with queries concerning protected species – some development operations will require a licence. Ensure work is carried out at the appropriate time of year to avoid disturbance to species which may be in contravention of national or European legislation.

Where adverse effects are unavoidable have they been, or can they be, minimised by the use of mitigation measures that can be guaranteed, for example, by conditions or planning obligations/agreements?



What opportunities are there for enhancement of a habitat or species population?

At pre-application stage, assess the formal wildlife designations, biodiversity value of the site and its surroundings, and the presence of UKBAP and LBAP habitats and species on site. Consideration redesign if necessary to reduce impacts. Consider, too, the possibility of positive publicity if an important habitat or species can be safeguarded or the development impacts can be minimised.

COMPENSATION

Where, despite mitigation, there will be residual adverse effects that mitigation cannot reduce further, have they been or can they be compensated by measures that try at least to offset the harm? Can the compensatory measures be guaranteed by conditions or planning obligations/agreements?

Compensation measures are based on:

1. the precautionary principle - loss of habitat invariably causes a negative outcome as regards species populations. Creation of new habitat takes time to establish and allows flexibility for the loss of species without significant impact;
2. no net loss - the need to provide compensatory habitat of an area larger than the affected area to allow for a degree of loss during the habitat's rehabilitation.

The extent of habitat enhancement or creation will depend on the development and location, but creation must be appropriate and fit with the surrounding landscape character. It is also very likely to involve considerable timescales and ongoing management.

It may be appropriate for the developer to enter into a planning agreement to recreate habitat on or off-site. It may be possible for the developer to contribute financially towards the management of nearby sites or to champion a particular local species.

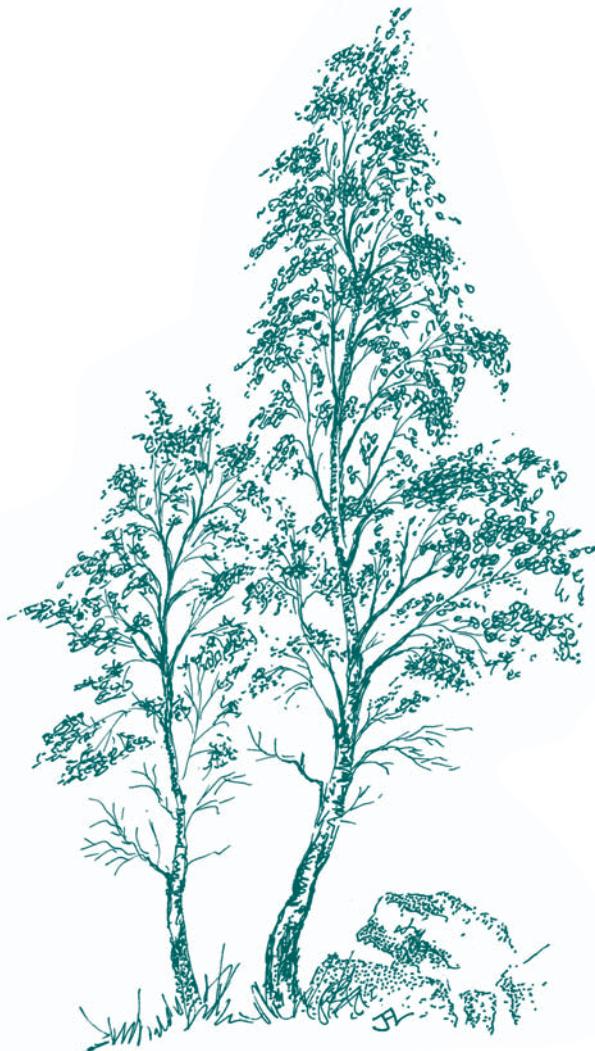
NEW BENEFITS

Where there would be no significant harm to species or habitats, are there opportunities to provide new benefits for wildlife, for example by habitat creation or enhancement, and can these new benefits be guaranteed by planning obligations/agreements?

FUTURE CARE AND MONITORING

The developer should be responsible for management for at least the first five years. Options for long-term management could include an agreement with the Scottish Wildlife Trust, the local Community Council or conservation group, the housing association or the local authority. The developer may prefer to offer a commuted sum for the management through a planning obligation.

Planning agreements will also secure the preparation and implementation of a suitable Management Plan or Site Biodiversity Action Plan, together with long-term monitoring. The developer should monitor the site, especially the establishment of new or enhanced habitats and report any effects on wildlife during or after works. Regular surveys will be needed to feedback the success, or otherwise, of the agreement.



