Gloucestershire COUNTY COUNCIL

Minerals & Waste Core Strategies

Joint Technical Evidence Paper

WCS-MCS-5

Biodiversity

Living Draft

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Section 1 Introduction

Water Vole

Biodiversity and Why it Matters

1. Biodiversity not only includes rare or threatened wildlife but also includes that which is familiar to us in the places where we live and work. It represents the whole variety of life on Earth, all species of plants and animals, their genetic variation and the habitats and ecosystems they are part of.

2. Without biodiversity we could not survive. The loss of too much habitat and too many species would threaten the functioning of our natural environment. Biodiversity supports our lives by regulating the chemical composition of the atmosphere, soil, lakes, oceans and it can also moderate the climate. Biodiversity provides the food we eat and can improve the quality and quantity of the water we drink. It supplies us with medicines, clothes, fuel and building materials.

3. Biodiversity as vegetation can assist us in defending our land, homes and businesses from floods and erosion. Biodiversity can also help to protect us from nutrient, dust and noise pollution by natural processes. Animals, fungi and bacteria help to break down some of our waste and create productive soils. Biodiversity provides a better living environment with health, recreational and inspirational benefits. It is an important part of the tourism industry and contributes to a sense of place. It forms the natural landscapes of woodlands, grasslands, wetlands and coastlines that we value so much. Biodiversity is appreciated by many people as is shown by the large numbers that belong to or work for nature conservation organisations, record species, follow nature trails or just enjoy wildlife programmes. For further information see 'Revealing the Value of Nature' available from Natural England at www.english-nature.org.uk/pubs/publication/PDF/valueofnat.pdf

4. Minerals and waste development has the potential to affect biodiversity. Negative effects include loss of habitats, injury or death to species. This can arise through poor location, design and implementation of minerals and waste development. Positive effects can also be the result of minerals and waste development through habitat creation, better land management, providing shelter for important species and improvements to air and water quality.

5. Avoiding the negative effects and maximising the beneficial effects of development on biodiversity is achieved through good legislation, policy, guidance, planning decisions and an appropriate evidence base. This document details part of the evidence base

used for the emerging Minerals and Waste Development Framework for Gloucestershire. Account has been taken of the DEFRA guidance on implementing the biodiversity duty (especially section 4.5) which is available at www.defra.gov.uk/wildlife-countryside/biodiversity/index.htm.

Legislation

6. Key national legislation concerned with biodiversity includes:

- Wildlife and Countryside Act (1981)
- The Protection of Badgers Act (1992)
- Conservation (Natural Habitats, &c.) Regulations (1994)
- Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations (1999)
- Countryside and Rights of Way Act (2000)
- Natural Environment and Rural Communities Act (2006)
- Conservation (Natural Habitats, &c.) (Amendment) Regulations (2007)

7. A summary of relevant legislation, international agreements and policy statements can be found in Appendix 2 of DEFRA's Guidance for Local Authorities on implementing the biodiversity duty in the Natural Environment and Rural Communities Act which is available at www.defra.gov.uk/wildlife-countryside/biodiversity/index.htm

8. One of the main elements in the Natural Environment and Rural Communities Act 2006 (NERC Act) is a new general biodiversity duty for Local Authorities (& other public bodies). Section 40(1) states "Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity." Healthy biodiversity in the County can bring social, economic as well as environmental benefits. Conserving and enhancing biodiversity fits in with a number of the County Council's ambitions including:

9. Managing our environment and economy (Corporate Strategy)
Improving Quality of Life (Sustainable Community Strategy & Council Plan)
A place where people want to live (Sustainable Community Strategy)
Addressing Climate Change (Sustainable Community Strategy)

10. In terms of climate change the new biodiversity duty compliments DEFRA's guiding principles and action for conserving biodiversity in a changing climate (DEFRA/ UK Biodiversity Partnership 2007).

11. Under the NERC Act the Secretary of State will publish, review and revise lists of living organisms and types of habitat in England that are of principal importance for the purpose of conserving English biodiversity. It also requires the Secretary of State to take, and promote the taking of, steps to further the conservation of the listed organisms and habitats. A previous list was published in 2002 under the existing duty placed on the Secretary of State by section 74(5) of Countryside And Rights Of Way Act 2000.

12. The Conservation (Natural Habitats, &c.) Regulations 1994 require Development Frameworks to include a policy encouraging the

management of features of the landscape of major importance for wild flora and fauna (Regulation 37). Important features are those that are essential for the migration, dispersal and genetic exchange of wild species. This is increasingly important as successful adaptation to climate change can only be achieved if species can move freely across the landscape of the county and beyond.

13. In 2001 the Strategic Environmental Assessment (SEA) Directive (2001/42/EC) on the assessment of the effects of certain plans and programmes on the environment was adopted. The Directive came into force in the UK on the 21st of July 2004 and applies to a range of plans and programmes in England including Minerals and Waste Development Frameworks. Under the SEA Directive it is required that as part of the preparation of an 'Environmental Report' "an outline of the contents, main objectives of the programme and relationship with other plans and programmes" should be considered (Annex 1 (a)). The SEA Directive in (Annex 1 (e)) also requires consideration of "the environmental protection objectives, established at international, Community or Member State level, which are also relevant to the plan or programme". Conservation of biodiversity is an important consideration in SEA and has been considered from the very start of the Gloucestershire Minerals and Waste Development Framework process.

14. Under the Planning and Compulsory Purchase Act 2004 Local Planning Authorities are required to undertake Sustainability Appraisals of Development Plan Documents (DPDs) and Supplementary Planning Documents (SPDs). The Gloucestershire Minerals & Waste Development Framework Sustainability Appraisal (SA) contains a large volume of environmental data and refers to the sites and species protected under the Habitats Directive (92/43/EEC) and the Birds Directive (79/409/EEC). Sustainability Appraisal (SA) includes a consideration of social and economic issues and impacts as well as environmental ones. It is has a broader scope and remit than SEA but again conservation of biodiversity has been an important consideration for Gloucestershire.

15. Appropriate Assessment (AA) is a process required under the Habitats Directive (92/43/EEC) and the Habitats Regulations 2007, and aims to ensure that emerging plans will not have an adverse effect on the integrity of protected European sites (Special Protection Areas [SPA] and Special Areas of Conservation [SAC]). It is government policy for Ramsar sites (international wetlands) to also be included in the process. An updated baseline AA report was produced for the Minerals and Waste Development Framework in February 2007. The AA continues to inform minerals and waste policy and will be updated as the Development Framework emerges.

16. Internationally designated sites enjoy statutory protection and therefore the Government advises that specific polices in respect of these sites should not be included in local development documents (PPS9 paragraph 6).

17. For SA/SEA and AA reports see the following website address: www.gloucestershire.gov.uk/index.cfm?articleid=11577. These reports contain the full range of biodiversity references relevant to the Minerals and Waste Development Framework.

Plans, Policy and Guidance

18. As a direct result of the signing of the Convention on Biological Diversity at the Earth Summit in 1992 the Government drew up a national strategy to conserve our threatened native species and habitats - the UK Biodiversity Action Plan (HMSO, 1994). The UK BAP recognises that 'biodiversity is ultimately lost or conserved at the local level' For England there is now also an English Biodiversity Strategy. The strategy sets out the government's vision for conserving and enhancing biodiversity and how this will be achieved.

19. PPS1 on Sustainable Communities states that in preparing development plans the general approach should include enhancing as well as protecting biodiversity. A key planning objective in the consultation supplement to PPS1 on Planning and Climate Change is to "*sustain biodiversity, and in doing so recognise that the distribution of habitats and species will be affected by climate change*". The document goes on to say that LPAs should take into account "*the effect of development on biodiversity and the capacity for adaptation, having regard to likely changes in the local climate*". Development Plan Documents should ensure adaptation to climate change is possible by identifying spatial patterns of development that take account of sustaining biodiversity. Biodiversity will be more resilient and able to adapt to climate change if ecosystems are maintained in a healthy state. They need to be strengthened through habitat and green infrastructure creation.

20. PPS12 on Local Development Frameworks (LDFs) advises that there should be policy so that development respects "*the way that the distribution of nationally or regionally significant species and habitats may alter with climate change, and the effects of biodiversity and nationally or internationally designated areas*". PPS12 also advises that for adopted proposals, policies may apply to "*areas of more regional or local importance for biodiversity and where biodiversity will be enhanced*".

21. PPS10 (Planning and Sustainable Waste Management) says, "*in considering planning applications for waste management facilities waste planning authorities should consider the likely impact on the local environment".* Annex E states that the considerations will include any adverse effect on a site of international importance for nature conservation (SPA, SAC and Ramsar) or a site with a nationally recognised designation (Sites of Special Scientific Interest [SSSI] and National Nature Reserve [NNR]).

22. Minerals Policy Statement 1 (MPS1) directs us to Planning Policy Statement PPS9 in taking account of biodiversity within Minerals Development Frameworks. MPG7 provides advice on mineral reclamation and nature conservation (paragraph 19 & B47).

23. In PPS9 (Biodiversity and Geological Conservation) paragraph 1 covers important 'key principles' and paragraph 5 states that LDFs should:

(i) indicate the location of designated sites of importance for biodiversity and geodiversity, making clear distinctions between the hierarchy of international, national, regional and locally designated sites; and

(ii) identify any areas or sites for the restoration or creation of new priority habitats which contribute to regional targets, and support this restoration or creation through appropriate policies.

24. Other paragraphs in PPS9 relevant to the Minerals & Waste Development Framework are to be found in Appendix C.

25. 'Planning for Biodiversity and Geological Conservation: A Guide to Good Practice' which compliments PPS9 gives guidance on the key elements of an Evidence Base (paragraphs 2.3 to 2.38). The document also outlines what is required of a Core Strategy and other Development Plan Documents (paragraphs 4.29, 4.30 with a checklist on page 38)

26. The South West Environment Strategy (Our Environment: Our Future 2004) provides a regional nature conservation context for the Minerals and Waste Development Framework. This strategy was developed from close working between the Regional Assembly and the Regional Environment Network, and through public consultation. The Environment Strategy sets out the following aims for nature conservation, within the context of wider sustainable development:

- Protect and enhance biodiversity and geological features across urban, rural, coastal and marine environments;
- Maintain and restore ecosystems so that they function in a way that will support the region's wildlife;
- Sensitively manage existing habitats;
- Increase the area of existing habitats and re-establish links between fragmented sites.

