



Cotswold Water Park

Biodiversity Action Plan

2007 – 2016

COTSWOLD WATER PARK BIODIVERSITY ACTION PLAN 2007 - 2016

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on behalf of the CWP Nature Conservation Forum.

The CWP Nature Conservation Forum is made up of representatives from the following organisations:

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Cotswold District Council	Wildfowl & Wetlands Trust
Cotswold Water Park Society	Wiltshire County Council
Gloucestershire County Council	Wiltshire Ornithological Society
Gloucestershire Wildlife Trust	Wiltshire Wildlife Trust
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Nick Adams	Amanda Miller
Jill Bewley	Simon Pickering
Paul Darby	Sophia Price
Jenny Ford	Paul St Pierre
Gareth Harris	Alisa Swanson
Gary Kennison	Isobel Whitwam

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Foreword

A landscape rich in wildlife is important for the quality of life of residents, those who work in the area, the enjoyment of visitors and the local economy.

This local Biodiversity Action Plan translates national nature conservation goals to the local level. The introduction to this document provides a description of the area, the policy background and recent changes in legislation and the potential impacts of climate change. It briefly summarises the success and failures of the original CWP Biodiversity Action Plan 1996-2007 and sets out the approach taken in this revised plan.

The plans select those priority species and habitats typical of the area for which focused conservation effort can make a significant difference at local, regional and potentially national level. There are Habitat Action Plans (HAPs) for 10 different habitat types and Species Action Plans (SAPS) for 9 species. Each Habitat and Species Action Plan provides background information, the threats, a set of measurable conservation targets and details of actions required to achieve these targets including timescales, lead organisations and quantitative measures of success. In addition, several Species Statements have been included for those species considered sufficiently important (UK BAP species occurring in area or species for which the CWP is at least regionally important) to warrant inclusion within the CWPBAP 2007-2016, but where halting population decline and assisting recovery will be achieved by measures already outlined within a HAP.

The Generic Action Plan sets out a number of policy, funding and awareness raising objectives that will be crucial to the success of this plan.

While the local biodiversity action planning process may be led by nature conservation bodies it is abundantly clear that these ambitious targets can only be achieved by true partnership working between mineral companies, landowners, developers, businesses, consultants, local authorities, statutory bodies, local residents, volunteers and nature conservation organisations.

An increase in the biodiversity of an area is a crucial measure of sustainable development and a lasting legacy for future generations.

Introduction

This new Cotswold Water Park Biodiversity Action Plan 2007-2016 (CWP BAP 07-16) replaces the original Cotswold Water Park Biodiversity Action Plan (CWP BAP 97-07).

1 The Cotswold Water Park

The Cotswold Water Park covers more than 40 square miles or 10,000 hectares (ha) in the Upper Thames catchment which straddles the county boundary of Wiltshire, Gloucestershire and Oxfordshire. For over 50 years the area has been subjected to sand & gravel extraction. The high ground water levels mean that any holes dug greater than 1 metre in depth rapidly fill with water. It is a large, complex and rapidly changing area and to date (July 2007) 147 lakes (approximately 1,200 ha) have been formed through extraction.

The sand and gravel deposits range in depth from a few centimetres to 6 metres, and are generally within the gravel aquifer which can be found 1 to 1.5 metres below ground level. Currently, 7 mineral companies are extracting just less than 2 million tonnes per year from 400 ha of active quarries, and have permission to extract from a further 310 ha. The two county mineral plans propose allocating another 550 ha to extraction. Then, beyond this, there is estimated to be at least another 30 years supply of sand & gravel at current rates of extraction.

The first lakes were created in the early 20th century when small individual fields were sold for extraction. Early extraction was usually wet using drag lines. This created lakes with uneven bottoms, irregular shore lines and numerous islands. As a result of inefficient methods of extraction and minimal use of topsoil in restoration, some of these older lakes have become very important sites for wildlife, particularly aquatic macrophytes such as stoneworts. Improvements in pump technology in the 1970s meant that quarries could be de-watered during extraction, thus more gravel could be extracted creating deeper lakes with more uniform bottoms and shorelines and no islands. Inadequate restoration plans resulted in rectangular lakes with relatively steep sides of poor value to marginal plants, invertebrates and other wildlife.

The implementation of the Cotswold Water Park Biodiversity Action Plan 1997-2007 has encouraged a more considered approach to restoration through the creation of lakes with shallow sloping banks, indented shorelines, reed beds and shallow wetlands. This has demonstrated that significant biodiversity gains can be made through restoration of mineral sites.

Until recently little thought was given to the after-use of quarries until they had been flooded as lakes, due to a lack of planning and forethought prior to mineral extraction. This lack of planning has in some cases led to incompatible uses of neighbouring lakes with considerable conflicts and problems.

Ownership of land within the Cotswold Water Park is complex, with more than 40 lake owners. The lakes are used for fishing (64), holiday accommodation (23), nature reserves (18), inland beach (1), park (3), hotel (1), sailing / windsurfing (9), water skiing (10), water ski-tow (1), corporate hospitality (1) lakes with no after use (32).

There has been almost no strategic planning as regards lake usage and location over the last 35 years, and consequently many lakes are poorly suited to their present use by the nature of their restoration and location.

Nature Conservation importance of the Cotswold Water Park

Prior to the Second World War much of the area was dominated by flower rich grasslands but large scale conversion to arable farming and mineral extraction has dramatically changed the landscape.

The current nature conservation value of the area is a result of a combination of factors, particularly the underlying geology and hydrology. Low intensity farming on a few key sites has maintained flower rich meadows while mineral extraction has led to the formation of lime rich marl lakes important for aquatic plants. The large number of lakes and sheer size of the area of open water has attracted large number of wetland birds.

More recently pro-active restoration of quarries and management for nature conservation has enhanced the conservation value of a number of sites through the area.

The potential of the Cotswold Water Park as a site of national importance for wildlife was recognised by its inclusion in the Nature Conservation Review in 1977 (*Ratcliffe, 1997*). The area contains eight grassland Sites of Special Scientific Interest (SSSI) two of which are now an SAC (North Meadow and Clattinger Farm). Ten marl lakes have also received SSSI designation because of their blue-tinted lime-rich waters which support a wide diversity of aquatic plants. The area is also nationally important for wintering and breeding birds as well as regionally significant for many other species of birds, dragonflies, damselflies, bats and water voles.

1.1 Governance

1.1.1 The Cotswold Water Park Joint Committee

In recognition of the special nature of the area, the lakes and surrounding land were designated in 1967 by the Joint Committee of the Cotswold Water Park *“to serve the interests of aquatic sports, naturalists and others who wish to pursue informal recreational activities in a rural lakeside setting”*.

The Cotswold Water Park Joint Committee was originally created in 1967. It is currently formally established as a Joint Committee under Sections 101 and 102 of the Local Government Act 1972.