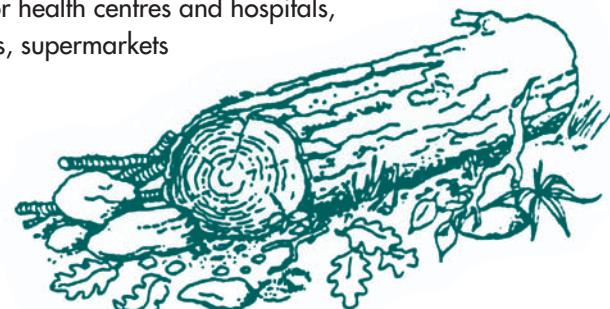
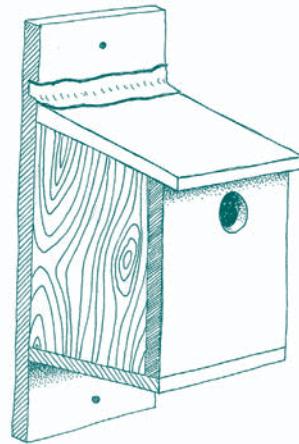
PART 3

OPPORTUNITIES FOR BIODIVERSITY ENHANCEMENT

GENERAL RECOMMENDATIONS

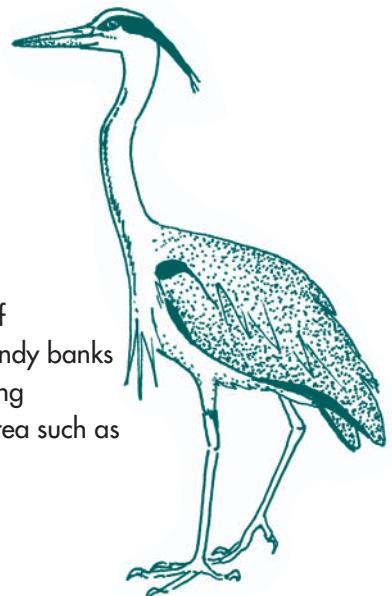
A. PLANTING SCHEMES

-  Where appropriate use native species of local provenance
-  Incorporate existing habitats (scrub/woodland/grassland/ponds etc) into 'green spaces'
-  Use a Show Home garden or borders to promote wildlife gardening e.g. ponds, pollen rich flowers for bees and butterflies, berry-bearing shrubs and trees for birds such as Song Thrush
-  Use required Public Open Space to achieve biodiversity benefits. Use local provenance native grass and wildflower mixes
-  Leave rough grassland areas as wildlife corridors with appropriate mowing regimes
-  Encourage allotment creation with hedgerows, fruit tree avenues, beetle banks and other wildlife corridors
-  Use management conditions to ensure chemical-free rough grassland buffer zones are kept on field edges, alongside hedgerows and riparian edges
-  Encourage the linkage of existing open spaces with appropriate wildlife corridors
-  Use planning conditions to create environmental features in parks and open spaces, including copses, ponds, ditches and dead wood piles
-  Incorporate existing habitats such as scrub and woodland, grassland, ponds, burns, etc. into the green space where appropriate. If possible keep public access to one side of the habitat only to ensure that wildlife remains undisturbed.
-  Retain mature and veteran trees for their high biodiversity value, and where appropriate and safe to do so, some standing dead wood or lying dead wood.
-  Use a demonstration area on an industrial estate/business park to promote wildlife gardening, e.g. plants such as lavender, honeysuckle, or cotoneaster, to encourage butterflies, bumble bees and birds; hedges, native berry-bearing trees or fruit trees and shrubs for birds; ponds for common frog, newts and damselflies.
-  Landscaping with biodiversity in mind should be considered for health centres and hospitals, sheltered housing, sports and recreation sites, industrial estates, supermarkets and business parks.



B. DRAINAGE AND WATER MANAGEMENT

- Study the suitability of sustainable urban drainage systems (SUDS), including reedbed and willow filtration systems, and consider the run off water in balancing ponds. These are important wildlife features so incorporate sensitive planting of reedbeds, etc. and siting of ponds.
- Collect run-off water in balancing ponds or sustainable urban drainage systems (SUDs) eg ditch systems, reedbed filtration systems.
- Balancing ponds and ditches are important landscape and wildlife features too so incorporate sensitive planting e.g. of reedbed.
- Soft-edged drainage ditches should be created in place of underground pipes where possible.
- If newts are to be encouraged ensure a sizeable amount of rough grass and, if possible, woodland nearby as they use land within a 500m radius of their ponds.
- Where there are natural burns or rivers adjoining the development consider the needs of kingfishers, sand martins, water voles and otters – retain rough riparian grassland or sandy banks with some overhanging trees. Do not canalise watercourses, but consider soft engineering options if necessary. Consider building a sand martin wall on a relatively undisturbed area such as business park or industrial estate.



C. ADDITIONAL FEATURES

- Consider additions such as integral house ‘bricks’ for swifts and bats, or integral nestboxes and ledges for barn owls (where appropriate).
- Encourage the use of bat boxes, house sparrow boxes, house martin/swallow nests etc. (especially on the Show Home)
- Study the potential for green walls - climbing plants on unused walls as nesting habitat for birds, bat roosts and for invertebrates—use native species which act as food plants for native insects, such as ivy, wild clematis, and honeysuckle.
- Consider the use of green or ‘living’ roofs on community or commercial buildings, residential garages, outhouses, etc. – further information available from www.livingroofs.org.
- Encourage wildlife-friendly climbing plants on houses and boundary fences/walls – honeysuckle, ivy, dog rose, wisteria, dogwood, cotoneaster
- When renovating old walls consider the use of lime mortaring, if appropriate, to safeguard mason bees.



