

Chilterns Area of Outstanding Natural Beauty

Management Plan 2008 - 2013

A Framework for Action

This Management Plan complies with the following legislation and guidance:

- The Countryside and Rights of Way Act 2000, Part 4 Section 89
- The Strategic Environmental Assessment Regulations (SI 1633) 2004
- The Conservation (Natural Habitats etc.) Regulations 1994 (as amended by The Conservation (Natural Habitats etc.) (Amendment) Regulations 2007)
- Guidance for the Review of AONB Management Plans published by The Countryside Agency 2006

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Cover photo: View of Ivinghoe Beacon

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Chilterns Area of Outstanding Natural Beauty Management Plan 2008 - 2013

Contents

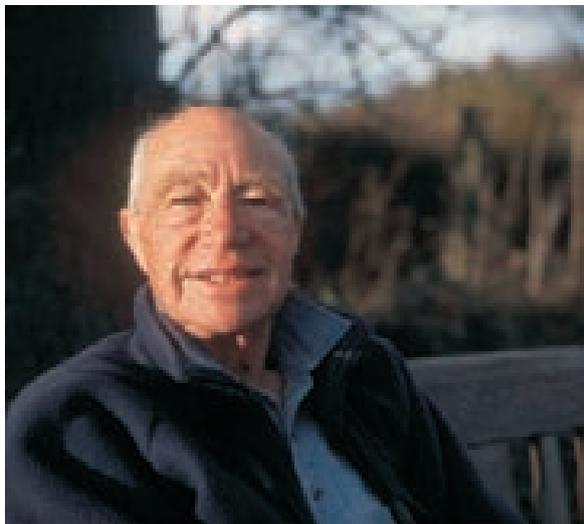
	Page
Foreword	1
Vision	3
Introduction	5
Section 1  Conserving and enhancing natural beauty	13
 Landscape	14
 Farming and forestry	26
 Biodiversity	36
 Water environment	48
 Historic environment	56
 Development	68
Section 2  Understanding and enjoyment	80
Section 3  Social and economic well-being	94
Section 4  Climate change	102
Section 5  Integration of cross cutting themes with management plan policies	112
Section 6  Implementation and monitoring	114
Abbreviations	120



Walkers by the River Chess

Foreword

The Chilterns Area of Outstanding Natural Beauty (AONB) is nationally-protected as one of the finest areas of countryside in the UK. It is a living landscape, shaped by centuries of activity by people and influenced today by local communities, organisations, businesses and government bodies. The future of the area is dependent on everyone with an interest in the AONB working together to protect and enhance it.



This Management Plan is the key to a partnership approach to managing the Chilterns AONB. It sets out the special qualities of the area, identifies the management issues it faces, presents a vision of the AONB as a special place and provides policies and actions

to guide the work of all of those who care for the area over the next five years.

The policies and actions are contained within sections of the Plan that reflect the primary purposes of the Conservation Board: conserving and enhancing natural beauty, increasing understanding and enjoyment; and its secondary duty of fostering social and economic well-being. There is also a new section on climate change and its likely impact on the Chilterns over the next few decades, reflecting the importance of this issue to all aspects of managing the AONB.

The law requires that AONBs have a management plan in place. Even without this statutory requirement, however, there are good reasons to go through the process of producing one. This Plan has benefited from the input of many organisations and individuals and is a collective expression of their interests and wishes. I am grateful for this contribution which has ensured it is truly a plan for all of us who care for the Chilterns AONB.

A handwritten signature in black ink that reads "Sir John Johnson". The signature is written in a cursive, slightly stylized font.