The Joint Committee, as presently constituted, consists of three elected members from four local authorities: Gloucestershire County Council, Cotswold District Council, Wiltshire County Council, North Wiltshire District Council, and one elected member from Swindon Borough Council, together with three representatives from Parish Councils, and with representatives from Natural England, the Environment Agency, and Sport England. The Forestry Commission and the Farming and Conservation Agency (now DEFRA) are also invited to attend together with any other relevant bodies that the Joint Committee wishes to co-opt as appropriate.

The Joint Committee was set up to provide strategic guidance for the management and development of the area. Planning and statutory duties however still remain with the individual authorities alongside separate mineral plans for Gloucestershire and Wiltshire County Councils and local plans for Cotswold District and North Wiltshire District.

1.1.2 The Cotswold Water Park Nature Conservation Forum (NCF)

The Cotswold Water Park Nature Conservation Forum (NCF) was formed in 1989 through an alliance of voluntary and statutory nature conservation organisations in response to the increasing development pressure on the lakes in the Cotswold Water Park. The initial members were the Wildfowl & Wetland Trust, RSPB, Gloucestershire Wildlife Trust, Wiltshire Wildlife Trust and English Nature. Initially the NCF provided an opportunity for conservation bodies to discuss

particular planning applications, lend more weight to the conservation arguments and provide clear consistent advice to the relevant local authorities. Over the last 18 years it has taken a more pro-active approach to nature conservation issues and in 1992 the Forum published 'A Nature Conservation Review of the Cotswold Water Park', commissioned the biodiversity audit in 1996 and supervised the production of the CWP Biodiversity Action Plan in 1997. Membership of the NCF has grown and now includes the Wiltshire Ornithological Society, the Environment Agency, and ecologists from various local authorities. The NCF is regarded by the CWP Joint Committee as a technical officer working group.

Current remit of Nature Conservation Forum

“Working in partnership to take a proactive approach to nature conservation in the Cotswold Water Park”.

This will be achieved by:

- Regular update meetings on conservation issues in the area.
- Working together, where appropriate, to respond to plans and strategies that may impact on the nature conservation value of the area.
- Working together, where appropriate, in responding to planning applications
- Acting as a steering group for the Cotswold Water Park Biodiversity Action Plan.
- Working together to support and work on nature conservation projects in the area.
- Working together to ensure ecological data is held by appropriate record offices.
- Where appropriate hosting nature conservation events in the area.
- Acting as a sounding board for new ideas and approaches to nature conservation in the area.
- Where appropriate working together to seek joint funding for projects.

1.1.3 The Cotswold Water Park Society

The Cotswold Water Park Society Ltd was formed in 1996 as a non local authority influenced body (by virtue of having less than 20% of controlling board / trustees being local authority members or officers). It is an Industrial & Provident Society (a not for profit company) with charitable status. The Society is also a registered Environmental Body.

The main roles of the Society are:

- To assist in the implementation of the Cotswold Water Park Joint Committee Strategy.
- Management of land owned by the four Local Authorities within the Cotswold Water Park.
- To promote public access, recreation and nature conservation.
- To assist with the promotion of the Cotswold Water Park for nature conservation, sport, tourism and sustainable economic development.
- To contribute to the securing of new resources in partnership with the Joint Committee and others in order to implement the Cotswold Water Park Joint Committee Strategy.
- To work with business & industry within the area to encourage them to contribute to the delivery of the Cotswold Water Park Joint Committee Strategy.
- To work closely with local communities and interest groups within the Cotswold Water Park to contribute to delivery of the Cotswold Water Park Strategy.
- To coordinate and implement the CWP Biodiversity Action Plan 1997-2007.

In order to provide greater clarity and focus the Society has formed a separate Cotswold Water Park Group to run and manage its commercial operations and a full charity the Cotswold Water Park Trust to deliver the nature conservation, public access, education and public art and other charitable objectives.

1.2 Development scenarios

Due to the combined effects of mineral extraction and new built development, the Cotswold Water Park is one of the most rapidly changing landscapes in the UK today. Previous lack of co-ordination and strategic planning has led to piecemeal and incompatible development. Differences in planning policies between Cotswold District Council and North Wiltshire District Council have resulted in significantly more new built development within Cotswold District. Factors such as suitability of the site, hydrology, biodiversity potential, access to services and likely future land-use changes in the surrounding area are secondary factors in influencing developments.

In the last ten years demand for accommodation, mainly second homes, has been the driving force behind development. With approximately 450 second homes already built, planning permission for a further 750, plus two further applications for another 250 units the demand remains high. In addition a 240 bed hotel has recently opened and planning permission has been granted for one further hotel.

In spite of all this development, the Cotswold Water Park is still in the early stages of being recognised as a major tourist destination. However if climate change predictions are fulfilled, ie warmer drier summers, combined with increasing concerns of terrorist threats and carbon foot prints, a greater proportion of the 20 million people who live within a 2hr drive (1.5hr by train) may visit the area.

As the amount of accommodation increases and the area is promoted as a tourist destination the next ten years is likely to see more development proposals, new retail outlets and activities for families.

Continued sporadic development could lead to significant conflicts with the existing and planned nature conservation of the area, hence there is an urgent need for coordinated long term planning of the after-use of mineral sites right through from the planning stage, to extraction and restoration.

1.3 A 50 year vision for the future

The original Cotswold Water Park Biodiversity Action Plan 1997-2007 summarised its 50 year vision as follows:

“THE COTSWOLD WATER PARK SHOULD BE A PREMIER SITE FOR NATURE CONSERVATION WHERE THE REQUIREMENTS OF INDUSTRY, LEISURE, PEOPLE AND WILDLIFE ARE SUCCESSFULLY INTEGRATED”

This vision was subsequently adopted by the Cotswold Water Park Joint Committee and there is every reason to adopt this broad aspiration for the Cotswold Water Park Biodiversity Action Plan 2007-2016.

What could the Cotswold Water Park look like in 2070?

In 2070 the Cotswold Water Park will be one of the largest man-made freshwater wetland complexes in Europe. It has the potential to become a unique landscape between Cirencester and Swindon linking the Cotswolds AONB to the North Wessex Downs AONB. With appropriate restoration the landscape will have the potential to remain resilient to the extremes of weather produced through climate change, acting as a large sponge at the head of the Thames to reduce the severity and speed of flooding to Oxford and beyond, whilst acting as a refuge for wetland wildlife in times of drought.

There is potential to plant woodlands around the Western end to ameliorate the rapid run-off of rainfall to linking the old woodlands of Bathhurst estate and the upper Chalford valley, to the Braydon Forest in North Wiltshire. This could link forest bat populations such as Bechstein's and Barbastelle. By 2070, this region could also be home to wild boar dispersing from the Forest of Dean and a viable pine marten population.

In the future the upper reaches of the Thames and its tributaries will meander through flower rich grasslands seasonally grazed by cattle and sheep being reared for the menus of the local hotels and retail complex at the Spine Road junction. In the winter or at any time of high rainfall these grasslands will become shallow temporary wetlands.