D. HABITAT CREATION

- Focus on LBAP priority habitats where appropriate. Well-managed wildflower meadows, grass-cut mazes or verges are often appropriate in a semi-urban context.
- Consider the potential for planting a new community, school or greenspace orchard using Scottish heritage varieties of apple, pear and plum; further information is available from www.centralcoreorchardnetwork.co.uk.

MINOR PROPOSALS

1. HOUSEHOLDER PROPOSALS

Most householder applications involve only minor alterations. See "Householder's Guide to Biodiversity" leaflet with advice for homeowners on improvements for biodiversity.



Further investigation will be required if the proposal involves:

- Roofing or roofing works
- Demolition (full or partial)
- Damage to, or loss of, habitat features such as ponds, hedgerows and trees



If so check for:

- Bat roosts or bird breeding sites which will be affected
- Great crested newts in ponds
- Mature Trees and Tree Preservation Orders



Mitigation and/or compensation will be needed. Consult Scottish Natural Heritage regarding effects on Great crested newts and Bats.



Work timing—ensure works are carried out at appropriate time of year to avoid disturbance to species. Any disturbance may be in contravention of national or European law. It is illegal to disturb nesting birds under the Wildlife and Countryside Act 1981 (as amended). The breeding season lasts from late February to early August.



If loss of habitat features is unavoidable, it is reasonable to request replacement habitats e.g. by including bird boxes or bat 'bricks' and 'shuttering' in the new design. This can be attached as a condition.



2. SIGNS

Generally no effects on biodiversity.

3. LISTED BUILDING CONSENTS

As for householder proposals.

4. CHANGE OF USE

As for householder proposals, but additional care required where steadings conversions are concerned regarding species such as barn owls, swifts and bats.

MAJOR DEVELOPMENTS

The key points to be considered for all major proposals are listed below. Specific recommendations for each type of development are given in the subsequent pages. Refer also to the "Biodiversity – A Developer's Guide" leaflet within the Manual (or download via http://www.taysidebiodiversity.co.uk/Biodiversity_Guide.html).

1. SURVEY—baseline information is essential



Ensure adequate survey data initially. The level of detail will vary according to the size of the development and the habitats and species concerned.



Some developments require an Environmental Impact Assessment under the Town & Country Planning Regulations 1999. Even permitted development can have a significant impact on conservation interests and may require an E.I.A.

2. PROTECT—existing habitats and species

-  Avoid adverse impacts on designated sites (refer to Structure and Local Plan policies).
-  Ensure that statutorily protected habitats and species are safeguarded.
-  Existing habitats and features of biodiversity benefit should be identified, retained and incorporated into site layout and design. This may include hedgerows, mature trees and wetland features.
-  It is important to keep features in context rather than as isolated fragments: hence wildlife or ‘green’ corridors and linking a variety of habitats are encouraged.

3. MITIGATE—against potentially adverse effects

-  Minimise damage to habitats and species wherever possible.
-  SNH provides guidance on protected species: some operations may require a licence.
-  Appropriate planning conditions will ensure works are carried out at the appropriate time of year to avoid disturbance to species. Any disturbance may be in contravention to national or European law.
-  The breeding season for most birds generally extends between late February and early August.

4. ENHANCE—existing habitats and create new ones

-  Planning authorities should be proactive in enhancing habitats and creating new ones where appropriate in accordance with NPPG14.

5. COMPENSATE—where damage is unavoidable

-  Consider the most appropriate mechanism to secure biodiversity benefit through the use of planning conditions and legal agreements.
-  A financial contribution to management of nearby existing sites, through a commuted sum, can be requested. This is especially relevant where the development could lead to increased pressure on those sites (e.g. noise and disturbance through intensified use of the site).



6. MONITORING AND MANAGEMENT

-  Provision must be made for the appropriate management of retained features and of new or enhanced habitat.
-  The developer should monitor the site, particularly the establishment of new or enhanced habitat to ascertain any effects on wildlife during or after works.
-  Management should be ensured for as long as possible, initially through a 5 year management plan with the developer. Options for long term management include an agreement with the local Community Council or Environment Group, the relevant housing association or local residents group or the local authority itself. A commuted sum for management is generally desirable and can be secured through planning obligations.
-  Planning agreements will also secure the preparation and implementation of a management plan, and long-term monitoring in accordance with the agreed management plan objectives.

HOUSING DEVELOPMENTS (10 or more houses, or 0.5+ ha)

-  Discussions with the applicant at an early stage are vital to ensure that biodiversity concerns are raised at the beginning of the process.
-  Survey work must be timetabled appropriately. Depending on the site, Schedule 1 and some Schedule 2 developments will require an Environmental Impact Assessment: see Town and Country Planning (Environmental Impact Assessment) Regulations 1999.
-  The extent of any habitat enhancement or creation will depend on the size of the development and its location. However, the planning authority should be proactive in encouraging habitat creation, especially to fulfil UKBAP or Tayside Biodiversity Action Plan targets.
-  A list of general recommendations for improving biodiversity is included in this Manual. Further ideas are given in the Biodiversity Advice Notes. Habitat creation should correspond with the landscape character assessment; additional consultation with SNH is advised where a national designation or a scheduled species is involved.
-  For new settlements, or major urban extension, as with other built developments, early discussions will highlight the various options to enhance or conserve biodiversity.
-  Landscaping of sports and recreation sites - use guidelines such as those produced by the Committed to Green Foundation and Scottish Golf Environment Group to ensure the maximum biodiversity benefit compatible with the intended land use.