27. Targets and indicators for these were drafted (see Appendix B). For spatial planning the priorities for action were stated as:

- Planning for people – giving communities a greater say in the changes they want in their local environments;
- Positive planning for the environment – maximising opportunities for environmental benefits;
- Integrating environmental considerations into planning.

28. The Environment Strategy has provided an 'umbrella' for a range of more specific action including the Biodiversity Implementation Plan for the South West. The South West Biodiversity Implementation Plan (2004) states that nature conservation is to be fully incorporated into the new, more spatially oriented, land-use planning system. The generic priorities of the Implementation Plan are compatible with those highlighted in the South West Environment Strategy above:

1 Maintain and enhance biodiversity by:
-sensitively managing existing habitats,
-expanding and re-establishing links between fragmented sites and,
- where appropriate, managing at a larger, functional scale (landscape, ecosystem or catchment).
2 Develop integrated sustainable land management practices – that safeguard and enhance the region's biodiversity whilst also bringing benefits to society, the economy and environment.
3 Increase awareness and understanding of the importance of biodiversity to the region's health,

quality of life and economic productivity and develop wider support and active engagement. 4 Understand and manage the dynamic processes of change (e.g. climate change) and develop long-term sustainable approaches within the region that focus on the quality, extent and diversity of habitats.

29. The draft Regional Spatial Strategy for the South West 2006-2026 has a policy ENV1 that states:

The quality, character, diversity and local distinctiveness of the natural and historic environment in the South West will be protected and enhanced, and developments which support their positive management will be encouraged. Where development and changes in land use are planned which would affect these assets, local authorities will first seek to avoid loss of or damage to the assets, then mitigate any unavoidable damage, and compensate for loss or damage through offsetting actions. Priority will be given to preserving and enhancing sites of international or national landscape, nature conservation, geological, archaeological or historic importance. Tools such as characterization and surveys will be used to enhance local sites, features and distinctiveness through development, including the setting of settlements and buildings within the landscape and contributing to the regeneration and restoration of the area.

30. In response to the draft consultation and Examination in Public Gloucestershire County Council proposed that the third sentence be altered to:

Priority will be given to preserving and enhancing sites of internationally or nationally important environmental assets.

31. This was recommended to improve clarity and ensure international features such as European Protected Species were given due consideration outside designated sites. The EiP Panel Report is due to be published in November 2007.

32. The South West Biodiversity Partnership has produced a South West Nature Map, which is commended for use by Local Authorities in policy ENV4 of the draft Regional Spatial Strategy (Appendix E). Nature Map gives a strategic vision to inform and assist the many organisations and individuals with potential to conserve and enhance biodiversity at a landscape scale. A major driver is climate change, which will mean unless species and habitats can shift their distributions across the land relatively easily then a decline in biodiversity, is inevitable.

33. Biodiversity South West (the South West Biodiversity Partnership) has produced a guide for planners to help them incorporate Nature Map into Development Frameworks (PPS9 paragraph 5(ii)). At the Gloucestershire scale a county version (refinement) of the South West Nature Map is very relevant and is introduced in the next section of this evidence report.

34. At Issues & Options stage in preparation of the WCS it was proposed that a form of wording for nationally designated sites (SSSIs and NNRs) the policy could be:

Planning permission will not be granted for waste development which would conflict with the conservation, management and

enhancement of National Nature Reserves and Sites of Special Scientific Interest unless, in exceptional circumstances, it can be demonstrated that the benefits of the development clearly outweigh the impact that it is likely to have on any specific features of the site, and that the harmful aspects can be adequately mitigated.

35. However, Natural England stated in response that this policy required an additional phrase should be incorporated to more closely adhere to PPS9. This phrase stated:

"…clearly outweigh the impact it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs".

Key References

Biodiversity South West (2007), South West Nature Map – A Planners Guide

DCLG (2006), Minerals Policy Statement 1: Planning and Minerals

DCLG (2006), Consultation Planning Policy Statement: Planning and Climate Change – Supplement to PPS1

DEFRA (2002), Working with the grain of nature: a biodiversity strategy for England

DEFRA (2007), England Biodiversity Strategy - Towards adaptation to climate change

DEFRA (2007), Guidance for Local Authorities on Implementing the Biodiversity Duty

DEFRA/UK Biodiversity Partnership (2007), Conserving biodiversity in a changing climate: guidance on building capacity to adapt

Department of the Environment (1994), UK Biodiversity Action Plan

ODPM (2004), Planning Policy Statement 12: Local Development Frameworks

ODPM (2005), Planning Policy Statement 1: Delivering Sustainable Development

ODPM (2005), Planning Policy Statement 9: Biodiversity and Geological Conservation

ODPM (2005), Planning Policy Statement 10: Planning for Sustainable Waste Management

ODPM (1996), Minerals Planning Guidance 7: Reclamation of Mineral Workings

South West Biodiversity Partnership (1997), Action for Biodiversity in the South West

South West Biodiversity Partnership (2004), Implementation Plan for the South West

South West Regional Assembly (in association with the South West Regional Environment Network) (2004), Our Environment: Our Future. The Regional Strategy for the South West Environment 2004-2014. 1. Main Document, 2. Implementation Plan

South West Regional Assembly (2006), The Draft Regional Spatial Strategy

Section 2 Biodiversity and Gloucestershire

Severn Estuary and Berkeley Power Station

The Resource

36. Gloucestershire is renowned for the diversity and scenic beauty of its landscape and wildlife. This is based on the fact it has very varied geology, geomorphology, soils and land use. There are many designated sites for nature conservation and Gloucestershire is the location for three great rivers the Severn, the Thames and the Wye. The county fits into five key Natural Areas (Appendix D). These are:

1. the acid grasslands, bogs, heaths and ancient woodlands in the Forest of Dean and Wye Valley;
2. the Severn Estuary of river, sand and mud flats;
3. the Severn Vale and its floodplain habitats which are important for bird-life, especially wintering wildfowl and breeding waders;
4. the Cotswolds with its limestone grasslands and beech woodlands; and
5. the Thames and Avon Vales in the Cotswold Water Park has developing river valley habitats of open water, reedbed, neutral grasslands and hedgerows.

37. Small areas of the Bristol, Avon Valleys and Ridges plus Malvern Hills and Teme Valley also occur in Gloucestershire but are highly unlikely to be areas for minerals and waste development. Profiles for all of these are available on the Natural England website.

38. In relation to Regulation 37 of the Habitats Regulations the Minerals & Waste Development Framework must set out policy that encourages the management of features of the landscape that are of major importance to wild flora and fauna. Features that are of a linear nature or regularly distributed will act as corridors or stepping stones for the migration, dispersal and genetic exchange of wildlife. Some features are likely to be particularly important as wildlife refuges. In Gloucestershire examples of notable landscape features include ponds, watercourses, species-rich roadside verges and disused railway lines. Gloucestershire's European Species such as all bats, the great crested newt, dormouse and otter tell us that the following features are particularly relevant:

39. *watercourses* (including the major rivers the Severn, Wye and Thames) estimated to be around 5,284km of watercourse in Gloucestershire. Canals such as the Hereford & Gloucester, Cotswold, and Gloucester & Sharpness have similar qualities to natural watercourses;

hedgerows (particularly abundant and significant in most parts of the County); *ponds* (many of high biodiversity importance, e.g. breeding great crested newts), estimated that in 1900 there were 5,000 field ponds but now there may be as few as 1,000. *small woods* (several hundred are less than 20ha in extent and are widespread in the county), they are significant where linked to hedgerows and other woods/habitats.

40. Such habitats are crucial in maintaining a network of wildlife features of importance for feeding, dispersal and genetic exchange of species.

41. The recent Landscape Character Assessments for the County describe the presence and origin of such features. In the final assessment report (Section 3, 2006) the relationship between landscape character and biodiversity is described for the Severn Vale and Upper Thames Valley, which are key areas of focus for minerals and waste development.

42. As part of a regional project the known distribution of UK BAP Priority Habitats in Gloucestershire has been mapped. The data is available to view on the Nature on the Map website at http://www.natureonthemap.org.uk . The County is particularly significant for coastal floodplain grazing marsh, lowland mixed deciduous woodland, lowland beech and yew woodland, lowland calcareous grassland and lowland meadows.

43. Ancient woodland and hedgerows (often remnants of old woodland) and unimproved meadow grassland can be considered to be irreplaceable habitats and are frequently encountered in Gloucestershire. Using digital mapping the Ancient Woodland Inventory produced by Natural England shows that in the County we have around 18,000 hectares of ancient woodland sites. Just over 8,000 hectares of this appears to be semi-natural. . A map of the inventory sites is to be found as part of Fig.8 in the Landscape Character Assessment (2006) and can also be seen on the MAGIC website at www.magic.gov.uk.

44. The extent and density of hedgerows in Gloucestershire is not known. In 1977 a Habitat Survey of the County by the Wildlife Trust estimated that there were over 10,000km of hedgerow, which equates to an average of 5km per km^2 and is a significant figure. Since then there have certainly been some notable losses. In recent years through development and agri-environmental schemes there has also been some restoration and enhancement of hedgerow networks.

45. The English Nature Grassland Inventory shows a spread of sites across the county including some very large sites at Minchinhampton, Rodborough and Cleeve Commons. A map of the inventory sites is to be found as part of Fig.8 in the Landscape Character Assessment (2006) and can also be seen on the MAGIC website at www.magic.gov.uk.

46. There are many internationally, nationally and locally designated sites in Gloucestershire as can be seen from the table below and in Appendix D:

Type	Number	Area (ha)
SAC & cSAC	7	5,907
SPA	2	4,660
Ramsar	2	4,660
SSSI	122	8,883
NNR	4	513
LNR	11	242
KWS	755	Over 13,000
CRV	79	Under 30

47. The Habitats Directive and the Birds Directive require the designation of sites for European conservation. In the case of the Habitats Directive these are Special Sites of Conservation (SACs), and in the Birds Directive, Special Protection Areas (SPAs). These sites form a network of conservation areas across Europe known as 'Natura 2000'.

48. Where a Special Protection Area (SPA) or Special Area of Conservation (SAC) such as the Severn Estuary incorporate subtidal and/or intertidal areas, they are referred to as European Marine Sites (EMS). The Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) required the designation of wetlands of international importance as Ramsar sites. It is government policy to treat Ramsar sites in the same manner as if they were Natura 2000 sites. For further details on these sites see the County Council's document 'Planning for the Protection of European Sites: Appropriate Assessment (AA)' available at www.gloucestershire.gov.uk.

49. Sites of Special Scientific Interest (SSSIs) are of national importance for their wildlife or geology. They include some of our most fragile habitats and support rare plants and animals that now find it difficult to survive in the wider countryside. Some SSSIs in Gloucestershire also have international or other national or local designations.