By 2070, along the course of the Thames from Clattinger Farm near Oaksey to St John's Lock at Lechlade, a continuous corridor of shallow wetland, reedbed linking the old lakes in the West and Eastern sections will provide homes for otters, water vole and beaver. Bittern will have finally returned to breed along with osprey, marsh harrier, little egret, great egret, garganey, spoonbill, bearded tit, penduline tit, black tern and common crane. Populations of little ringed plover and sand martin will remain even after cessation of mineral extraction on areas specifically managed for them. Within the flood plain, grasslands will support breeding wader such as snipe, redshank, common curlew in dry springs. Wet woodland and willow coppice will be managed to act as extra flood storage. Careful management of ancient trees and integration of roost sites for bats in new buildings and sculptures will ensure the maintenance and protection of one of the most diverse and high density populations of bats in England.

New water sports and leisure developments are likely to be concentrated in a triangular area between Ashton Keynes, South Cerney and Down Ampney. Footpaths and cycle routes will link villages and leisure developments following the route of the Cotswold, Wiltshire and Berkshire canals to Swindon and Cirencester, and bridle paths will weave through the area.

In 50 years time the Cotswold Water Park will not only be a vibrant place for wildlife but a desirable place to live and work. Designs of new developments will be compatible with wildlife and will provide a key part of a local economy based upon tourism, water sports, angling, art and farming.

Residents and visitors alike will see the maintenance of a successful balance between the needs of wildlife and the local economy as important to their quality of life. Ways to sustain this achievement will be a constant theme of research for the Cotswold Water Park's Biodiversity and Natural Art Institute and Research centre, whose presence will enrich the cultural life of the villages of the Cotswold Water Park.

2 National and regional context

2.1 What is Biodiversity and why does it matter?

Biodiversity is the variety of life. The word is a short hand way of referring to all the creatures and plants which live on the Earth. But why does the conservation of biodiversity matter? The most fundamental reason is that human beings are reliant upon all the other species on the planet to keep the life support systems of the Earth going - for example to trap energy from the sun, produce oxygen and recycle nutrients.

The rate of species extinction at present is greater than at any other period in the Earth's history, perhaps 1,000 to 10,000 times the normal 'background level'.* To turn this tide of extinction, which may threaten the ability of this planet to support the human population, we must take action, both globally and locally to look after the remaining biodiversity.

* 'The Diversity of Life', E.O Wilson

Biodiversity is also important for a number of other reasons:

- People empathise with wildlife and very often individual experiences with wildlife can enrich their quality of life.
- Experiencing wildlife can be an important factor in the prevention of mild mental illness and in the recovery of various forms of mental and physical illness.
- Wildlife has long been a source of inspiration for art and literature.
- The recent growth of wildlife conservation organisations and media interest demonstrates the continued importance of wildlife to people.
- The BBC Spring Watch survey 2006 estimates over half of UK population is concerned about wildlife conservation.
- High quality, biodiversity rich landscapes are also important economic drivers for tourism, leisure and rural crafts.
- Businesses, which can trade anywhere in the UK, select or remain in an area because of the high quality of the local environment.

2.2 The Rio Convention and Global Biodiversity Targets

In June 1992, the Convention of Biological Diversity (www.biodiv.org) was signed by 159 governments at the Earth Summit, which took place in Rio de Janeiro (also referred to as the Rio Convention.). As the first treaty to provide a legal framework for biodiversity conservation, it called for the creation and enforcement of national strategies and action plans to conserve, protect and enhance biological diversity.

UK Biodiversity Action Plan (UK BAP)

In 1994, the UK government launched Biodiversity: the UK Action Plan (www.ukbap.org.uk) which outlined the UK Biodiversity Action Plan for dealing with biodiversity conservation in response to the Rio Convention.

UK Biodiversity Steering Group

The UK Biodiversity Steering Group was created in 1994 and published Biodiversity: the UK Steering Group Report – meeting the Rio challenge (www.ukbap.org.uk).

This established the framework and criteria for identifying species (1250 in number) and habitat types of conservation concern. From this list, action plans for 391 species and 45 habitats (116 species and 14 habitats in Tranche 1 and the balance in the six volumes of Tranche 2) were published. As well as having national priorities and targets, action was also

taken at a local level. The Steering Group drew up a set of guidelines for the development of Local Biodiversity Action Plans of which there are now 162 LBAPs in England, Scotland and Wales.

In May 1996, the government endorsed the Steering Group's recommendations and established the UK Biodiversity Group in place of the UK Biodiversity Steering Group to advise the Government on the process. [The Government Response to the UK Steering Group Report on Biodiversity](#) (www.ukbap.org.uk). To measure progress on the 436 Action Plans a three to five yearly reporting cycle was established, details of which can be found on the UK Biodiversity Website www.ukbap.org.uk along with details of the management of the process at national level. In 2007 the review of the national species and habitat targets was published, and some of these may be included in future versions of the CWP BAP.

2.3 Why a Local Biodiversity Action Plan?

The implementation of a Local Biodiversity Action Plan provides a means of focusing conservation effort and money of all stakeholders on those species and habitats which are declining in number, area or quality and where it is still possible to take action to halt and reverse this decline. In summary:

- Biodiversity Action Plans set out a clear framework for nature conservation with measurable objectives and targets.
- Biodiversity Action Plans can only be delivered through a wide partnership of organisations including local authorities, farmers, landowners, developers, statutory bodies as well as nature conservation organisations.
- It is Government policy to protect *and* enhance biodiversity. Biodiversity is one of the Government's key tests for Sustainable Development.
- New developments provide an opportunity to make a positive contribution to delivering the targets in the Cotswold Water Park and UK Biodiversity Action Plans. Local planning authorities have both a duty and an opportunity to enhance the environment.
- Appropriate policies can be adopted and implemented to protect and enhance key species and habitats.
- The integration of benefits to biodiversity through planning should become a routine consideration, and flagged up at the earliest stage.

The protection and enhancement of natural features should be promoted through business plans, strategic and local development control plans, planning consent, mineral extraction permissions, farm management plans, sports development plans, village appraisals, local transport plans.

2.4 Local and Regional Biodiversity Action Plans

South West Biodiversity Action Plan

www.swbiodiversity.org.uk

The South West Biodiversity Partnership published a Biodiversity Audit in 1996, a South West Action Plan in 1997 and an implementation plan in 2005.

Gloucestershire Biodiversity Action Plan

Launched in 2000 and various plans are being reviewed.

www.gloucestershirebap.org.uk

Swindon Biodiversity Action Plan

www.biodiversityswindon.co.uk

Launched in March 2005 and overlaps with the CWPBAP along the River Thames downstream of the confluence of the River Ray.

Wiltshire Biodiversity Action Plan

www.biodiversitywiltshire.org.uk

Revised Wiltshire BAP, to be launched June 2008

Oxfordshire Biodiversity Action Plan

www.oncf.org.uk/biodiversity/

Published in 2005 this plan aims to focus conservation activity on a number of biodiversity hotspots identified by the Oxfordshire Nature Conservation Forum.