OTHER BUILT DEVELOPMENT (1000 sq m floorspace or 1+ ha)

-  Discussions with the applicant at an early stage are vital to ensure that biodiversity concerns are raised at the beginning of the process.
-  Survey work can then be timetabled appropriately. Schedule 1 and some Schedule 2 developments will require an Environmental Impact Assessment: see Town and Country Planning (Environmental Impact Assessment) Regulations 1999.
-  The extent of any habitat enhancement or creation will depend on the size of the development and its location. However, the Planning Authority should be proactive in encouraging habitat creation, especially to fulfil both UKBAP and Tayside Biodiversity Action Plan targets.
-  A list of general recommendations for improving biodiversity is included in this Manual. Further information is given in the Biodiversity Advice Notes. Habitat creation should correspond with the landscape character assessment; additional consultation with SNH is advised where a national designation or scheduled species is involved.
-  Major developments or projects - an ecologist should be consulted throughout the duration of the scheme.
-  Discussions with the applicant at an early stage are vital to ensure that biodiversity concerns are raised at the beginning of the process.
-  After care conditions should stipulate a programme of management, including provision for public access and timing of development in order to avoid damage to existing habitats and species and to create new areas for wildlife.
-  Monitoring and enforcement of the proposals is necessary to ensure maximum benefit for biodiversity is achieved.

MINERAL WORKINGS

In an important agricultural area such as Tayside many extraction areas are restored to agricultural use. There are opportunities to enhance the boundaries of this restored area by planting native hedges, treelines where appropriate, incorporating wetland areas or species-rich grassland margins.

-  The Environment Act 1995 supports the use of restored mineral workings for biodiversity. The review of mineral planning conditions can also be imposed to secure nature conservation after use.
-  The NPPG4 Land for Mineral Working document contains detailed recommendations for minimising damage to ecosystems during works (policies 56 and 57).
-  Old mineral workings are an ideal opportunity to promote large-scale habitat creation but restoration schemes must have clear biodiversity objectives. The same goes for phased extraction and restoration.
-  Discussions with the applicant at an early stage are vital to ensure that biodiversity concerns are raised at the beginning of the process.
-  Survey work can then be timetabled appropriately. Schedule 1 and some Schedule 2 developments will require an Environmental Impact assessment: see Town and Country Planning (Environmental Impact Assessment) Regulations 1999.
-  The Planning Authority should be proactive in encouraging habitat creation, especially to fulfil both UKBAP and Tayside Biodiversity Action Plan targets.
-  Hedgerows, shelterbelts and copses can all be planted on or around mineral workings for landscaping and screening during the lifetime of the site. The same applies to making wildflower or species-rich grassland bunds around the site.
-  Suitable habitats for consideration include reedbeds, grassland, heathland and lochans depending on location and the nature of the quarry working: focus on the LBAP priority habitats for that location.
-  New woodland planting in the form of copses is also possible, but consideration needs to be also given to the ground flora.
-  Bare ground is an unusual habitat often associated with mineral workings, supporting both rare and more common invertebrates. Creation or retention of bare ground should feature in restoration schemes where possible. Refer to "Habitat Management for Invertebrates" by P Kirby (2001) or contact www.buglife.org.uk.
-  There are opportunities to create wildflower meadows or species-rich grassland, including tussocky grassland for breeding birds such as skylark, barn owl, etc. If there is little tree cover in the vicinity consideration should be given to managing the site for lapwing, curlew or snipe that all prefer to breed in the open away from predators. A source of water would have to be included if these birds are to be attracted, i.e. scrapes, ponds or lochans. Consideration should also be given to encouraging sand martins to a ready-made sand martin wall or similar structure.

Further details are available from the RSPB's "Habitat Creation Handbook for the Minerals Industry", published in 2003. The new Scottish Fossil Code may be found via www.snh.gov.uk. A useful document: "Extracting the Best for Wildlife" is also available to download - <http://www2.westsussex.gov.uk/environment/bap/BAPHandbookFinal.pdf>.

Although prepared as a general point of reference for the West Sussex Biodiversity Partnership, much of the handbook's practical advice is relevant elsewhere in the country.