Sir John Johnson
Chairman
Chilterns Conservation Board



West Wycombe Hill

A Vision for the Chilterns Area of Outstanding Natural Beauty

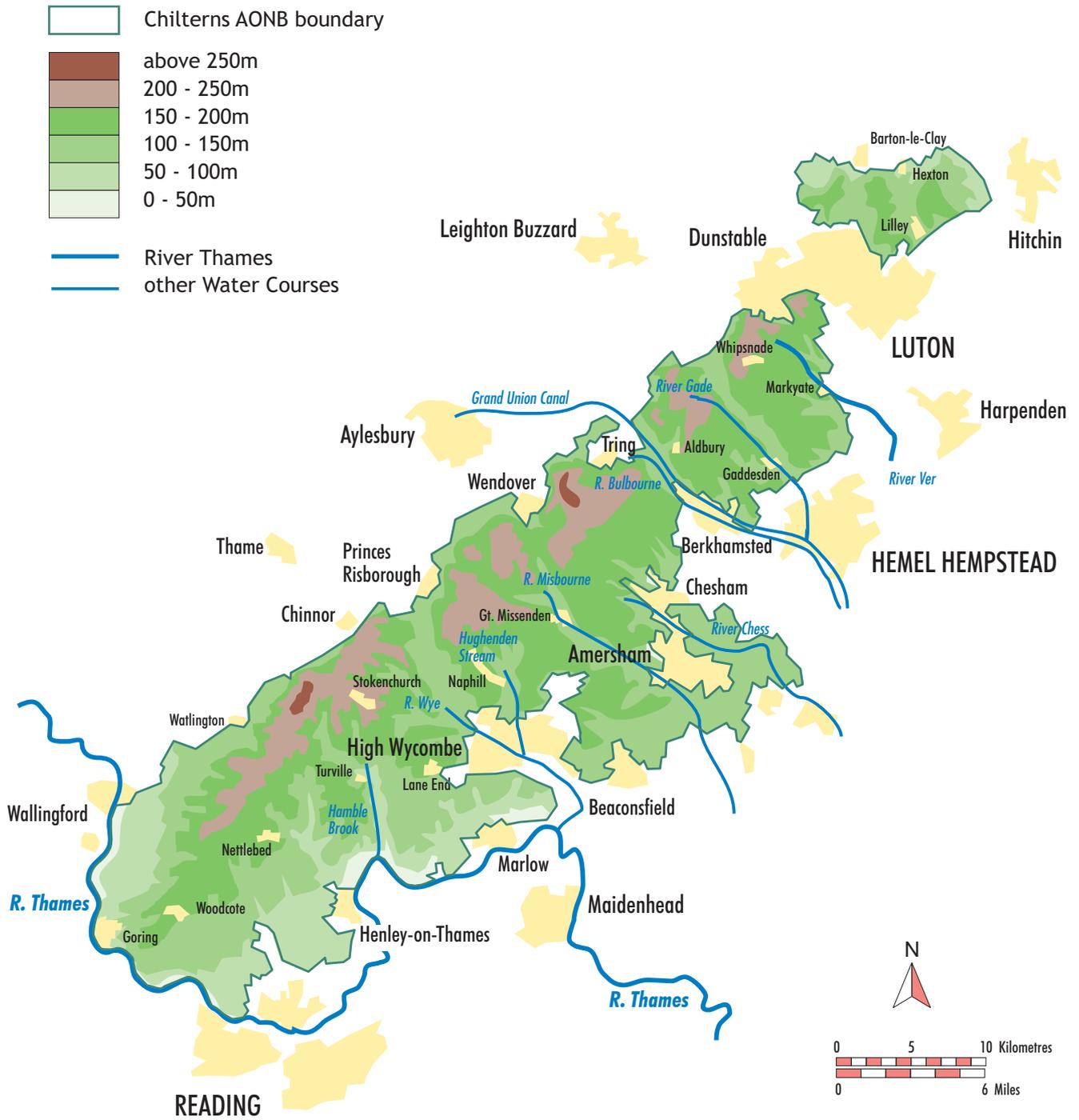
The Management Plan is based on a vision for the Chilterns AONB in which:

- Large, linked areas of open chalk downland contain a diverse range of chalk-loving plants and associated fauna.
- Well-managed woodlands produce good quality timber and wood fuel as well as providing natural spaces for recreation and a home for wildlife.
- Chalk streams flow along natural river beds and provide a healthy environment for their specialised wildlife.
- Local farms are thriving businesses which help to maintain the farmed landscapes of the Chilterns and support healthy populations of farmland birds and other wildlife.
- New developments are built to high environmental standards and respect the architectural traditions of the Chilterns.
- The impact of traffic on the area is reduced, with more people walking, cycling and using public transport and highway developments are appropriate and sympathetic to their surroundings.
- A wide range of people, both local and from further afield, enjoy and value the Chilterns countryside.
- The rich historic environment of the Chilterns is conserved and appreciated by a wide audience.
- There is a good market for sustainably produced local products which contribute to the viability of local farms, and a wide understanding of the link between the production of local goods and environmental quality.
- The carbon footprint of the AONB is reduced and the special features of the area are resilient to climate change.
- The common land of the Chilterns is conserved and valued by local communities and visitors.
- The tranquillity of the Chilterns is maintained with peace and quiet restored where noise is a problem and visual intrusions removed.