Staff from the Cotswold Water Park Society and other members of the CWP Nature Conservation Forum sit on the steering groups which guide the neighbouring LBAPs to ensure there is a co-ordinated approach to implementation and reporting.

The Cotswold Water Park Biodiversity Action Plan 1997-2007

The Cotswold Water Park Biodiversity Action Plan 1997-2007 was developed prior to other local biodiversity action plans. It set out local actions and targets to contribute to the delivery of UK targets in the Cotswold Water Park. This revised Cotswold Water Park Biodiversity Action Plan 2007-2016 replaces the 1997-2007 plan

2.5 Policy Changes since 1996

The implementation of a local Biodiversity Action Plan is supported and influenced by both national and local policy.

2.5.1 National policy changes

Since 1996 the environment has moved up the political agenda with increasing concern about species loss and most importantly the impact of climate change on both the natural environment and human societies. Over the last ten years there have been a number of significant policy changes

Countryside and Rights of Way Act 2000

This act provides the statutory basis for Biodiversity Action Plans. Part III of the Act amends the law relating to nature conservation and the protection of wildlife, and includes provision on the conservation of biodiversity and the protection of Sites of Special Scientific Interest (SSSI). In particular, Section 74 of the Act places new duties on Government ministers and departments in respect of the conservation of biodiversity. Local authorities are not covered by these duties. In practice the Government expects the lists of habitat types and species of principal importance to be consistent with those which are already the subject of Action Plans under the UK Biodiversity Action Plan.

Details of Act and guidance

Countryside and Rights of Way Act 2000

www.opsi.gov.uk

DEFRA DETR circular 04/2001

www.defra.gov.uk

Countryside and Rights of Way Act Factsheets

www.defra.gov.uk

Natural Environment and Rural Communities Act 2006

From 1 October 2006, all local authorities and other public bodies in England and Wales have a duty towards the conservation of biodiversity in exercising their functions. The duty aims to raise the profile of biodiversity across the public sector and ensure that biodiversity becomes a natural consideration in policy and decision-making.

The Duty is set out in Section 40 of the Natural Environment and Rural Communities Act 2006, and states that:

“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”

The Duty affects all public authorities which include public bodies, government and statutory undertakers in England and Wales. The latter includes bodies carrying out functions of a public character under a statutory power, such as NHS Trusts, Emergency services etc. The Duty applies to all local authorities, including the 410 unitary, county and district councils in England and Wales, and approximately 10,000 community, parish and town councils.

New List of Priority Species and Habitats for England; Section 41 NERC Act

Under Section 41 of the Natural Environment and Rural Communities Act, the Secretary of State must publish, review and revise a list of the living organisms and types of habitat which in the Secretary of State’s opinion are of principal importance for the purpose of conserving biodiversity. The new list contains 1149 species and 65 habitats. The original UK BAP list contained only 577 species and 49 habitats. The CWP BAP 2007-2016 has been developed using the original list but new species and habitat action plans will be introduced over the coming years.

Details of new priority Species and Habitat
Details of NERC ACT

www.ukbap.org.uk
www.defra.gov.uk

National Policy guidance statements, circulars and guidance

Local Plans and the emerging local development frameworks need to take account of national guidance, circulars and planning statement (PPS). The national guidance also needs to be taken into account when planning applications are determined at a local level. Current national planning guidance relevant to biodiversity is listed below:

Planning Policy Statement 9: Biodiversity and Geological Conservation

Planning Policy Statement 9 (PPS 9) sets out planning policies on protection of biodiversity and geological conservation through the planning system.

www.communities.gov.uk

Circular 06/05: Biodiversity and Geological Conservation - Statutory obligations and their impact within the Planning System

This Circular provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It outlines how statutory obligations impact within the planning system, in some cases the legislation will have an equal bearing on other regimes eg Transport and Works Act 1992. This Circular should be read in conjunction with PPS9, available on www.communities.gov.uk, which sets out the Government's planning policies for England on protection of biodiversity and geological conservation through the planning system and the accompanying

www.communities.gov.uk

Planning for Biodiversity and Geological Conservation: A Guide to Good Practice

This Guide complements PPS9 and circular 06/05 and provides good practice guidance on ways regional planning bodies and local planning authorities can help deliver the national policies in [PPS9](#) and comply with legal requirements set out in the Circular 06/05. www.communities.gov.uk

Local sustainable Community Strategies, Local Area Agreements and national indicator for local government

To increase the efficiency of delivery of local services that reflect local priorities, local authorities are required to form local strategic partnerships made up of a range of statutory and non-statutory organisations. Many partners involved in the CWP Biodiversity Action Plan are involved in these local strategic partnerships and are working to ensure that the delivery of local biodiversity action plan targets become integrated into the work plans of all government department and agencies.

www.communities.gov.uk

Local area agreements

As part of this greater partnership-working, County Councils are entering into agreement with regional government offices to deliver certain targets. These local area agreements (LAAs) for both Gloucestershire and Wiltshire currently include biodiversity objectives.

www.communities.gov.uk

National performance indicators for local partnerships

In order to reinforce the importance of improving biodiversity, the new national list of performance indicators for local authorities and local authority partnerships includes a specific target (NI 197) to improve local biodiversity through active management of local sites.

www.communities.gov.uk

Spatial Planning

Spatial planning at a regional, county and local level can have significant positive and negative impacts on the delivery of local biodiversity action plans. The spatial planning system is currently in a state of change with planning decisions being made in the Cotswold Water Park in 2007 using local plans and mineral plans developed under the old system, while the new spatial plans are being developed and are likely to be operational in the next few years.

Old system (2007)

Regional Policy Guidance (RPG10)

Regional Planning Guidance Note 10 “Regional Planning Guidance for the South West” provides strategic guidance to which County Structure Plans, Local Mineral Plans and Local plans must comply including major infrastructure projects, regional transport routes, housing allocation and mineral allocations. The South West Regional Aggregates Working Party (SWRAWP) is responsible for sub-dividing the central government’s national and regional aggregates demand forecasts down to a county level.

Structure Plans

County Structure plans translate regional guidance in RPG10 to county level and provide the policy basis for Mineral Plans and District Local Plans

Local Minerals plans

Currently planning applications for mineral extraction and restoration in the CWP are determined by the relevant County Council in accordance with either the Gloucestershire Local Mineral Plan 1997-2006 or the Wiltshire & Swindon Mineral Local Plan 2001 depending on the location of the particular site.

District Local Plans: Built development or change of use

Planning applications for change of use of land or water and for built developments are determined by either Cotswold District Council (Cotswold District Local Plan 2001-2011, North Wiltshire District Council (North Wiltshire district plan 2001-2011) or Swindon Borough Council.