RECYCLING SITES AND LANDFILL SITES

-  Hedgerows, shelterbelts and copses can all be planted on or around landfill and recycling sites for landscaping and screening and biodiversity benefit during the lifetime of the site. The same applies to making wildflower or species-rich grassland bunds around the site, although these should be retained beyond the lifetime of the site to gain maximum benefit.
-  Landfill sites should ideally be restored as biodiversity areas. Focus on LBAP priority habitats for that location.
-  Many closed landfills are re-seeded as rough grassland. This provides an opportunity to create wildflower meadows and pastures, or tussocky grassland for breeding birds e.g. skylark, barn owl etc. If there is little tree cover in the vicinity consideration should be given to managing the site for lapwing, curlew or snipe who all prefer to breed in the open away from predators. A source of water would have to be included if these birds are to be attracted, i.e. scrapes, ponds or lochans.
-  Where a landfill site has to be capped careful consideration should be given before any trees are planted as they could puncture the capping. It may be more appropriate, in this situation, to recreate a rough grassland sward which will be ideal for a number of breeding birds (skylark, barn owl, etc), as well as a wide range of invertebrates and foraging bats.
-  Where appropriate, however, new woodland planting, either as a boundary treeline or in the form of a number of copses should be considered.
-  Surface drainage ditches should be conserved and protected from pollution. New ditches can be created, preferably with wide grassy riparian edges.

ROAD AND RAIL FACILITIES (Including bridges and verges)

-  Discussions with the applicant at an early stage are vital to ensure that biodiversity concerns are considered at the beginning of the process.
-  Survey work must be timetabled appropriately. Schedule 1 and some Schedule 2 developments will require an Environmental Impact assessment: see Town and Country Planning (Environmental Impact Assessment) Regulations 1999.
-  Road or rail 'underpasses' and other structures such as warning signs for red squirrels, toads, badgers, otters and other animals may be required if these species are known to be in the area.
-  Rope bridges for red squirrels, e.g. over the A93 at Templeton Woods, Dundee.
-  Runways for otters and water voles may be needed under bridges if banks are to be disturbed. Otters are protected under Schedule 5 of the Wildlife and Countryside Act 1981 as amended, and Schedule 2 of the Conservation (Natural Habitats & c.) Regulations (1994) (as amended). New works, or occasional maintenance work on an existing road, may disturb otter habitat so operations must be timed to ensure disturbance is kept to a minimum and that otters can still access their existing crossing points. Many roadkill situations occur when otters are forced to change their usual route away from construction or maintenance work. Other activities potentially harmful to otters include maintenance of water bodies, work on bridges, culverts, etc., ditch and bank side management (removal of dense vegetation, dead wood, rubble etc.), and pollution. For further advice, refer to "The Good Roads Guide – Nature Conservation Advice in Relation to Otters". This can be downloaded via <http://www.standardsforhighways.co.uk/dmrb/vol10/section4/ha8199.pdf>.



Although rare, Water voles are still known in Tayside (although now they are a predominately upland species). As a protected species (by the Wildlife and Countryside Act 1981, as amended, and the Protection of Wild Mammals (Scotland) Act 2002) care still needs to be taken along riparian edges and watercourses. Road construction or maintenance may lead to loss of bankside features required for breeding and feeding, as well as fragmentation of habitat, especially if work obstructs access along the watercourse. Pollution of watercourses can lead to water vole mortality.



Similar complex needs are required by badgers. "The Design Manual for Roads and Bridges" has a section on 'Mitigating Against the Effects of Badgers'. This can be downloaded from <http://www.standardsforhighways.co.uk/dmrb/vol10/section4/ha5992.pdf>.



Bridges can be important roost sites for bats at any time of year: they will use any crevice in the structure of the bridge, under the arches or in the walls. All bridges should be surveyed to determine if bats are present, before any repair or demolition works are undertaken. The survey should be carried out by an appropriately qualified person. The best time of year to carry out work on bridges with bat roosts is spring (mid-March to end of April), before the young are born, or autumn (September to late October), after the young are weaned and independent and before hibernation. Where deep crevices occur, large nursery roosts may be found; in winter the same space may be utilised as a hibernation site. Bats may use the bridges in the autumn, too, whilst mating.



If bats are discovered during the course of any work, particularly in winter, stop work and contact your local SNH Area Office immediately. If the bats are thought to be in danger, they maybe be carefully collected up with gloved hands and put into a box: further advice available from <http://www.bats.org.uk>. The adjacent habitat is also important – for instance treelines along watercourses are used by foraging bats. "The Design Manual for Roads and Bridges – Nature Conservation Advice in Relation to Bats" can be downloaded via <http://www.standardsforhighways.co.uk/dmrb/vol10/section4/ha8099.pdf>.



Some bird species nest in cavities of bridges or on ledges (including wrens, tit family, wagtails and dippers). All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended), whilst they are actively nesting or roosting. Routine maintenance work to bridges can eliminate ledges and crevices used by birds so it is important to provide nesting ledges after the works have been completed.



Use verges as a space for habitat creation, particularly grassland appropriate to the area. Appropriate mowing and maintenance regimes will be essential. Retain scrub if appropriate and replant hedgerows and treelines where possible.



Check the Scottish Executive's Trunk Road BAP for fuller details:
<http://www.scotland.gov.uk/library2/doc11/tbap-00.asp>.