50. National Nature Reserves (NNRs) are SSSIs of great value for biodiversity and provide opportunities for people to experience nature. NNRs such as Lady Park Wood in Gloucestershire are important for study and research.

51. Local Nature Reserves (LNRs) are designated and owned or controlled by Local Authorities for both people and wildlife. They are living green spaces in urban and rural areas and support an interesting biodiversity or geology of special local interest. There is an emphasis on the sites' value for people to see, learn about and enjoy wildlife in addition to their intrinsic nature conservation value. The County Council has designated 2 LNRs (Coopers Hill and Cokes Pit). Other Local Authorities in the County have designated other sites. LNRs can also have other national or international designations such as Cooper's Hill LNR which is also a SAC and SSSI.

52. The Gloucestershire Wildlife Trust has identified non-statutory Key Wildlife Sites (KWSs) in the County using technical criteria. However in future the designation and review of KWSs is likely to be carried out by a new Panel, which will include Local Authority representation. In terms of DEFRA and DCLG

guidance KWSs represent with LNRs and RIGs the Local Sites System in Gloucestershire.

53. KWSs cover a range of habitats and the bulk of the County's wildlife heritage. They have been identified for their habitat type or for species that are present. Their status is determined by the rigorous application of criteria that have been formulated over many years by the counties leading naturalists. One of the main functions of designating KWS is to enable Local Authorities and other statutory organisations to develop specific strategic policies relating to nature conservation.

54. The Gloucestershire Wildlife Trust manages approximately 80 non-statutory nature reserves. Other reserves are owned or managed by other agencies or individuals such as the Woodland Trust, the Wildfowl and Wetlands Trust and the Royal Society for the Protection of Birds.

55. In 1989 the Gloucestershire Wildlife Trust identified roadside verges in Gloucestershire that were the most valuable areas in need of protection. Gloucestershire County Council recognised these sites and as far as possible carried out highways maintenance operations such as grass cutting in the recommended manner. Currently these sites and possible new sites are being surveyed and a new list of 'Conservation Road Verges' (CRVs) will be adopted by 2010. Designated Conservation Road Verges (CRVs) will sit apart from KWSs, although in some instances they are closely related, for example where a rare plant is found on a road verge it may be more appropriate to identify the site as a KWS.

56. Regionally the Gloucestershire Geology Trust locally designates Important Geological/Geomorphological Sites (RIGS) and although not selected for their wildlife interest can often support or be adjacent/within sites important for biodiversity. In Gloucestershire there are over 150 sites but most of these are very small. Many are associated with old quarries but there are a number within active ones such as Huntsmans in the Cotswolds.

57. There are three Areas of Outstanding Natural Beauty (AONB), which are important for biodiversity, covering over 50% of the county. The breakdown is as follows:

AONB Name	**Area (ha)**
Cotswolds	129,800
Wye Valley	5,900
Malvern Hills	700
TOTAL	136,400

58. Greenspace associated with the main urban areas can also be important for local biodiversity and is usually readily accessible to people. It can have a role in adaptation to the effects of climate change, e.g. flooding. Within urban areas the available green space can be a mixture of parks, gardens, riverside areas, canals, Local Nature Reserves There is a defined Green Belt land around Gloucester, Cheltenham and Bishops Cleeve, which is of variable quality for biodiversity.

59. The presence of a protected species is a material consideration when considering a development proposal (as highlighted by PPS9). A protected species can be a European Protected Species (Habitats Directive/Regulations) and/or a nationally protected species (Wildlife & Countryside Act). Some species are protected under additional measures such as the Protection of Badgers Act and the European Birds Directive. European

Protected Species include great crested newt, otter, dormouse and all bats. Over 60 bird species listed under the EU Birds Directive have been recorded in Gloucestershire. A similar number of Annex 1 species (Wildlife & Countryside Act) have also been noted in the County. Regularly occurring protected birds include kingfisher, barn owl, bittern, peregrine, fieldfare and redwing. Wetlands areas such as the Severn Estuary and Vale and the Cotswold Water Park provide important habitats for over-wintering, migratory and breeding birds.

60. Frequently occurring protected species in and around mineral and waste developments include badgers, bats, great crested newts (see Appendix D), water voles, reptiles and breeding birds. Others that need to be taken account of include otter, dormouse, barn owl and Cotswold pennycress. The conservation of small habitats and landscape features such as hedgerows, copses and ponds are vital for the conservation of protected and BAP species in the wider countryside. Farmland birds have declined in recent decades and the Gloucestershire Biodiversity Action Plan (BAP) has specific objectives covering these species, which include corn bunting, tree sparrow, bullfinch, turtle dove and lapwing.

61. The Minerals & Waste Planning Authority also needs to be mindful of the List Of Habitats and Species of Principal Importance for the Conservation Of Biological Diversity in England, which will be re-issued under Section 41 of the NERC Act 2006.

62. The predominant land management required for sympathetic biodiversity is through sympathetic farming and forestry. The greatest value is linked to less intensive systems that are proactive in managing for biodiversity such as is the case for land under agri-environment or forestry schemes. Nature Reserve and Country Park management is also very important in conserving and enhancing our best county sites. Examples include the County Council's LNR's at Coopers Hill and Cokes Pit, the Wildlife Trust Reserve at Coombe Hill Canal and the RSPB site at Nagshead. Local Authorities now have a duty to manage biodiversity appropriately on their own land and through the planning system they can ensure development conserves and enhances rather biodiversity value especially if good long-term management for land can be secured.

Biodiversity Action Plan for Gloucestershire (BAP)

63. Habitats and species in Gloucestershire, as in much of the UK, have suffered dramatic declines in recent decades and many once common species are becoming increasingly rare. Some such as the water vole are on the verge of extinction. This has happened mainly by loss and damage to habitats from agricultural intensification, development and pollution. Species have been directly affected by the introduction of non-native species, disturbance and over-exploitation.

64. A Biodiversity Action Plan for Gloucestershire (BAP) has been produced and was launched on the 5th April 2000 at the Wildfowl & Wetlands Trust Centre, Slimbridge. The aim of the Plan is to achieve a county richer in wildlife. The Biodiversity Action Plan for Gloucestershire covers both local and national concerns and contributes to an international process.

65. The BAP sets objectives and targets and lists the actions required to achieve them in order to guide nature conservation over the coming years. Since Gloucestershire has such a rich natural environment, holding many species and habitats of national and international importance, Gloucestershire's BAP is a vital part of the national strategy.

66. In total, around 60 organisations in the county are now actively involved and together form the Gloucestershire Biodiversity Partnership. A Gloucestershire Biodiversity Project has been established to implement Biodiversity Plan priorities. It is overseen by a group of key partners including English Nature, the Gloucestershire Wildlife Trust and the County Council. The whole biodiversity initiative depends upon everyone. We all have an impact on wildlife from environmental organisations, local government, farmers and landowners to businesses, schools and communities.

67. Currently within Gloucestershire all UK Priority Habitats are represented in the BAP, as are most of the UK Priority Species that occur in the county. The BAP contains a series of Habitat and Species Action Plans (listed in Appendix A). These take into account national priorities using the knowledge of local experts to devise what action we need to take 'on the ground' to conserve and enhance biodiversity. Gloucestershire holds, for example, nationally important bat populations, areas of limestone grassland and many significant types of woodland. The Biodiversity Action Plan for Gloucestershire also takes into account locally important species (such as brown hare, song thrush and arable wildflowers) and habitats (such as old orchards, urban habitats, rivers and streams). The list of Habitat and Species Action Plans will be subject to review during the course of the construction of the Minerals & Waste Development Framework.

68. Section 3.2.1 of the BAP says:

Biodiversity conservation is a key component of sustainable development and should be well-planned and controlled. A disciplined approach is required to assess the effects of development proposals. Decision-makers should be sufficiently well advised as to what makes a good environmental assessment and what the opportunities are for conserving or enhancing biodiversity.

69. The Gloucestershire Biodiversity Partnership has produced, through a series of technical workshops, a county refinement of the regional map called the Gloucestershire Nature Map. It gives a local strategic vision to inform those with potential to conserve and enhance biodiversity at a landscape scale.

70. The county map selects blocks of land known as ‘Strategic Nature Areas’ or SNAs. There is a priority habitat identified for each SNA and targets will be determined for maintenance, restoration and recreation of this habitat. The aim of SNAs is to link existing areas rich in wildlife and improve a percentage of intervening land for biodiversity. This means that within an SNA a mix of habitats alongside other land uses such as agriculture, forestry, recreation or development can co-exist. It is important to understand that land outside of the identified SNAs also contains wildlife sites and species of importance.

71. The Local Area Agreement Delivery Plan has an outcome for amore resilient natural environment. To achieve this a climate change impact on biodiversity report will be produced.

72. Other actions include the development and implementation of the Gloucestershire Nature Map and the identification of opportunities for urban green infrastructure.

73. The County Council currently hosts a BAP Coordinator and Great Crested Newt Project Officer. Further information on the BAP and its implementation can be found at www.gloucestershirebap.org.uk

74. The Upper Thames Valley on the Gloucestershire and Wiltshire county boundary is an area designated as the Cotswold Water Park. In 1996 a local 'Nature Conservation Forum' initiated the development of a 'Cotswold Water Park Biodiversity Action Plan 1996-2007' (CWP BAP) to take a proactive approach to nature conservation in the Water Park. The CWP BAP was the first strategic plan to cover the whole of the Water Park both sides of the Gloucestershire/Wiltshire boundary. The CWP BAP is implemented through a partnership between conservation bodies, mineral companies, lake owners, Local Authorities and local residents and is coordinated by the Cotswold Water Park Society. The CWP BAP is currently under review.

75. Although concerned with geology and geomorphology there are three Local Geodiversity Action Plans (GAPs) for Gloucestershire in various stages of preparation (Cotswolds, West Gloucestershire & Severn Vale). Such plans have actions that can compliment or have potential to conflict with biodiversity conservation. It seems however that the emerging GAPs have actions that will be implemented with due regard to biodiversity interests.

Protection and Enhancement of Biodiversity in the Minerals and Waste Development Framework

76. Under this section we describe some general principles and approaches that will help to protect and enhance biodiversity through the strategic planning process. PPS9, the Association of Local Government Ecologist's 'Framework for Biodiversity' and 'PAS 2010 – Planning to halt the loss of biodiversity' published by the British Standards Institution are particularly relevant.