2.5.2 Local Policy Changes

The Planning and Compulsory Purchase Act 2004 came into effect in May 2004. The Act amends existing legislation (The Town and Country Planning Act 1990), and has changed the planning system in several important ways:

Forward planning

- Regional planning guidance is replaced with regional spatial strategy
- County structure plans are abolished
- Local plans are replaced with local development frameworks
- County Mineral and Waste Plans replaced with Mineral and Waste Development Frameworks

The first round of local development frameworks are emerging at different timescales and are by their very nature evolving documents. Details of the status and policies in the South West Region Spatial Strategy and each Local Development Framework can be found at the relevant websites.

South West Regional Spatial Strategy

www.gos.gov.uk

www.southwest-ra.gov.uk

Gloucestershire Mineral Plan

www.gloucestershire.gov.uk

Wiltshire Mineral and Waste Plan

www.wiltshire.gov.uk

Cotswold District Local Plan and emerging Local Development Framework www.cotswold.gov.uk

North Wiltshire District Local Plan and emerging Local Development Framework www.northwilts.gov.uk

It should be noted that by Autumn 2008 Wiltshire will become a Unitary authority and the forward planning function of North Wiltshire will be a county council role.

CWP Master Planning Process

In 2007 the Cotswold Water Park Joint Committee (along with financial assistance from the South West Regional Development Agency) commissioned consultants Scott Wilson to develop a Strategic Plan for the future development of the whole of the Cotswold Water Park. This is due for adoption in 2008 as a precursor for a local area action plan for the whole of the Water Park. Biodiversity has been identified as a key driver for the future development of the Cotswold Water Park in particular the development of a biodiversity corridor linking the western and eastern sections.

See website www.waterpark.org for further details

2.6 Climate change

The climate is changing in the Cotswold Water Park and it is predicted that these changes will continue for the next 20 years even if global emissions of carbon dioxide are reduced by 60% this year. Average temperatures are predicted to rise in the region of 0.3 - 0.6 C, summers will become drier and hotter while winters will become wetter and milder, along with an increase in the frequency and severity of storms.

If no action is taken on reduction of carbon dioxide emissions, the **UK Climate Change Panel*** predicted changes from now to 2050 - 2080 for the South West region will be as follows:

Temperature

- Annual warming of 1.0 to 2.5°C (Annual warming of 1.5 to 4.5°C in the 2080s)
- Greater warming in summer and autumn than in winter and spring
- Greater night-time than day-time warming in winter
- Greater day-time than night-time warming in summer

Precipitation

- Winters 5 to 15% wetter (Winters 10 to 30% wetter by the 2080s)
- Summers 15 to 30% drier (Summers 25 to 55% drier by the 2080s)
- Heavy rainfall becomes more common
- Dry summers as in 1995 (37% drier than average) become more common
- Winter and spring precipitation becomes more variable
- Snowfall to decrease significantly

Cloud cover

- Reduction in summer and autumn cloud and increase in radiation
- Small increase in winter cloud cover

Humidity

- Specific humidity increases throughout the year, relative humidity decreases in summer

Soil moisture

- Decreases in summer soil moisture
- Increase in winter soil moisture

Storm tracks

- Depressions, particularly in autumn and winter become more frequent including deepest ones

South West Climate Change Impact Scoping Study

For full study and further information

www.oursouthwest.com

Impact of climate change in Cotswold Water Park

Climate change is likely to have significant impact on biodiversity in the Water Park resulting in changes in abundance, presence and distribution of species and in the longer term, habitats. Warmer temperatures will mean that mobile species are likely to colonise as they gradually move north; for example, migrant hawker dragonflies have colonised in the last 20

years and more recently species such as the lesser emperor bred in 2007, plus red-veined darter dragonflies and small red-eyed damselfly have been recorded in the area. Little egret numbers are gradually increasing and it is likely they will begin to breed in the next few years. Warmer temperatures are likely to see an increase in certain bat species particularly lesser and greater horseshoe bats. The number of wintering waterfowl, particularly migrants from northern Europe is likely to decline as milder conditions mean that they over winter further north.

Climate change will have a complex impact upon water regimes and will lead to much greater fluctuation in water levels within and between years. Species such as water vole may suffer from rapid fluctuations in river levels meaning that over time large reed bed and shallow wetland complexes may become a much more important habitat for this species. Lower summer river levels are likely to have a negative impact on a number of species in the upper reaches of the catchment although on lakes more exposed mud may benefit a range of species.

One of the key opportunities within the CWP is creation of a significant variety of wetland habitats over a large area to allow species movement between different areas.

3 Summary of progress on delivery of the CWP BAP 1997 – 2007

Funding for the implementation of the CWP BAP has come from a variety of sources including Landfill Tax, Statutory Agencies, Aggregates Levy Sustainability Fund (ALSF), various grant-giving Trusts, the CWP Joint Committee and commercial sponsorship.

Habitat Action Plans

Progress in the delivery of specific targets in the Habitat Action Plans has been variable.

- Good progress has been made on the **Standing Open Water HAP** with the creation of shallow wetlands and mineral companies taking a positive approach to restoration for conservation.
- Targets in the **Rivers & streams HAP** have largely been achieved through the work of the Environment Agency and agri-environment schemes.
- Progress on the **Marsh & swamp HAP** has been slower than hoped in terms of creation of large new areas of habitat although a number of restoration plans for quarries now include restoration to large areas of these habitats in the future. Small reedbeds have already been created, and conservation input to mineral restoration plans should result in approximately 115ha new reedbeds in 15 years.
- Creation of new areas of **Lowland neutral grasslands** has been limited to a number of small areas through the restoration of quarries largely because quarries restored to terrestrial habitats are commercially very valuable to development. The purchase of Blakehill Farm, Clattinger Farm and Lower Moor Farm by the Wiltshire Wildlife Trust has ensured the protection and suitable management of existing lowland grassland in the areas. Also a number of large areas of farmland adjacent to the Thames are in the process of arable reversion to grassland through Countryside Stewardship schemes.
- While there have been some notable losses of important hedgerows, progress on the **Boundary Features HAP** can be seen through increased recognition of this habitat in the CWP for bats, nightingale and invertebrates.
- Agri-environment schemes particularly Countryside Stewardship have contributed to the delivery of the **Cereal field margin HAP** but only limited progress has been made on the **Woodland and Canal HAPs**.

Species Action Plans

There has been even greater variation in the overall progress of the **Species Action Plans**.

- **Otter** have increased significantly in number and range since 1996.
- The near eradication of American mink from the Western sections by 2006 and very significant reduction in number from the Central and Eastern area has resulted in the dramatic return of **water vole** to good habitat but their recovery is now probably limited by suitable habitat.
- The known distribution of **lesser bearded stonewort** has increased over the period due partially to increased knowledge but probably also through the creation of new lakes with suitable conditions.
- The **reed bunting** population has fluctuated dramatically between seasons but overall has shown an increase in number. The number of wintering **bittern** has remained roughly similar although not yet a breeding species due to the slow progress in creation of large reedbeds. **Tufted duck** wintering numbers have increased in line with the increase in the national population. In areas where they have been monitored, the breeding population has remained stable although the amount of suitable breeding habitats through the Cotswold Water Park has increased. The number of wintering **pochard** has decreased more steeply than the national decrease, whilst **gadwall** numbers have increased at a greater rate than national numbers. The distribution of freshwater **white-clawed crayfish** has contracted during the periods whilst the alien signal crayfish has increased. Further details of progress are included in each Habitat Action Plan (HAP) or Species Action Plan (SAP).