"The Good Roads Guide – Nature Conservation Advice in Relation to Reptiles and Roads" can be downloaded via <http://www.standardsforhighways.co.uk/dmrb/vol10/section4/ha11605.pdf> and the companion Advice in Relation to Amphibians is available from <http://www.standardsforhighways.co.uk/dmrb/vol10/section4/ha9801.pdf>.



ANNEX 1

PRIORITY HABITATS

Many different habitats are found throughout the area which gives a variety of landscape types. The list below highlights the key LBAP habitats of Tayside. Most of these habitats have Action Plans. Check www.taysidebiodiversity.co.uk for further details.

COASTS AND ESTUARIES

- Estuaries (inc saltmarsh and seagrass beds)
- Maritime Cliff and Slope
- Sand Dunes
- Estuarine Reedbeds

FARMLAND

- Calcareous and Base-rich Grassland (inc limestone pavement)
- Farm Buildings
- Hedgerows and Treelines
- Stone Dykes
- Wet Grassland
- Cropped Areas
- Cereal Field Margins

UPLAND

- Montane
- Upland Heath
- Lowland Raised Bogs
- Blanket Bog

URBAN

- Built and Developed Environment
- Urban Watercourses
- Golf Courses
- Gardens, Community Orchards and Allotments
- Businesses with Land
- Hospitals, Sheltered Housing and Residential Complexes
- Traditional Orchards
- Burial Grounds (including kirkyards and cemeteries)
- School, College and University Grounds

WATER AND WETLANDS

- Mesotrophic Lochs
- Rivers and Burns
- Standing Open Water
- Ponds, Pools and Lochans
- Eutrophic Lochs

WOODLAND

- Native Pinewoods
- Upland Oakwoods
- Upland Mixed Ashwood
- Wet Woodland
- Upland Birchwood
- Planted Coniferous Woodlands
- Lowland Mixed Broadleaved Woodlands

ANNEX 2

PROTECTED SPECIES ADVICE

BADGER

Badger setts are often found in woodland or amongst dense patches of scrub on steep banks close to fields or hedgerows. Other locations include disused railway embankments and quarries, former industrial or landfill sites, or open fields.

Any work within 30 metres of the closest sett entrance may require a licence although pile driving or blasting may disturb at much greater distances – at least up to 100 metres of the closest sett entrance. Consideration in completing an application for a licence from SNH should include:

-  perimeter fencing badger gates may need to be installed and protection zones set up and marked to keep contractors away from the area;
-  water sources (for badgers) should always be safeguarded and drains routed away from setts;
-  trees should be felled away from setts and must not block badger paths;
-  plant and machinery should not be used from two hours before sunset and security lighting directed away from setts;
-  chemicals should not be stored anywhere near setts and badger paths;
-  regardless of work being started, badgers will still use their established paths across a site, so work trenches need to be covered at the end of each day and a means of escape provided for any animal that falls in; the same applies to exposed pipes which should be capped to prevent badgers gaining access;
-  roads, cyclepaths and footpaths should be routed away from setts; tunnels/culverts should be provided to keep the animals away from the roads;
-  proposed site layouts should incorporate “wildlife corridors” to enable badgers to reach feeding areas and to disperse further afield. Scrub should be retained and additional planting undertaken to safeguard the sett – gorse, hawthorn, blackthorn, holly and elder. A buffer zone of undeveloped land between the protection zone and the nearest gardens will also help safeguard the badgers. As they rely on grassland kept short by grazing or mowing as feeding areas (for earthworms) it is very important to include this in developments supporting badgers.

Further advice is available from the SNH document “Badgers and Development” available to download via <http://www.snh.org.uk/publications/on-line/wildlife/badgersanddevelopment/default.asp>.

OTTER

Most developments involving riparian or coastal environments are likely to encounter otter activity as the species has been making something of a comeback over the past few years. Large-scale developments in flood-plain areas, especially, will need to take into consideration the river catchment as a whole as changes in river flow could have a detrimental effects on otters. As well as losing the opportunity to use a variety of shelters along a stretch of river, otters may also lose surrounding habitat which could lead to disturbance, pollution and reduced food supply. Otters will use holts up to 500m away from a watercourse; the size of watercourse is no indicator, either, as burns or lades are frequently used as corridors to feeding sites. Draining ponds, altering or damming watercourses of any size may all cause a reduction in the amount of food available. Otters can be severely disturbed by humans and dogs, especially where there is minimal shelter or cover: for instance on the edge of recreational areas or near pathways.

Knowledge of whether otters are on site is essential at an early stage so that mitigation measures can be considered. Consideration in completing an application for a licence from SNH should include:



The preparation of a fenced protection area of at least 30m radius of an otter shelter; this must not affect otter movement. Where there is a risk of vandalism, the protection zone should be set up without attracting undue attention. Vegetation should not be cleared.



Access at all times to open-water habitats, including freshwater sites near the coast, must be safeguarded, and established otter paths unimpeded whilst the construction phase is underway.



Exposed open pipe systems should be capped to prevent otters gaining access when contractors are off-site.