77. It is now recognised that biodiversity cannot be effectively sustained if it is an objective only when managing designated areas. The need for development should, where possible, be met through integrating it into the natural environment, not displacing it. In addition it is not just about protecting the best of what there is, but of enhancing its status.

78. The evolving SA/SEA and AA for the Development Framework consider the biodiversity resource of the county and how minerals and waste development has potential to harm, conserve or enhance it. The Core Strategies will provide a spatial strategy for minerals and waste development in Gloucestershire, including reference in the strategic objectives to biodiversity/nature conservation. The Core Strategies will direct activity and shape decisions on planning applications (PPS9 A Guide to Good Practice).

79. The biodiversity objectives and targets are material considerations in the planning process (PPS9 paragraphs 4, 5 & 11). The Gloucestershire Biodiversity Partnership members who form the Biodiversity Action Plan

(BAP) steering group are of significant importance in regards to the process of reporting on the achievements of biodiversity targets. The Gloucestershire Centre for Environmental Records (GCER), which is the Local Biological Records Centre, has supported the delivery of BAP targets through assisting the making of well-informed decisions on planning matters.

80. The BAP identifies targets for protecting and increasing habitat and species diversity in Gloucestershire. This document enables land use planning to take account of sites and features of current importance as well as areas where there is potential to enhance the value of the land for biodiversity.

81. Developers should establish the biodiversity resource within a development site and its environs. An assessment of any negative, neutral or positive ecological effects of a development proposal should be made. If required there should be a programme of avoidance, mitigation and/or after-care management that aims to achieve at least a no net loss of biodiversity. Opportunities to benefit biodiversity alongside development should be sought. This can be done for example by securing developer contributions to improve the long-term management of wildlife networks, habitats and species including the provision of new land for the benefit of biodiversity.

82. Previously developed land, such as is most likely for waste sites, can have biodiversity value, particularly scarce flora and invertebrates plus protected mammals such as bats and badgers. The Development Framework should safeguard this biodiversity value from the adverse effects of development.

83. The Core Strategy and other DPDs should be guided by the sustainable principles and standards for mineral and waste developments. 'Biodiversity by Design' published by the Town & Country Planning Association is a useful reference although it is focused on housing and urban infrastructure.

84. The hierarchy and role of internationally, nationally and locally designated sites for biodiversity needs to be explained in the Core Strategy. There should be no policy in the Development Framework for international sites (SPAs, Ramsar sites & SACs) but their legal protection should be outlined. SSSIs should be protected by policy in the Development Framework but the content of PPS9 paragraph 8 should not be merely repeated. The policy approach for SSSIs should be related to minerals and waste matters.

85. For regional/local sites (KWSs, LNRs and CRVs) a strategy that promotes their positive protection and enhancement should be adopted, but this is an issue that will be covered in a subsequent development control DPD (Please refer to the Gloucestershire Minerals & Waste Development Framework).

86. One option could be to include a broad cross-cutting policy in the Development Framework that contains other strategic issues, such as designated landscapes and important cultural/heritage assets, in a hierarchical policy approach.

87. For Site Specific Allocations all designated sites plus SNAs should be addressed by marking them on proposals maps, assessing the impact of development on them and if necessary or relevant include them in specific site allocation policy.

88. Although legally protected species should not be given policy protection in the Development Framework (PPS9) these species along with other notable species are relevant to producing the framework. Consideration of where these species are most likely to occur is important. Known records from GCER will be of assistance (Appendix D) as will the distribution of particular landscape or built features particularly where they form networks or stepping stones for wildlife. In this respect the List of Habitats and Species of Principal Importance for the Conservation Of Biological Diversity in England is an important background document for the Development Framework.

89. Protection of priority BAP habitats is important too especially as they usually support the notable species referred to above. Maximising opportunities for enhancement should be a key strategic objective (e.g., through habitat creation or restoration, connecting up existing networks, installing new features on sites and improving access to biodiversity). Incorporating the Gloucestershire Nature Map into the Development Framework can help identify such opportunities, assist in making the county more resilient to climate change and protect the SNAs from the potential adverse effects of development. The overall policy approach to Nature Map for the Development Framework is proposed as follows:

The Development Framework will identify how it can contribute to the objectives and targets of the Biodiversity Action Plans for Gloucestershire and the Cotswold Water Park. Where major developments are proposed within or close to Strategic Nature Areas (SNAs) they will be required to assess and maximise an appropriate contribution to SNA targets.

90. Further details on this approach are to be found at Appendix E.

91. The introduction of a standard planning application form, along with new procedures for the validation of applications should improve the quality of information on biodiversity submitted with planning applications. The new template for local biodiversity checklists (ALGE, 2007) will be of assistance. The County Council has developed a draft checklist and is working on guidance that refers applicants to legislation, PPS9, the local BAP, mapping websites and GCER. The Development Framework should re-enforce the approach of early consideration of biodiversity as an important planning consideration.

92. In order to consider biodiversity adequately the Minerals and Waste Development Framework draws on the evidence base presented herewith. It also continues to utilize a Geographical Information System (including aerial photography, designated sites and priority habitat data). The advice of an in-house ecologist, the services of GCER and the views of statutory consultees, partners, interested parties and the general public are very important. It is recognised that additional biodiversity data, surveys and analysis may be necessary to inform policy and/or Development Control decisions.

93. As a consequence it is considered prudent to make reference to the Gloucestershire Nature Map and Biodiversity Action Plans in the text of the core strategies to make these strategic issues explicit to users of the documents.

Annual Monitoring Reports

94. Well-chosen and appropriate performance indicators should be sought for Annual Monitoring Reports (AMRs) and to inform any required revisions of DPDs. A set of indicators needs to be developed for biodiversity with clear linkage to the Development Framework policy objectives. As a core indicator of performance Gloucestershire County Council should report on changes in important biodiversity in the county that are or may be related to minerals and waste development. The use of the on-line Biodiversity Action Reporting System (BARS) at www.ukbap-reporting.org.uk/ and the assistance of GCER in reporting elements of the Development Plan require some attention.

95. Potential biodiversity indicators may include:

- % of applications with identified effects on (i) designated sites and (ii) protected species
- % of applications refused where effect on a designated site or protected species was a reason for refusal
- % of applications granted with biodiversity conditions imposed
- % of permitted developments that include/have delivered positive measures for the enhancement of the status of BAP species and/or habitats (County Ecologist to make judgments?)
- Area of developments permitted on designated sites
- Area (in hectares) of new habitat delivered by development that contributes towards UK, regional and local BAP targets.

Further References

Gloucestershire Biodiversity Partnership (2000), Biodiversity Action Plan for Gloucestershire, available at www.gloucestershirebap.org.uk

ALGE (2005), Framework for Biodiversity

ALGE (2007), Template for Biodiversity and Geological Conservation – Validation Checklists, in collaboration with DEFRA and Natural England

BSI (2006), PAS 2010 - Planning to halt the loss of biodiversity

DEFRA (2006), Local Sites; Guidance on their Identification, Selection and Management

English Nature (1997), Gloucestershire Grassland Inventory – Revised Edition

English Nature (1999), Natural Areas in the South West Region - helping to set the regional agenda for nature

English Nature (2002), Revealing the Value of Nature

Gloucestershire Biodiversity Partnership (2007), Draft Gloucestershire Nature Map

Gloucestershire Strategic Partnership (2007), Gloucestershire LAA, Part B 2007/08 Delivery Plan

Joint Committee of the CWP (1997), The Cotswold Water Park Biodiversity Action Plan 1997-2007 (now under review)

LDA Design (2006), Gloucestershire Landscape Character Assessments: The Severn Vale, Upper Thames Valley, Vale of Moreton & Vale of Evesham Fringe.

Nature Conservancy Council (1991), 'Gloucestershire Inventory of Ancient Woodland: (Provisional)'

TCPA (2004), Biodiversity by design – a guide to sustainable communities.

A large range of relevant biodiversity references and information for the Minerals and Waste Development Framework can be found in the SA/SEA and AA documents which are available at the following website address www.gloucestershire.gov.uk/index.cfm?articleid=11577

Section 3
Minerals & Biodiversity

Cokes Pit Local Nature Reserve

96. The potential detrimental effects of minerals extraction can be grouped into two main categories:

1. Direct loss of habitat and species
2. Indirect loss of biodiversity through changes in water regime, pollution and disturbance

97. However minerals operations in many situations have enormous potential to enhance biodiversity too. The focus for minerals planning is to locate operations appropriately so that they have minimal impact on biodiversity. During and after extraction opportunities to contribute to the conservation and enhancement of biodiversity, particularly priorities for Gloucestershire should be sought.

98. A good approach to minimize the adverse effects and maximize the potential gains for biodiversity is summarized below (adapted from English Nature et al., 1999 & 'Good Quarry' website).

Planning Stage:

- Work in partnership with Natural England and other wildlife organisations.
- Identify potential mineral sites that, through restoration, can contribute to BAP targets without causing significant damage to existing biodiversity.
- Make this potential contribution an important criterion in site selection - strategic environmental assessment can assist in the selection process.
- Plan habitat creation based on Nature Map and/or existing adjacent network of sites and features.
- Use buffers to protect surrounding biodiversity and amenity for local people
- Treat environmental assessment as a process that parallels and links to scheme design.

Operating Site:

- Monitor sites to identify new species and habitats that appear during operation.
- Wherever possible, implement working practices to accommodate these species/habitats.
- Implement working practices that reduce noise, dust and other impacts that can indirectly affect wildlife.

Restored Site:

- Put in place management measures for restored sites that meet the long term needs of biodiversity conservation.

- Implement the management needed to conserve valuable habitats or to restore degraded areas on non-operational land.

Other Activities:

- Encourage minerals operators to produce corporate statements of commitment to biodiversity.
- Minerals activities should be well documented and experience in habitat creation, restoration and management shared with others.
- Encourage educational and recreational use of restored and non-operational sites (where this does not cause damage).

99. Over the last decade but particularly in the last few years there has been a lot of information produced on the impacts of minerals extraction on biodiversity. The overwhelming focus has been on the potential beneficial results of appropriate and well-designed restoration schemes (see English Nature et al., 1999; RSPB, 2003 & RSPB, 2006). Also available to inform minerals planning are the following websites: www.goodquarry.com and www.afterminerals.com. The latter site includes a mapping tool that is able to list a large proportion of the existing (active) quarries in the county and suggest options for habitat restoration. It is generally believed that the restoration of mineral sites for nature conservation can benefit local communities and economies as well as improving public health and education.