Survey and monitoring

There has been a very significant increase in the level of research and monitoring in the area during the plan period on both priority and non priority species which has confirmed and enhanced the recognition of the area as a biodiversity hot-spot. However further survey work, particularly a Phase 1 habitat survey, is still desperately required.

Planning policy

Overall good progress has been made in the integration of biodiversity into the planning process, both in terms of mineral planning and development control, although there is scope for further improvements. For example, Gloucestershire Mineral Policy E10 provides policy support for restoration to enhance biodiversity and the Wiltshire Mineral plan favours restoration for nature conservation on four out of the six sites in the Cotswold Water Park. The CWPBAP 97-07 was adopted as supplementary planning guidance to the Cotswold Local Plan and Policy RC17 in the North Wiltshire local plan provided policy support for both protection and enhancement of biodiversity in the Cotswold Water Park.

South West Nature Map

The Cotswold Water Park has been included in the South West Nature Map (now included in the Region Spatial Strategy) as a target area for new habitat creation.

A feasibility study by the RSPB has set out a long term plan for restoration of a large part of the central section of the Cotswold Water Park. In partnership with Natural England, the CWP Society is developing an overall vision for a 14 mile corridor of linked high quality habitat. This is referred to as the Head of the Thames Wetland Corridor, and will incorporate high quality habitats from the source of the river Thames and its tributaries through to the head of the navigation at Lechlade.

Bird Strike Working Group

Concerns by the Ministry of Defence over bird strike at RAF Fairford has led to the creation of a Bird Strike working group and a recognition that restoration of new mineral sites in the central section do not lead to a significant increase in the bird strike risk. This will mean restoration to farmland and in the wetter area, enclosed wetland habitats.

Mineral companies, landowners and developers

Biodiversity is now recognised as an important issue for mineral companies in the planning, extraction and restoration of quarries. Many farmers and landowners are now changing the management of their land through adoption of agri-environmental schemes which will result in biodiversity improvements. Some of the commercial developers in the Cotswold Water Park have also recognised the importance of a biodiversity rich environment and are delivering biodiversity gain over and above planning requirements, even to the extent of using wildlife as part of their marketing programme for second homes or apartments.

The Cotswold Water Park Society has become the main point of contact with regard to biodiversity issues in the area for developers, mineral companies, lake owners and local communities. Working with all the members of the Nature Conservation Forum, the Society provides ongoing advice and training to a wide range of people.

Education

Education programmes, both formal and informal have been developed and delivered by the Society and other partners (RSPB, Wildlife Trusts and second home developments) and the Wiltshire Wildlife Trust has constructed a purpose built education facility at Lower Moor Farm, near Oaksey. Talks, guided walks and events are offered throughout the year to the general public and interested parties. The CWP website, www.waterpark.org offers an up to date source of information and reference for students and the public.

Volunteers

A very significant part of the success of the implementation of the CWPBAP to date has been the role of volunteers. This volunteer work includes bird, mammal, plant and invertebrate surveys, monitoring, American mink trapping, leading guided walks, giving talks/running workshops, representing BAP partners at key meetings, assisting with data entry, computing and practical habitat improvements. Approximately 150 volunteers are involved in the implementation of the CWPBAP each year. To give an indication of the value of this work the Natural England recommended day rates for in-kind contribution were used to calculate the financial value. The monetary value of this voluntary effort is in the region of £300,000 to £480,000 per annum.

Land acquisition

During the plan period a number of sites in the CWP have been acquired by conservation bodies including Clattinger Farm, Lower Moor Farm and Blakehill Farm by the Wiltshire Wildlife Trust and Cleveland Lakes by the Cotswold Water Park Society.

3.1 Working at a landscape scale

Experience of implementing the CWP Biodiversity Action Plan 1997-2007 over the last ten years has shown there is a significant opportunity to deliver real change at a landscape scale working with landowners throughout the area.

The NCF is working towards the vision of creating and restoring a broad corridor of riparian habitats between the source of the Thames and Lechlade in order to maintain and restore the biodiversity value of this land. Many areas are already in favourable management for nature conservation; for example, Clattinger Farm, Blakehill Farm, Lower Moor Farm and Swillbrook Lakes (Wiltshire Wildlife Trust reserves), North Meadow NNR (Natural England) as well as at least 8 large farms and landholdings in agri-environment schemes along the River Thames at Ashton Keynes, Cricklade, Castle Eaton, Kempsford and beyond. The creation of this riparian corridor is aimed at certain species and their habitats, such as otter, water vole, breeding waders and farmland birds all benefitting within a matrix of lowland meadows, wet woodland, rivers and streams.

Furthermore, this landscape will provide additional benefits; this area is still a natural floodplain, although flooding patterns have changed in recent years, rendering agriculture increasingly difficult and unprofitable. Management of parts of this area for wildlife as well as for water control will promote water storage in this area of the Upper Thames, helping to protect settlements downstream and protect this area from future developments. The value of this vision has been recognised by its inclusion in the South West Regional Spatial Strategy within the Nature Map South West.

One of the key strands to this vision is that built development should not, and cannot be undertaken on the floodplain; this will protect settlements elsewhere in the Upper Thames, will prevent inappropriate developments and will also safeguard these areas for wildlife.

The CWPBAP 07-16 recognises another key facet of the area that key partner organisations are committed to creating large reserves along this corridor e.g the RSPB is committed, in future decades, to creating a landscape-level wetland reserve in the Central CWP, the latest area of gravel extraction. This work will attempt to link together several mineral companies and their quarries, restoring the area as one ecological unit. The Wiltshire Wildlife Trust is committed to linking reserves together at the Western end around Clattinger Farm. The Society has long term aspirations for linking Cleveland Lakes to North Meadow, Cricklade and Pike Corner, near Ashton Keynes. There may also be potential for the Gloucestershire Wildlife Trust to extend its reserves in the Eastern section.

Habitat creation and restoration targets within the CWPBAP 07-16 recognise the huge but long term contribution these projects will make, and the reality that some of these works will not be completed within the lifespan of this BAP but in decades to come.

3.2 Bird Strike

The Cotswold Water Park is within the statutory bird strike safeguarding zones surrounding RAF Brize Norton and RAF Fairford. The principle concern of the MOD in this area is creation and management of habitat, particularly wetland habitat that would significantly increase the population of large and, or flocking bird species that are hazardous to air traffic. In recognition of these concerns the Cotswold Water Park Bird Strike Technical Working party was set up in 2001. This working group involves representation from MOD defence estates, RAF Fairford, Mineral Planning authorities, Natural England, Environment Agency, RSPB, and the Cotswold Water Park Society with representatives from particular mineral companies when appropriate. The aim of the technical working party is to ensure that future phases of mineral restoration and other forms of habitat development in CWP do not significantly increase bird strike risk.