Where a shelter site is known roads, cyclepaths and footpaths should be routed away from the river bank (by at least 30m). Refer to the "Roads and Rail Facilities" section of this Manual for advice on roads, bridges and banking.



Retain as much tree and scrub cover around the otter shelter, planting additional scrub or shrub vegetation where possible. The area should be fenced against livestock where necessary.

Further advice is available from the SNH document "Otters and Development" available to download via

<http://www.snh.org.uk/publications/on-line/wildlife/otters/default.asp>.

WATER VOLE

Developments affecting wetland supporting water vole populations should be designed to avoid their habitats – both upland and lowland. Measures for safeguarding this species include:



Fencing off a 6 metre wide riparian strip from the construction area and maintaining winter refuge areas; this includes the careful siting of pipes and bank management (clearance, replanting or mowing).



Avoiding fragmentation of the habitat by ensuring its continuity; this includes the development of water margins dominated by reeds, sedges and emergent plants, together with tall grasses and herbs on the banks. This will usually be achieved by a late summer cut of the bankside vegetation. Any weed clearance should retain a minimum of 1m of reed margin on each bank.



Ensuring that where there is new wetland creation, sustainable urban drainage, anti-flooding measures or new ponds the water levels remain stable and the bank profiling is as water vole friendly as possible. The new habitat should link with existing water vole populations via extensive wildlife corridors.



Using appropriate natural materials for erosion control, for instance: willow spiling, hazel hurdles or coir fibre rolls. The basic principles for conserving water voles are to: ensure habitat connectivity exists between individual colonies; maintenance of herbaceous riparian vegetation (including the management of trees to avoid excessive shading); and minimising the opportunity for mink colonisation. The "Conserving Scotland's Water Voles" document has useful information: <http://www.snh.org.uk/publications/on-line/wildlife/voles/default.asp>, or refer to the Water Vole Conservation Handbook by Rob Strachan and Tom Moorhouse (ISBN-10: 095463764X).

BAT SPECIES

Provision for bats should be incorporated in all steading and agricultural conversions – either by the use of integral bat "bricks" or in the form of roosting boxes or access holes at the gable apexes or in the eaves of the building. It is now becoming more commonplace to incorporate integral bat "bricks" into ordinary new builds, including housing and industrial/business units.

Expert advice should always be obtained and surveys undertaken by experienced bat specialists, specially with surveys likely to disturb bats or roosts themselves. Surveys to check presence of bats in summer roosts, or to identify bat activity, should be undertaken between May and September. The seasonal nature of bats and differences between species requirements, must be taken into account when programming survey work and planning applications. It is best to obtain information at as early as possible: contact the local Bat Group (up-to-date contact details via: <http://www.bats.org.uk>) or the Scottish Bat Officer via ayoungman@bats.org.uk.

All areas directly affected by the land-take of a scheme and its immediate surroundings should be surveyed to identify habitats of likely value for bats and considered part of the overall development to safeguard bats' foraging habitats. All potentially suitable roost sites such as trees and buildings should be investigated.

If the development is likely to affect local bat populations, SNH must be contacted immediately; a licence may be required. If work has already started and bats are found, all work must cease and SNH contacted without delay.

Further information is available from: Guidance for Works Affecting Watercourses – Protection and Enhancement for Bats -

<http://www.sepa.org.uk>; "Best Practice Guidelines for the Conservation of Bats in the Planning

of National Road Schemes": <http://www.nra.ie>; "Bats in

Bridges Advice Note": <http://www.bats.org.uk>; see above "Road and Rail Facilities" for further

details about the Design Manual for Roads and Bridges.

BARN OWL

Where a steading or agricultural building is to be converted, it is important to check if it is being used by Barn owls to roost or as a breeding site. Although the sites they use are not protected the species has special legal protection at all times - it is illegal to undertake any work which could cause disturbance to breeding Barn owls at or near the nest site. They are often found in ordinary outbuildings, dovecotes, church towers, bale stacks, as well as hollow trees and cliff sites where available. Site use falls into three main categories: roosting and breeding, roosting only, or visiting occasionally. Breeding can occur at any time of year and a site can only be proved not to be a current nest site through a detailed search being carried out by a licence holder.

In-depth advice is available from "Barn Owls on Site - a guide for developers and planners" available from

<http://www.barnowltrust.org.uk/infopage.html?id=47>; the free booklet is also available via the Publications Department of Natural England (www.naturalengland.org.uk/publications).