100. The RSPB Handbook (2003) has a useful table (Appendix 4) listing BAP species that can potentially benefit from mineral workings in England. Relevant examples for Gloucestershire include animals such as water vole, otter, several bat species, peregrine, bittern, kingfisher, sand martin, ducks, waders and dragonflies. Also of note to this county are the plants tower mustard, Cotswold pennycress, early gentian and various orchids. These can be conserved and encouraged by creating and managing good quality habitat at mineral sites. For some of the specialist and very rare species, e.g. Cotswold pennycress, attention to their specific needs are required if action to benefit them is to be implemented successfully.

101. In the later RSPB 'Nature after minerals' publication (2006) UK BAP priority habitats that could be created on mineral sites are listed. Priority habitats particularly relevant to Gloucestershire and minerals planning are wet woodland, lowland beech & yew woodland, lowland calcareous grassland, wet reedbeds, floodplain grazing marsh and lowland meadows. There are other habitats that need consideration too and in the Gloucestershire and Cotswold Water Park BAPs relevant habitats include standing open water, neutral and acid grassland, heathland, hedgerow, fen and marsh, rivers and streams.

102. Creation of new habitats in quarries helps to mitigate the historical loss and fragmentation of important wildlife sites from many causes. Mineral sites when restored can buffer, extend and link existing semi-natural areas. The Gloucestershire and South West Nature Maps focus on this concept at a landscape scale.

103. Restored quarries with good biodiversity can be valuable for environmental education as well as for amenity purposes such as nature watching which is a very popular pastime.

104. There are a range of issues associated with conservation and enhancement of biodiversity on and around mineral sites. The 'Nature after minerals' project has explored the issues associated with the after uses of quarries that benefit biodiversity. The project concluded that the main obstacles to achieving more for biodiversity were lack of support from the landowner, inadequate financial returns and difficulties in securing long-term management for biodiversity. Some of these difficulties can be overcome and can be due to a lack of understanding of what is possible.

105. Restoration to nature conservation can often be less costly but some income is then needed to maintain what has been created. There are a number of financial solutions though including continued support form the minerals operator or through a Trust fund that is set up as part of the development consent. To achieve this a Section 106 or Management Agreement is commonly used. The neighboring Minerals Planning Authority in Oxfordshire has current policy that defines how operators should provide long-term funding for management of sites as a requirement for planning consent. Other financial options are the use of the Aggregates Levy Sustainability Fund, Landfill Tax Credits Scheme, Agri-Environment Schemes and Local Authority investment (for identified community and health benefits). It is clear that the Development Framework should help to ensure adequate funding for long-term management of sites for biodiversity is secured through policy and/or guidance.

106. A specific issue occurs where minerals sites are near to an airport or aerodrome. Here bird strike is a possibility with aircraft. This risk is increased where quarries are restored to landfill use or as is more likely to certain wetland and heavily managed habitats. In Gloucestershire this is a mainly an issue restricted to the Cotswold Water Park due to the proximity of minerals sites and resources to RAF Fairford. The owners or operators of aerodromes within 13km must be consulted in order to fully assess the risk of bird strike (MPS1). Habitat preferences near to aerodromes will usually be reedbeds, scrub and woodland and avoidance of large areas of open water especially where it is created alongside large areas of manicured grassland. Often a well-designed mosaic of wetland habitats can be a good or the best solution. Advice on this issue can be found on the 'After Minerals' website at www.afterminerals.com.

107. Previous mineral sites have over time become valuable for wildlife. Good examples include the lakes that form part of the Cotswold Water Park SSSI, Cokes Pit and Coopers Hill LNRs plus the Gloucestershire Wildlife Trust reserves at Cutsdean Quarry and the Edward Richardson & Phyllis Amey Reserve at Lechlade.

108. Over more recent years of minerals planning there are some notable case studies to cite. At Huntsman's Quarry in the Cotswolds the operating company has a site Biodiversity Action Plan. In a recent application at Kineton Thorns areas supporting Cotswold pennycress, great crested newt and badger have been protected and a conservation-grazing scheme implemented. At Stanley's Quarry a biodiversity enhancement scheme has been agreed which includes measures to benefit habitats and species featuring in the Gloucestershire BAP. At Clearwell the consented Stowe Hill extension has a long-term biodiversity scheme that includes protection and enhancement for limestone grassland, hedgerow, badgers, bats,

dormice and great crested newts. At Dryleaze in the Cotswold Water Park an approved scheme will benefit water vole, various bats, smooth newt, reedbed, hedgerow and woodland.

109. The Upper Thames Valley on the Gloucestershire and Wiltshire county boundary has been a major source of sharp sand and gravel since the late 1940's. The mineral resources of this part of the Upper Thames, between Somerford Keynes in the west and Lechlade in the east, were designated as the Cotswold Water Park in 1969. These mineral resources are substantial and their extraction will continue for the foreseeable future. A consultant has been engaged by the Cotswold Water Park Joint Committee to help in the process of drawing up a Master plan where a key issue will be the conservation and enhancement of biodiversity. Scott Wilson have now produced a Stage 1 Summary Report, as well as a consultation Geographical Information System, see www.waterpark.org/society for more details.

110. The Cotswold Water Park is an evolving area with important environmental, archaeological and scientific qualities. The marl lakes are unique wetland habitats that are becoming increasingly diverse. There is a Cotswold Water Park SSSI and on the Wiltshire side is the North Meadow and Clattinger Farm SAC. The Cotswold Water Park has its own Biodiversity Action Plan (CWP BAP), currently under review with a consultation version due early 2008. The BAP will draw on the South West and Gloucestershire Nature Maps.

111. In the Cotswold Water Park there are a significant number of large active and planned quarries. These sites have potential to be a major contributor to Nature Map SNA objectives through implementation of either already agreed restoration plans, variations or schemes for new minerals sites. Given that SNAs only indicate ecological potential and appropriateness of habitat type there should not be any major issues for minerals planning.

112. In the Cotswolds there are large number of scattered active quarries but many are of small size. These sites may be able to contribute to the Gloucestershire Nature Map's SNA objectives through implementation of already agreed restoration plans or through variations of these where this is possible.

113. In the Severn Vale new small scale mineral workings may assist in creating a diversity of habitats such as lakes, shallow scrapes, reedbed, fen or carr woodland which are surprisingly uncommon in the Vale. Such habitats may act as useful stepping stones for wildlife. Such features could be part of the larger landscape restoration objectives being promoted by the Severn and Avon Vales Wetland Partnership and the Gloucestershire Wildlife Trust.

114. In the Forest of Dean and Wye Valley mineral sites could also contribute to delivering the objectives of SNAs. The main issues in this part of the county are the conservation of ancient woodland, protection of SAC sites and proper consideration of impact upon European Protected Species such as bats and dormice. Interconnected underground cave systems in this part of Gloucestershire can be quite extensive with karst features, scowles and mine workings present. Bats can use such features for roosting, breeding or hibernating.

115. Finally Aggregates Levy (available to communities affected by the minerals industry)

has benefited biodiversity in the county including the restoration of acid grassland and heathland at Staunton Meend.

Further References

English Nature, QPA & SMSA (1999), Biodiversity and Minerals – Extracting the benefits for wildlife, Entec

Scott Wilson (2007), Strategic Review & Implementation Plan for the Cotswold Water Park. Summary of Stage 1 Technical Reports

RSPB (2003), Habitat Creation Handbook for the minerals industry

RSPB (2006), Nature After Minerals – how mineral site restoration can benefit people and wildlife

A large range of relevant biodiversity references and information for the Minerals and Waste Development Framework can be found in the SA/SEA/AA documents which are available at the following website address www.gloucestershire.gov.uk/index.cfm?articleid=11577

Section 4
Waste & Biodiversity

Visit to a MRF, Port Talbot, Wales

116. Waste development is varied and ranges from land raising on farmland to recycling facilities, and sewage treatment works to landfill sites. The scale and location of waste development is often as important as the type of development in assessing the impact on biodiversity and looking at opportunities for enhancement. Proposed waste developments can be in both open countryside or built environment locations where many different kinds of biodiversity features are possible. Usually the careful location of waste sites away from designated areas means that they are mostly concerned with avoiding impact on relatively widespread biodiversity features. Habitats often encountered are hedgerows, scrub, trees, semi-improved grassland, ponds and watercourses. The main biodiversity issues will often be around protected species such as bats, great crested newts, reptiles, badgers and breeding birds.

117. In relation to the new general duty to conserve biodiversity (NERC Act) the DEFRA guidance to Local Authorities identifies the function of 'Waste Collection and Disposal'. It states that there are three main ways of taking account of the impact on biodiversity and delivering a better quality of life (i.e. a cleaner environment and habitat creation):

- Minimizing waste production
- Increased re-use and recycling of waste
- Restoration of landfill sites

118. Not minimizing the amount of waste we create generates a large management problem particularly as landfill is not an option for the future.

119. For green and kitchen waste composting has some of real benefits for biodiversity including:

- helping to tackle climate change and its effects on biodiversity (1. it reduces the greenhouse gases organic material produces when put into landfill and 2. locks up carbon slowing down its release into the atmosphere as CO2)
- building healthy soils good for wildlife
- providing an alternative to peat and peat based composts which are derived from important wildlife sites

120. Supported by all Local Authorities in the county, Grundon Waste Management Company and the Big Lottery Fund, the Gloucestershire Wildlife Trust Don't Waste Wildlife Project has been promoting home and community

composting in Gloucestershire since 2003. The Project is now expanding their work with the appointment of new Composting officers whose remit is to help people to compost their kitchen and garden waste.

121. Industrial composting facilities using kitchen waste need to prevent problems from pests such as flies, rats and corvid birds. However the use of a special secure building and high temperatures avoids this. Pest management is not usually a biodiversity issue but is one of waste management licensing for the Environment Agency. If a waste development proposal is proven to have an unacceptable risk to human health then it follows that there might also be one for animals and wildlife too. The Environment Agency, Health Authority and State Veterinary Service can advise on such issues.

122. Constructed reedbeds and ponds are habitats that can be part of sustainable drainage or waste systems. Such new habitat features and improved water quality benefit biodiversity and should be supported where they can be incorporated into a waste or other development proposal.

123. The positioning of waste developments should not compromise the location of planned green space and the creation of wildlife corridors or networks. Waste developments such as old landfill sites can be restored successfully to wildlife habitat (e.g. woodland or grassland) to become part of green space. Other waste sites need to maximize any on site features such as trees and hedgerows and where possible use these to protect surrounding biodiversity and amenity for local people.