3.3 Rationale behind the revised CWP BAP 2007 – 2016 and the way forward

In 2006, the CWP NCF began a review of the original Cotswold Water Park Biodiversity Action Plan 1997-2007, recognising that it required updating since many targets and actions had been successfully completed, whilst some other areas required new impetus. Following wider consultation with key stakeholders in the Cotswold Water Park the resulting document will be launched in 2008.

The new Cotswold Water Park Biodiversity Action Plan 2007-2016 (CWP BAP 07-16) recognises the unique and rapidly changing nature of the CWP and that mineral extraction has a great potential to create a positive impact for biodiversity.

The CWP BAP 2007-2016 now includes Habitat Action Plans (HAPs) for:

1 Habitats found before, during and after mineral extraction:

- Boundary features
- Built structures
- Canals
- Rivers & streams
- Lowland Neutral grassland
- Farmed land
- Woodland

2 Habitats created as a result of the mineral extraction process

- Sand and gravel quarries

3 Habitats created during the mineral restoration process

- Fen, marsh and reedswamp
- Standing open water

The last category also includes those habitats found in the CWP prior to the mineral extraction, since restoration will also aim to replace and increase the areas of these habitats.

The key point of the above categories is to emphasise that habitat conservation and enhancement should be seen as an integral part of the whole mineral extraction process, before, during and following extraction. For example, farmland left uncultivated prior to extraction and temporary habitats found within active quarries can play a valuable role, as well as the more permanent habitats that may be created afterwards.

It is worth highlighting that the new CWP BAP 07-16 includes a HAP for Built Development. Whilst many BAPs cover large areas of built development, the CWP is perhaps unusual in the way that the majority of built development in the area is so closely linked to the tourism and leisure industry, including hotels, second home developments and leisure complexes. Many such developments rely on a high quality environment to attract custom, and even small-scale developments can make significant contributions to nature conservation

With this in mind, the **Built Structures HAP** has been included to recognise and capitalise upon the contribution that built development can make, including bridges and second homes as well as tourism and leisure development.

Detailed rationales for including many of the habitats, with an explanation of the scope of each HAP, can be found at the start of each HAP.

An array of species has been selected to complement these HAPs:

- Barberry carpet moth \$
- Bats (Group)\$
- Black poplar\$
- Breeding waterbirds (Group)
- Dragonfly (Group)\$
- Great crested newt\$
- Stoneworts (Group)*
- Water vole *
- Wintering waterbirds (Group)

Many of these species were included in the previous CWP BAP 1997-2007 and are currently the focus of considerable projects (marked *). Others have been added because of recent recognition of the importance of the CWP for these species at a regional level (marked \$). In some cases (bats, dragonflies, black poplar) their inclusion has only been possible through recent advances in our knowledge of their populations and distribution within the CWP.

It should also be noted that some of the targets extend beyond the life of this BAP, and the reason for this is that there are some actions which take a long time to establish, such as a newly planted reedbed can take many years before it provides a suitable habitat for breeding bitterns.

The new CWPBAP 07-16 reflects the rapidly changing nature of the CWP, the extensive mineral extraction, the potential for creation and restoration of habitats, and the richness of the wildlife already found here. It also reflects the huge nature conservation efforts undertaken within this area by a vast range of partners including members of the NCF, landowners, lake owners, developers, mineral companies and local nature conservation groups.

Unlike many local Biodiversity Action Plans which take a fairly broad approach, the new CWP BAP 07-16 is more akin to a detailed work programme for the next 10 years, specifying where and how efforts are required for a range of partner organisations.

3.4 How the CWP BAP Process works and how it will be developed

This CWP BAP 07-16 is a working document setting out targets for species and habitats. Each Action Plan (Species, Habitat or Generic) is set out in a similar manner

- A brief introduction
- Conservation priority at a local, regional and country level in a table format
- National & Local Status: A description of national and local status in terms of changes in population and distribution
- Habitat and Ecology: A brief description of the habitat (or habitat requirements) and ecology
- Current Factors affecting the habitat/species in the UK and Cotswold Water Park
- Conservation objectives for that species or habitat action plan. These objectives will be delivered by the series of actions set out in the **Action Table**
- Links to other Action Plans
- Links for further information

Action Plan tables

Each Species and Habitat Action Plan has a **Table of Actions** which set out the actions required to achieve each of the objectives for that particular species or habitat. **These are the most important part of the document** and are set out in the same way.

- **Action Plan** – which is the name of the action to which the target applies
- **Target code** – this is an alpha-numeric code which will be cross referenced to the national Biodiversity Action Reporting System (**BARS**) to record progress on the delivery of this LBAP
- **Target Text** – this describes the measurable target
- **Target Year** – is the year by which the target is to be completed
- **Action Code** – this is the code number for this particular target
- **Action Text** – this describes the action required to complete target
- **Action Lead** – this is the organisation or individual(s) who will be responsible for ensuring this action is carried out. The lead organisation may not necessarily be undertaking the task but will be responsible for making it happen.
- **Action Partners** – these are the organisations who will be involved in carrying out the actions. These organisation will be required to report to the lead organisation on progress
- **Measure (units)** – the measurement used to assess whether the target has been achieved

The CWP BAP07–16 will be a largely web based document which can be downloaded as a whole document or by individual section. Only a small number of hard copies will be made available, although the entire document can be sent on CD if required. This means that the CWP BAP07-16 can be updated regularly and new Action Plans added when required.

Criteria for Species Statements

Species Statements have been written for those species considered sufficiently important (UK BAP species occurring in area or species for which the CWP is at least regionally important) to warrant inclusion within the CWPBAP 2007-2016, but where halting population decline and assisting recovery will be achieved by measures already outlined within a HAP.

For example, **reed bunting** will benefit from a range of habitat creation and management practices that will benefit other species; none of these practices is necessarily specific only to **reed bunting**. It is therefore included as a Species Statement.

Where actions are required for a species that are over and above general positive habitat creation and management works, that species should be considered for inclusion as a SAP.

There is a temporal element to whether there is a need for a specific Species Action Plan or Species Statements. Bittern, for example will benefit the most in the CWP from the creation of reedbeds, marsh and fen; such habitat creation/restoration and management is detailed within the relevant HAP. If additional works are required to support this species (such as monitoring and stocking with prey species such as eel, rudd & roach), it may be considered for inclusion as a SAP in the future. In the case of **bittern**, by the end of the lifespan of this BAP (2016) it is planned that significant areas of reedbed will have been established. It is at this point that further consideration of fish prey species is most pertinent.

In taking this approach the attention of the CWP BAP document has been further focussed upon implementation of the Habitat Action plans and the key species groups of the CWP: **Bats, breeding and wintering waterbirds, dragonflies, stoneworts and also water vole, great crested newt, black poplar and barberry carpet moth.**

These species and species groups accurately represent the species focused nature conservation interest of the CWP and the direction of current biodiversity work. It is anticipated that during the lifespan of the new BAP (2007-2016) there will be increasing work on species not yet focussed upon, for example, **invertebrates**.