The Barn Owl Trust is currently preparing a set of Specimen Barn Owl Planning Conditions for Local Planning Authorities to attach to planning consents. In the meantime:

-  Development during the breeding season should be avoided where there is any evidence of occupation by Barn owls. Where a roosting-only site is affected it is possible the development may have a detrimental effect if the bird concerned also has a nest nearby. The nesting period must be avoided at development sites where a building (or tree) which is a known breeding site is due for demolition or redevelopment.
-  Construction work must avoid the main nesting season (February to August) with provision for the owls to be completed by the following mid-January. This will provide time for the adults to settle prior to egg-laying (invariably the birds are tolerant of remaining building works being completed directly below them).
-  Provide nestboxes – preferably integral to the building by way of a new entrance on the end wall close to the apex - or outwith the buildings, or on a nearby mature tree or on a pole overlooking tussocky grassland. Only someone with a licence may inspect them thereafter.
-  Alternatively (or in addition) provide nestboxes in other nearby buildings (which are not due for development);
-  Where appropriate provision for Barn owls should be incorporated in new agricultural buildings over 3m high, especially where there is rough grassland nearby (including drainage ditches, young woodland or woodland edge).
-  Landscape the site to include areas of new tree planting and rough grassland as foraging areas for the birds.
-  Overhead wires should permit clear flight paths for the birds to access the nestbox or ledge.
-  Normal, frequent and regular human, animal or machinery activity within the same building as an occupied nest may not be disturbing to the birds. However, prolonged or noisy work within the building or close by may be extremely disturbing to the birds and pose a major threat to breeding success. This would be within or just outwith the building, or in the case of a tree nest within 30 metres.

-  Shortly before building works commence, undertake a final search of each structure (or hollow tree) to ensure no breeding is taking place.
-  Position noisy static machinery away from any buildings or trees occupied by owls.
-  Prevent site workers from gaining entry into occupied or potential Barn owl sites (on or near the site) which are not due for development to provide 'sanctuary' areas for the birds.
-  Remove any steep-sided uncovered containers of water on site (to avoid the risk of Barn owls drowning).

GREAT CRESTED NEWT

Great crested newt populations have declined rapidly in the past few decades, primarily because of agricultural intensification. Like other amphibians they need ponds surrounded by good quality habitat. Ponds can be restored and new ones created, but it is the terrestrial habitat between these ponds that needs to be managed to improve the population of this endangered species. Providing wood and rock piles for shelter and over-wintering is important in management for Great crested newts. Deadwood and the thick litter layer of old woodland and scrub provides the moist stable environment they need.

New developments can assist by planting buffer zones of hedges or narrow tree belts to screen existing ponds (although trees too close to a pond will detrimentally shade the pond or reduce its water). Great crested newts can be easily disturbed, so footpaths need to be kept away from pond edges and if possible fencing erected to prevent complete access around the pond edge. Open spaces within the development should include creation of additional Great crested newt ponds and retention of grassland habitat, long vegetation and scrub.

Proposals directly affecting ponds or water bodies supporting populations of Great crested newt need to be designed to avoid as much impact as possible. Measures to protect and enhance the existing water body and protect Great crested newts during all works will be essential. These will include fencing the water body to prevent damage to the habitat or the newts. Clearance of sites will entail a thorough search of refugia such as log piles, long grass and walls.

If the loss of a pond is being considered, a replacement pond should be created elsewhere on site and the work completed during the autumn when most amphibians are absent or present in low numbers. Development on a Great crested newt site will require a licence from SNH and it is essential to discuss this in full with the local Area Office before any works are considered.

If Great crested newts cannot colonise suitable habitat through natural dispersal there is the potential to establish or renew populations by transferring them artificially. Moving newts from one site to another is usually associated with translocation from threatened sites, but there is potential for it to be used for proactive conservation purposes. Transfer to a new site will only be appropriate when a number of criteria are met. The new site must be capable of supporting a population and therefore needs to be safe from threat of unfavourable land use change; have at least four suitable ponds in close proximity; have at least one hectare of suitable terrestrial habitat and no fish or stocked waterfowl on the site. All work will require a licence from SNH, together with specialist advice.

"Special Newt Conservation Measures", a Froglife Advisory Note, can be downloaded from <http://www.froglife.org/GCNCH/7.pdf>. A general Advisory Note is also available – "The Planning System and Site Defence: How to Protect Reptile and Amphibian Habitats" - <http://www.froglife.org/FAS/FAS9-siteprotection.pdf>.

"The Great Crested Newt Handbook" is a comprehensive guide to habitat management, pond creation and restoration. It can be downloaded via <http://www.froglife.org/GCNCH/GCNCH.htm>, or a copy purchased from Froglife.

FURTHER READING

This list first appeared in the Tayside Biodiversity Partnership's booklet "Incorporating Biodiversity into Local Services" (which can be downloaded via http://www.taysidebiodiversity.co.uk/Biodiversity_Incorporating_Guide.html). Please also refer to the Manual itself for additional website links to key publications.

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FURTHER INFORMATION

Site Biodiversity Action Plans

Site BAPs are now successfully being used by companies and organisations large and small. To prepare your own, please ask for a Plan template or contact the Business Environment Partnership's Business & Biodiversity Officer on: 0845 129 4843. Further details about the BEP are available from <http://www.thebep.org.uk/>.

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This document is part of the Manual for Planners and Developers in Tayside which includes the two leaflets "Householders' Guide to Biodiversity" and "Biodiversity: A Developer's Guide", together with a series of Biodiversity Advice Notes. A Best Practice and Case Study booklet will be added in due course.

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**'Biodiversity isn't something to be found in the far blue yonder -
it starts on your own doorstep'**

**From Magnus Magnusson's Foreword to the
Tayside Local Biodiversity Action Plan (2002)**



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