Previously developed sites such as industrial (brown field land) may be valuable for biodiversity, e.g. flora, invertebrates and protected species such as bats, badgers and great crested newts. The presence of disturbed, open and nutrient-poor habitats next to other habitats such as tall herbaceous vegetation can be important for different life stages of insects. Waste planning proposals on such sites should respect this value and biodiversity should be safeguarded through any agreed development on them. On some wastes sites the installation of green or brown roofs could be an option to enhance biodiversity.

124. Concentrated areas of new development may lead to a need for new or extended Sewage Treatment Works (STWs) and the County Council would be involved in consenting these. There is therefore a link here to District Development Frameworks, which will influence where waste treatment may be needed. STWs are not often welcome right next to new housing and are often sited close to watercourses and wetlands so local impact on biodiversity is possible.

125. Waste developments do not have the same potential to contribute to the Gloucestershire Nature Map as minerals developments do. The focus for waste proposals should probably be on avoiding SNAs. Where SNAs are nearby their conservation objectives should be complimented by appropriate management of features on and around waste sites that are important for flora and fauna.

126. The implementation of existing and emerging landfill restoration plans have potential for benefiting biodiversity. Landfill sites in the county that are being restored of

particular note through the lifetime of the Development Plan will be those at Hempstead and Wingmoor. These sites will provide some value to local biodiversity, e.g. grassland and hedgerows.

127. Other waste sites are often in industrial, urban or edge of settlement locations and so could deliver some local biodiversity enhancement near to where people live. This could fit in with green infrastructure planning within the county's other Development Frameworks. Where it is impoverished, in terms of wildlife value, new waste developments may also be able to make small contributions to enhancing the environmental quality of the Green Belt.

128. At Sharpness a new In-Vessel Composting site has taken account of protected species and at another consented IVC site to the north of Cheltenham habitat enhancements that will benefit biodiversity are to be carried out. At Berkeley Power Station a new storage facility has been screened to avoid impact on the Severn Estuary's birds and is also taking measures to prevent harm to great crested newts. In the Forest of Dean deposition of spoil to an old quarry is being done in a manner to improve habitat for viviparous lizard and other protected species. On the other hand at Aston Down and Clay Wood waste consents have been refused recently due to lack of information regarding bats and SAC sites.

129. Finally through the Landfill Communities Fund a number of projects have benefited biodiversity in Gloucestershire including the current Great Crested Newt Project, which will enhance the status of an important amphibian at five strategic sites in the county.

Preferred Options for WCS

130. Please note that these options **only relate to nationally designated nature conservation sites**. Those sites designated at international level – SPAs, SACs, and RAMSAR - enjoy statutory protection under separate legislation and therefore a particular policy approach is not required in the WCS. Additionally, sites designated at a regional or local level will be subject to a policy in the separate development control development plan document (to be prepared following adoption of the WCS in accordance with the Minerals & Waste Development Scheme).

131. Text will be added in the WCS reflecting this position and emphasising the 'hierarchy' of these designations. Additionally text will be included in the WCS to make users aware of the requirements of the various BAPs in place in the county and the Gloucestershire Nature Map.

132. The two preferred options for considering waste development proposals affecting nationally designated nature conservation sites (Sites of Special Scientific Interest[1]) are:

OPTION A
This approach proposes following national guidance in PPS9. Consequently no policy would be included in the WCS. Instead text would be included in the WCS to direct users to the national guidance contained in PPS9 (paragraph 8), which for ease of reference states:

[1] Please note that National Nature Reserves are all designated as SSSIs and by default are encompassed within any such policy approach.

Where a proposed development on land within or outside a SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), planning permission should not normally be granted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs. Local authorities should use conditions and/or planning obligations to mitigate the harmful aspects of the development and where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest.

133. The supporting text to the WCS would set out important issues for nature conservation in Gloucestershire would be highlighted alongside text to make users aware of the opportunities presented by the Gloucestershire Nature Map and the requirements of the various biodiversity action plans in the county.

OPTION B
This option for nationally designated sites (SSSIs) is proposed to make users of the WCS explicitly aware of the approach that the WPA will take in assessing proposals that affect such designations. This approach takes forward the thrust of the policy proposed at I&O stage, but is reworded to reflect the input of Natural England, the Environment Agency and other stakeholders. It is proposed to read:

For proposals affecting Sites of Special Scientific Interest the precautionary principle will be followed. Planning permission will not be granted for waste development which would conflict with the conservation, management and enhancement of Sites of Special Scientific Interest unless the harmful aspects can be successfully mitigated. The benefits of the development need to clearly outweigh the impact it is likely to have on the features of the site that make it of special scientific interest and/or any broader impacts on the national network of SSSIs.

134. The supporting text to the WCS would set out important issues for nature conservation in Gloucestershire would be highlighted alongside text to make users aware of the opportunities presented by the Gloucestershire Nature Map and the requirements of the various biodiversity action plans in the county.

Further References

The following websites are recommended:

Chartered Institution of Wastes Management:
www.ciwm.co.uk

Waste Online:
www.wasteonline.org.uk

WRAP:
www.wrap.org.uk

Buglife – Importance of Brownfield sites
www.buglife.org.uk

A large range of relevant biodiversity references and information for the Minerals and Waste Development Framework can be found in the SA/SEA/AA documents which are available at the following website address

www.gloucestershire.gov.uk/index.cfm?articleid=11577

Appendix A
Habitat & Species Action Plans
Biodiversity Action Plan for Gloucestershire (2000)

HABITAT ACTION PLANS:

1. Estuaries, Saltmarsh and Mudflats	2. Rivers and Streams
3. Canals	4. Reedbeds
5. Standing Open Waters	6. Lowland Wet Grassland
7. Unimproved Neutral Grassland	8. Unimproved Limestone Grassland
9. Cereal Field Margins	10. Species Rich and/or Ancient Hedgerows
11. Woodlands	12. Woodpasture, Parkland and Veteran Trees
13. Lowland Heathland	14. Acid Grassland
15. Limestone Pavement	16. Urban Habitat
17. Old Orchards	

SPECIES ACTION PLANS:

VERTEBRATES	
1. Great Crested Newt	2. Farmland birds (skylark, linnet, reed bunting, corn bunting, tree sparrow, grey partridge, bullfinch, turtle dove & song thrush)
3. Bittern	4. Nightjar
5. Woodlark	6. Spotted flycatcher
7. Allis and Twaite shad (fish)	8. Water vole
9. Brown hare	10 European otter
11. Dormouse	12. Bats (barbastelle, bechstein's, pipistrelle, greater horseshoe & lesser horseshoe bat)

INVERTEBRATES	
1. Ants and bees (various)	2. Beetles (various)
3. Stag beetle	4. High brown fritillary butterfly
5. Pearl-bordered fritillary butterfly	6. Marsh fritillary butterfly
7. Flies (various)	8. Moths (various)
9. White clawed crayfish	10. A snail Lauria sempronii
11. Freshwater mussels	

PLANTS, FUNGI AND LICHENS	
1. Devil's bolete	2. A wax cap *Hygrocybe calyptriformis*
3. A lichen Bacidia incompta	4. Round-leaved feather moss
5. Arable wildflowers (cornflower, red tipped cud-weed, red hemp-nettle, shepherd's needle, spreading hedge parsley, broad-fruited corn salad)	6. Tower mustard
7. Prickly sedge	8. True fox-sedge
9. Early gentian	10. Juniper
11. Perfoliate pennycress	12. Lesser bearded stonewort
13. Starry stonewort	14. Tassel stonewort
15. Great tassel stonewort	

Appendix B
SW Environment Strategy - Aims, Targets & Indicators

Regional Aims /Objectives	Regional Priorities	Target	Indicator
Nature Conservation	→ Protect and enhance biodiversity and geological features across urban, rural, coastal and marine environments.	→ Bring into favourable condition by 2010 95% of all nationally important wildlife sites.	→ Nationally important wildlife sites in favourable condition.
	→ Maintain and restore ecosystems so that they function in a way that will support the region's wildlife.	→ Establish 5 landscape scale projects using the ecosystem approach. → Maintain and increase populations of key species in the South West in line with UK Species Action Plan targets.	→ Number of landscape scale projects using ecosystem approach → Monitor populations of Key BAP species as identified in the SW Biodiversity Implementation Plan.
	→ Sensitively manage existing habitats.	→ Achieve sensitive management of existing BAP habitats.	→ Area of land under agri-environment scheme agreement – ESA, CSS, Environment Stewardship High Level and Entry Level. → Area of woodland in management.
	→ Increase area of existing habitats and re-establish links between fragmented sites.	→ Maintain and increase area of biodiversity habitats in the South West in accordance with targets in BPG	→ Area of BAP habitats.

Appendix C
PPS 9 Biodiversity and Geological Conservation

Key Paragraphs Relevant to the Minerals & Waste Development Framework

Key Principles
1(i) Development plan policies and planning decisions should be based upon up-to-date information about the environmental characteristics of their areas. These characteristics should include the relevant biodiversity and geological resources of the area. In reviewing environmental characteristics local authorities should assess the potential to sustain and enhance those resources.
(ii) Plan policies and planning decisions should aim to maintain, and enhance, restore or add to biodiversity and geological conservation interests. In taking decisions, local planning authorities should ensure that appropriate weight is attached to designated sites of international, national and local importance; protected species; and to biodiversity and geological interests within the wider environment.
(iii) Plan policies on the form and location of development should take a strategic approach to the conservation, enhancement and restoration of biodiversity and geology, and recognise the contributions that sites, areas and features, both individually and in combination, make to conserving these resources.
(iv) Plan policies should promote opportunities for the incorporation of beneficial biodiversity and geological features within the design of development.

4. Local authorities should take an integrated approach to planning for biodiversity and geodiversity when preparing local development documents. They should ensure that policies in local development documents reflect, and are consistent with, national, regional and local biodiversity priorities and objectives (including those agreed by local biodiversity partnerships).

5. Local development frameworks should:
(i) indicate the location of designated sites of importance for biodiversity and geodiversity, making clear distinctions between the hierarchy of international, national, regional and locally designated sites; and
(ii) identify any areas or sites for the restoration or creation of new priority habitats which contribute to regional targets, and support this restoration or creation through appropriate policies.