Biodiversity Action Reporting System (BARS)

The Biodiversity Action Reporting System (BARS) is a web-based information system that supports the planning, monitoring and reporting requirements of national and local Biodiversity Action Plans (BAPs).

BARS will enable everyone involved in BAP implementation, including LBAP partnerships and Lead Partner organisations, to enter action plans and record progress towards targets and actions. BARS uses drop-down lists and quantitative fields to provide a standardised structure so that BAP information can be integrated across users. This information can be searched by members of the public to learn about BAP activities underway. A range of sophisticated reports is available to BAP users enabling them to generate summaries from their data and to set their work in the wider context.

The CWP BAP 07-16 will be entered onto the BARS system and this will be the mechanism by which progress on the implementation of the CWP BAP 07-16 will be monitored.

4 Non-native invasive species

Local biodiversity action plans generally target native species however it needs to be recognised that non-native species can have significant impact on both habitat and species targeted in local biodiversity action plans. While these issues are dealt with in individual action plans it is important to put the issue of non-native and invasive species in context, hence the development of this non-native species action plan.

Introduction

A wide variety of non-native species may be found throughout the UK in nearly all habitats of the UK. This includes terrestrial and aquatic plants; cultivars from parks and gardens that have naturalised in the wild (eg rhododendron, Himalayan balsam, Australian swamp stonecrop etc) ; vertebrates such as Canada geese, ruddy duck, red crested pochard, little owl, various species of parrot and parakeet, Sika deer, fallow deer, American mink, red eared terrapin and Alpine newt. Numerous invertebrates have also been introduced and include the New Zealand flatworm and American signal crayfish as well as a host of other species.

The UK BAP website presents an extensive list of non-native and invasive species in the UK at present (Understanding the impacts of introduced species: highlighting the status and threats posed by non-native species; see weblink www.ukbap.org.uk/library/brag/InvasiveSpeciesEConference.doc

Non-native invasive species should not be confused with:

- Species colonising the UK naturally, possibly in response to climate change; for example the little egret, red veined darter, small red eyed damselfly. These are species naturally expanding their range in response to improving environmental conditions.
- Native species reintroduced to the UK or parts thereof, under IUCN guidelines, for example pool frog, European beaver, great crested newt, red kite, and white tailed sea eagle.

The impact of non-native invasive species upon UK BAP species and habitats

Many non-native invasive species are presumed to have a benign impact upon UK BAP species and habitats, for example, little owl *Athene noctua* and sycamore *Acer pseudoplatanus*.

Many invasive and non-native species however are clearly of conservation and economic concern, for example, American mink *Mustela vison* (due to its impact on the water vole and native breeding waterbirds), Canada geese *Branta canadensis* (due to their impact on arable crops, birdstrike risk, public health and hygiene) and Australian swamp stonecrop *Crassula helmsii* (due to its ability to rapidly choke waterbodies and to colonise new sites).

Action against non-native invasive species should be focussed upon species which are clearly of acute conservation and economic concern, and for the purposes of a Biodiversity Action Plan any action should be further focussed upon supporting UK SAPs and HAPs.

Non-native invasive species	Impacts	Impacting UK BAP and CWP BAP HAPs and SAPs
American Mink <i>Mustela vison</i>	Predation of the Water Vole and native waterbirds	Water Vole SAP Rivers & Streams HAP Standing Open Water HAP
Signal Crayfish <i>Pacifastcus leniusculus</i>	Carrier of "crayfish plague",	White Clawed Crayfish SAP Rivers & Streams HAP Standing Open Water HAP
Canada Geese <i>Branta canadensis</i>	Crop damage, birdstrike, public health & hygiene, enrichment of waterbodies through excreta	Standing Open Water HAP
Australian Swamp Stonecrop <i>Crassula helmsii</i>	Choking of waterbodies, suffocating other aquatic life. Rapidly spreads.	Standing Open Water HAP

Of clear concern is the potential for colonisation of aquatic plants being dumped in lakes and ponds by gardeners and pond-owners. There have already been several instances of non-native plants being found in some of the lakes, for example water hyacinth *Eichhornnia crassipes* in Cokes Pit LNR (Lake 34) in 2004, *Crassula helmsii* in Jubilee Pond, Ashton Keynes in 2005. In both cases, it is likely that colonisation was as a consequence of deliberate introduction.

In a similar fashion, red eared terrapins *Trachemys scripta elegans* have been seen in at least 2 lakes. The numbers of individuals involved and the overall distribution in the CWP is unknown. At one location the species was eradicated when the lake was drained; clearly such drastic measures are not always desirable or possible. A means of removing this species from lakes should be explored. Its ecological impact can be notable.

Himalayan balsam *Impatiens glandulifera* colonised the River Churn in Cirencester several years ago and has colonised its banks in many areas, notably at Cerney Wick, including the canal. At present little or no coordinated control is undertaken here other than ad hoc attempts by local home owners. Concern has been expressed of the potential threat of this species to the floral composition of North Meadow NNR. Furthermore, concerns have also been raised over the suboptimal habitat for water voles that Himalayan balsam creates in terms of the reduced complexity and variety of vegetation.

Actions

Monitoring

- 1 Monitoring of priority non-native species of conservation and economic concern: Canada goose, signal crayfish, American mink, *Crassula helmsii*, Japanese knotweed, parrots feather *Myriophyllum aquaticum* and others as and where appropriate.

Research

- 2 Develop research programme looking at potential impacts of non-native invasive species such as zebra mussels *Dreissena polymorpha* upon native invertebrate communities.
- 3 Develop research programme assessing signal crayfish distribution and the potential to create signal crayfish-free areas where native crayfish can be reintroduced.
- 4 Assess potential risk of Himalayan balsam *Impatiens glandulifera* to North Meadow NNR and the potential to impede the water vole recovery project in the CWP and beyond.

Advisory

- 5 Promote and disseminate existing advisory material produced by Environment Agency and other relevant organisations with regard to non-native invasive plant species, non-native crayfish species and others where appropriate.
- 6 Promote and encourage the use of native plant species and strains in the Cotswold Water Park, notably on large developments but also amongst small-scale gardeners and landscapers.
- 7 Promote the identification, control and disposal of non-native invasive plant species amongst local developments, lake owners and householders to generate increased awareness and action.
- 8 Develop action plans and contingency plans for the discovery of certain invasive plants in the CWP, as highlighted by the recent discovery of *Crassula helmsii* in Jubilee Pond, Ashton Keynes. Such plans should also clearly indicate responsibility by partner organisations as well as funding sources.

Pro-active control

- 9 Control of priority species:
 - American mink
 - Canada goose
 - Other species where deemed appropriate by research and monitoring process: for example, Japanese knotweed, giant hogweed *Heracleum mantegazzianum*, and red eared terrapin *Trachemys scripta elegans*.