International Sites
6. The most important sites for biodiversity are those identified through international conventions and European Directives. Local planning authorities should identify these sites

on proposals maps and may need to cross-refer to the statutory protection given to these sites in the explanatory texts in local development documents. Since they enjoy statutory protection specific polices in respect of these sites should not be included in local development documents (see also Part I of ODPM/DEFRA Circular ODPM 06/2005, DEFRA 01/2005). The Habitats Regulations do not provide statutory protection for potential Special Protection Areas (pSPAs) or to candidate Special Areas of Conservation (cSACs) before they have been agreed with the European Commission. For the purposes of considering development proposals affecting them, as a matter of policy, the Government wishes pSPAs and cSACs included in a list sent to the European Commission, to be considered in the same way as if they had already been classified or designated. Listed Ramsar sites, also as a matter of policy, should receive the same protection as designated SPAs and SACs.

Sites of Special Scientific Interest (SSSIs)

7. Many SSSIs are also designated as sites of international importance and will be protected accordingly. Those that are not, or those features of SSSIs not covered by an international designation, should be given a high degree of protection under the planning system (see also Part II of ODPM/DEFRA Circular ODPM 06/2005, DEFRA 01/2005) through appropriate policies in plans.

Regional and Local Sites

9. Sites of regional and local biodiversity and geological interest, which include Regionally Important Geological Sites, Local Nature Reserves and Local Sites, have a fundamental role to play in meeting overall national biodiversity targets; contributing to the quality of life and the well-being of the community; and in supporting research and education. Criteria-based policies should be established in local development documents against which proposals for any development on, or affecting, such sites will be judged. These policies should be distinguished from those applied to nationally important sites.

Ancient Woodland and Other Important Natural Habitats

10. Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated. Local planning authorities should identify any areas of ancient woodland in their areas that do not have statutory protection (e.g. as a SSSI). They should not grant planning permission for any development that would result in its loss or deterioration unless the need for, and benefits of, the development in that location outweigh the loss of the woodland habitat. Aged or ‘veteran’ trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. Planning authorities should encourage the conservation of such trees as part of development proposals.

11. Through policies in plans, local authorities should also conserve other important natural habitat types that have been identified in the Countryside and Rights of Way Act 2000 section 74 list, as being of principal importance for the conservation of biodiversity in

England6 and identify opportunities to enhance and add to them.

Networks of Natural Habitats

12. Networks of natural habitats provide a valuable resource. They can link sites of biodiversity importance and provide routes or stepping stones for the migration, dispersal and genetic exchange of species in the wider environment. Local authorities should aim to maintain networks by avoiding or repairing the fragmentation and isolation of natural habitats through policies in plans. Such networks should be protected from development, and, where possible, strengthened by or integrated within it. This may be done as part of a wider strategy for the protection and extension of open space and access routes such as canals and rivers, including those within urban areas.

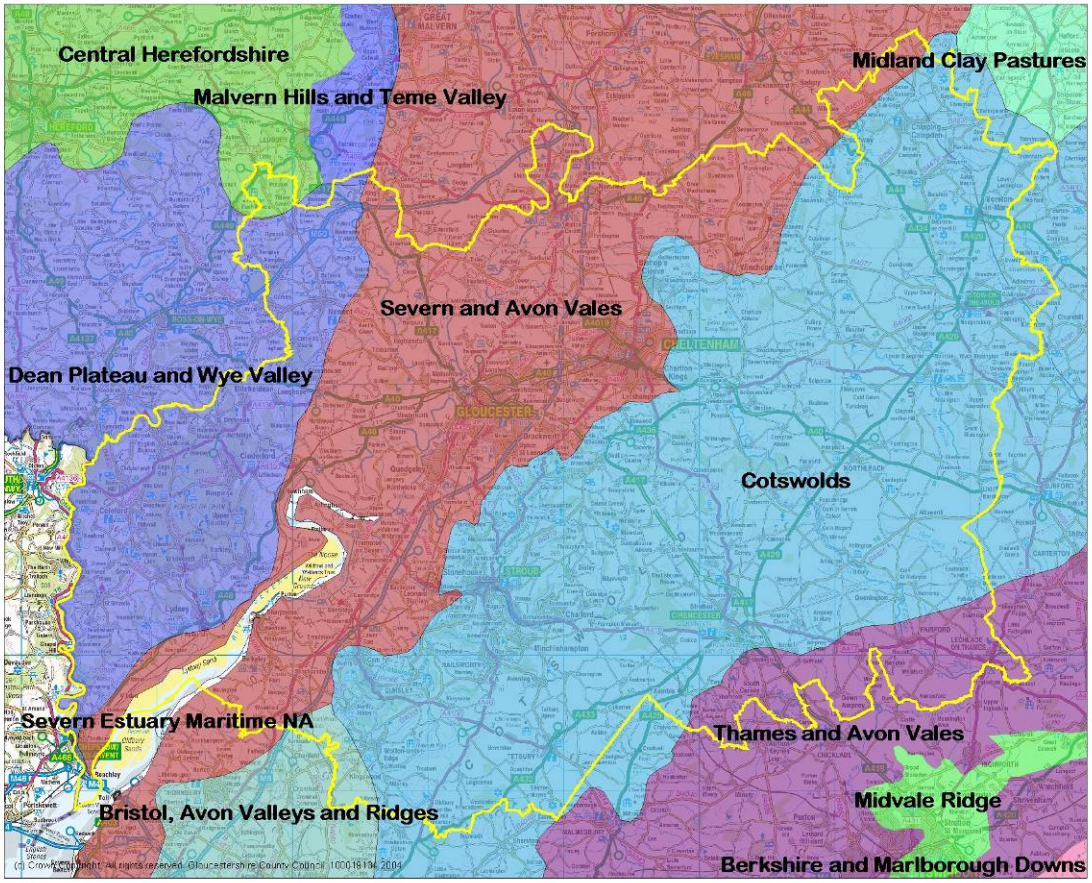
Species Protection

15. Many individual wildlife species receive statutory protection under a range of legislative provisions,7 and specific policies in respect of these species should not be included in local development documents (see also Part IV of ODPM/DEFRA Circular, ODPM 06/2005, DEFRA 01/2005).

16. Other species have been identified as requiring conservation action as species of principal importance for the conservation of biodiversity in England.8 Local authorities should take measures to protect the habitats of these species from further decline through policies in local development documents. Planning authorities should ensure that these species are protected from the adverse effects of development, where appropriate, by using planning conditions or obligations. Planning authorities should refuse permission where harm to the species or their habitats would result unless the need for, and benefits of, the development clearly outweigh that harm.

Appendix D
Selected Maps

1. Natural Areas



TITLE:

Natural Areas

PROJECT:

SITE:

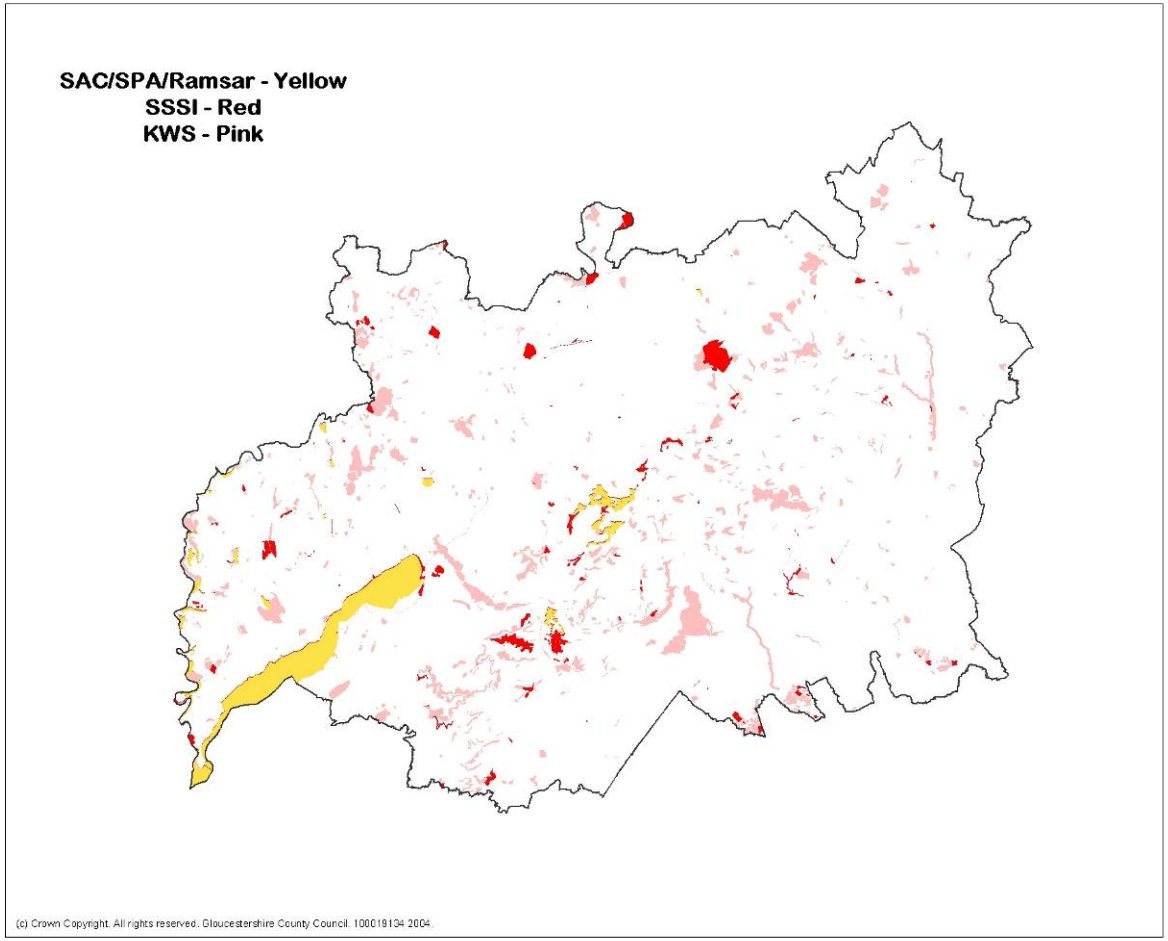
LEGEND:

N

Environment Directorate
Shire Hall, Westgate Street,
Gloucester GL1 2TH
Tel: 01452 425679
www.gloucestershire.gov.uk

DRAWN BY: Gary Kennison
SCALE: 1:172,933
DATE: as print date
DRAWING NO:

2. Designated Sites: SAC/SPA/Ramsar, SSSI and KWS



TITLE:

Designated Sites

PROJECT:

SITE:

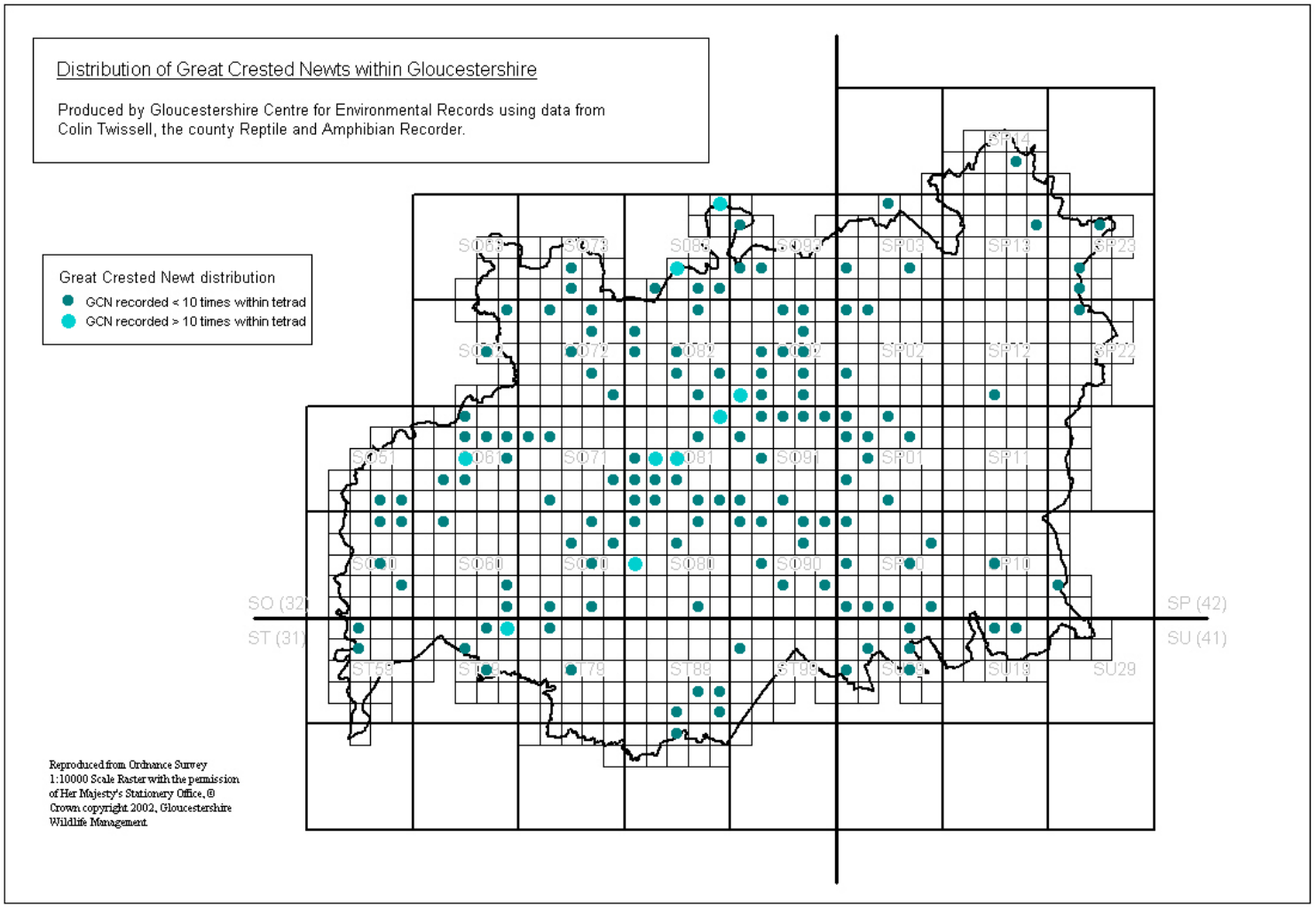
LEGEND:

N

Environment Directorate
Shire Hall, Westgate Street,
Gloucester GL1 2TH
Tel: 01452 425679
www.gloucestershire.gov.uk

DRAWN BY: Gary Kennison
SCALE: 1:215,884
DATE: as print date
DRAWING NO:

3. European Protected Species: Great Crested Newt



Appendix E
Nature Map & Gloucestershire's Development Frameworks

A Guide for Planners on Incorporating Nature Map into Gloucestershire's Development Frameworks

1. Introduction

The South West Nature Map is a strategic approach to showing the best places to maintain and extend terrestrial habitats at a landscape scale. The Gloucestershire Nature Map is a refined version of the South West Nature Map and is a detailed local vision for change. It offers a spatial tool for identifying where action to benefit biodiversity should occur. The Nature Map is based on the inclusion of selected existing areas of wildlife value. It does not include all areas of importance for biodiversity such as designated or local sites and landscape or built features of importance for flora and fauna.

In 'South West Nature Map – A Planners Guide' published by Biodiversity South West it is stated that forward planners will need to:

a) identify areas and sites at the local level that can contribute towards regional targets for the restoration and creation of priority habitats; and
b) inform the formulation and use of appropriate policies in their Local Development Frameworks (LDFs).

This guide outlines how incorporating Nature Map into LDFs can achieve the requirements of Planning Policy Statement 9 (PPS9) and draft Regional Spatial Strategy (RSS) policy ENV4.

PPS9: Biodiversity and Geological Conservation (2005), paragraph 5 (ii) requires LDFs to "*identify any areas or sites for the restoration or creation of new priority habitats*

which contribute to regional targets, and support this restoration or creation through appropriate policies".

Draft RSS policy ENV4 states that:

Local Authorities should use the Nature Map to help map local opportunities for biodiversity enhancement in LDDs, taking into account the local distribution of habitats and species, and protecting these sites and features from harmful development.

and says:

Proposals which provide opportunities for the beneficial management of these areas and habitats and species generally, should be supported, including linking habitats to create more functional units which are more resilient to climate change.

Taking account of the Nature Map in Development Frameworks will also help Local Authorities fulfil their new general biodiversity duty under Section 40 of the Natural Environment and Rural Communities Act 2006 (NERC Act).

2. South West and Gloucestershire Nature Maps

The South West Biodiversity Partnership has produced a South West Nature Map, which is commended for use by Local Authorities in the draft Regional Spatial Strategy (ENV4). A major driver is climate change, which will mean unless species and habitats can shift their distributions across the land relatively easily then a decline in biodiversity, is inevitable. Construction and conservation of landscape scale networks for wildlife is therefore very necessary and the South West Nature Map provides a structure for achieving this at the regional scale. The South West Nature Map can be viewed and downloaded from the South West Observatory website at www.swenvo.org.uk/nature_map.

The Gloucestershire Biodiversity Partnership has produced, through a series of technical workshops, a county refinement of the regional map called the Gloucestershire Nature Map. It gives a local strategic vision to inform those with potential to conserve and enhance biodiversity at a landscape scale.

Both the regional and county maps select blocks of land known as 'Strategic Nature Areas' or SNAs. There is a priority habitat identified for each SNA and targets will be determined for maintenance, restoration and recreation of this habitat. The aim of SNAs is to link existing areas rich in wildlife and improve a percentage of intervening land for biodiversity. This means that within an SNA a mix of habitats alongside other land uses such as agriculture, forestry, recreation or development can co-exist. It is important to understand that land outside of the identified SNAs also contains wildlife sites and species of importance. For further information on the Gloucestershire Nature Map go to the Gloucestershire Biodiversity Partnership website at www.gloucestershirebap.org.uk and follow the relevant links.

3. How to incorporate SNAs into Gloucestershire's Development Frameworks

The table below recommends an approach for Gloucestershire that is based on a procedure advocated in 'South West Nature Map – A Planners Guide'.

Steps for incorporating the SNAs into Gloucestershire's Development Frameworks
Adapted from Figure 1: Biodiversity South West (2007) 'South West Nature Map – A Planners Guide'. See this publication for further guidance on the steps below.
1. Obtain the Gloucestershire Nature Map (GNM). Available from the Gloucestershire Biodiversity Partnership/ Gloucestershire Centre for Environmental Records (GCER).
2. Identify and access sources of information in order to build a sufficient 'Evidence Base' for SNAs within the LPA's area. The use of GIS software is recommended to clip the GNM to give the distribution of SNAs within/next to the

LPA area. GCER can facilitate this through a Local Authority's SLA or other data supply arrangement. LPA's should agree with GCER what information can be provided for SNAs. Presence of priority BAP habitats (from GCER or 'Nature on the map website') and notable species plus designated sites within SNAs would probably be the minimum requirement. Key Wildlife Sites (KWSs) will be an important aspect of some SNAs. SNAs unlikely to be affected by development (e.g. waste and minerals) need not be subjected to a detailed trawl of information. LPAs should work together to share the information trawl. LPAs could use the emerging evidence base for the County's Waste & Minerals Development Framework as a template for their own evidence bases.

3. Reference all SNAs within the LPA area in the Core Strategy.

Ideally SNAs would be mapped on a Key Diagram or illustrative map in the Core Strategy – accords with PPS9 & PPS12.

4. Identify all relevant Development Documents where SNAs should specifically be considered.

SA/SEA documents plus Site Specific Allocations, Area Action Plans and Proposals Maps are likely to be relevant but will depend on the location of SNAs and nature of proposals. Compile list of documents where SNAs need highlighting and then consider the SNAs in these documents.

5. Where SNAs may be affected by proposed new development, it may be appropriate to:

a) use an Area Action Plan document as the vehicle for forward planning the impact on SNAs where significant areas or features are involved

and/or

b) include detailed development related biodiversity objectives, targets and policies for SNAs within certain Site Specific Allocations

Consider if these are relevant and worthwhile approaches.

6. Prepare Local Development Documents that provide applicants with sufficient information to understand how they may make tangible and reasonable contributions to SNA objectives and targets.

For all Development Documents determine how SNAs will be protected and what are the opportunities that could be progressed to benefit biodiversity within them. Spell out what developers could contribute in their proposals. Consider if there is need for an SPD to assist developers and/or check the guidance behind

validation checklists for planning applications.
7. Establish with the Gloucestershire Biodiversity Partnership a means of monitoring progress towards the objectives and targets of the Gloucestershire Nature Map. Include results relevant to the LDF in the Annual Monitoring Report. Requires future action

The overall policy approach to Nature Map for each Development Framework to adopt in Gloucestershire is recommended as follows:

The Development Framework will identify how it can contribute to the objectives and targets of the Biodiversity Action Plan for Gloucestershire*. Where major developments are proposed within or close to Strategic Nature Areas (SNAs) they will be required to assess and maximise an appropriate contribution to SNA targets.

* and in the Cotswold Water Park the CWP BAP

Minerals Core Strategy & Waste Core Strategy Evidence Report

Biodiversity

October 2007

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Gloucestershire COUNTY COUNCIL