Pegsdon Hills near Hexton

The Chilterns Area of Outstanding Natural Beauty



Introduction

The special qualities of the Chilterns AONB

1. In 1965 an area of 800 sq kms of the Chiltern Hills was designated as an Area of Outstanding Natural Beauty (AONB). Later, following a review of the boundary, the AONB was enlarged to 833 sq kms. There are no plans to review the boundary during the lifetime of this Management Plan.
2. The Chilterns AONB was designated for the natural beauty of its landscape and its natural and cultural heritage. In particular, it was designated to protect its special qualities which include the steep chalk escarpment with areas of flower-rich downland, woodlands, commons, tranquil valleys, the network of ancient routes, villages with their brick and flint houses, chalk streams and a rich historic environment of hill forts and chalk figures.
3. There is an extensive network of protected sites within the AONB, including 63 Sites of Special Scientific Interest (SSSI), three National Nature Reserves and three European-designated Special Areas of Conservation. In 2008 94% of the Chilterns' SSSIs are in favourable or recovering condition.
4. One fifth of the Chilterns AONB is wooded and of this about 56% is ancient woodland (a site which has been continuously wooded since at least 1600). The AONB also has a nationally-important concentration of high quality chalk grassland with over 137 protected sites.
5. Commons are amongst the most characteristic features of the AONB - part of its social and cultural heritage, accessible green places for recreation

and public enjoyment and home to a wide diversity of wildlife. Today there are 2002 hectares of registered common land in the AONB - around 2.4% of the total area.

6. Some of the Chilterns' most distinctive natural features are its chalk rivers and streams, fed by groundwater from the chalk aquifer. A globally scarce habitat, chalk rivers support a range of specialised wildlife and in the Chilterns provide a home for the threatened water vole. Another significant water feature of the area, the River Thames, forms much of the southern boundary of the AONB.
7. The Chilterns is possibly the most heavily-visited landscape in the UK with 55 million leisure visits a year. Visitors come to enjoy over 2,000km of public rights of way, the Ridgeway and the Thames Path National Trails and many more special routes. The area is rich in history with ancient man-made features scattered through the countryside and a legacy of grand houses and designed landscapes from the 17th and 18th centuries. There are 122 Scheduled Ancient Monuments in the AONB and 15 parks and gardens on English Heritage's register.

The Chilterns Conservation Board

1. The Chilterns Conservation Board was established by Parliamentary Order in 2004. It is one of the first two Conservation Boards (the other is for the Cotswolds) set up under the Countryside and Rights Of Way (CRoW) Act 2000 which enabled the establishment of independent statutory bodies to manage AONBs. The Board superseded the shadow Chilterns Conservation Board which operated from 2001 - 2004 and the Chilterns Conference established in 1965.

2. The Board has two statutory purposes:
 - to conserve and enhance the natural beauty of the AONB; and
 - to increase the understanding and enjoyment of the special qualities of the AONB.
3. In fulfilling these purposes, the Board has a duty to seek to foster the economic and social wellbeing of local communities within the AONB, without incurring significant expenditure.
4. There are 29 members of the Board: 15 are appointed by the 15 local authorities in the Chilterns AONB, eight are appointed by the Secretary of State for Environment, Food and Rural Affairs and six are elected by parish and town councils in the AONB.
5. In 2009 this will reduce to a Board of 27 members, 13 of which are appointed by the local authorities. This is due to local government reform in Bedfordshire which will result in a new unitary authority, Central Bedfordshire Council, replacing South Beds District Council, Mid Beds District Council and Bedfordshire County Council as an appointing body to the Board.



View towards Whipsnade from Ivinghoe Beacon

6. The Board has a small staff team based in Chinnor in Oxfordshire. It is also assisted by volunteers who lead guided walks, give talks, help at events and carry out project work.

Chilterns AONB Management Plan

1. The CRoW Act places a duty on all local authorities which include an AONB, and Conservation Boards, where they exist, to produce a plan which outlines their policies for the management of the AONB and how they will carry out their functions in relation to it. Management plans must be reviewed at least every five years.
2. The previous management plan for the Chilterns AONB, *The Framework for Action: 2002-2007*, was published by the shadow Chilterns Conservation Board in 2002 and adopted by the newly-established Board in 2005.
3. A difficulty during the life of the previous plan was monitoring landscape quality and change. This remains a challenge in the absence of nationally-agreed criteria on measuring quality and change at the landscape level. It is an objective of the new Plan to increase the amount of environmental data on the AONB which will be published in an annual State of the Environment Report and will contribute to monitoring of the plan's progress.
4. *The Framework for Action: 2008-2013* contains a number of broad aims for the management of the Chilterns AONB. The more detailed policies and actions in the Plan outline how these aims will be achieved by the Board and all other parties with an interest in the AONB.
5. The aims, policies and actions in the Plan have been formulated by the Board in consultation with a very wide range of

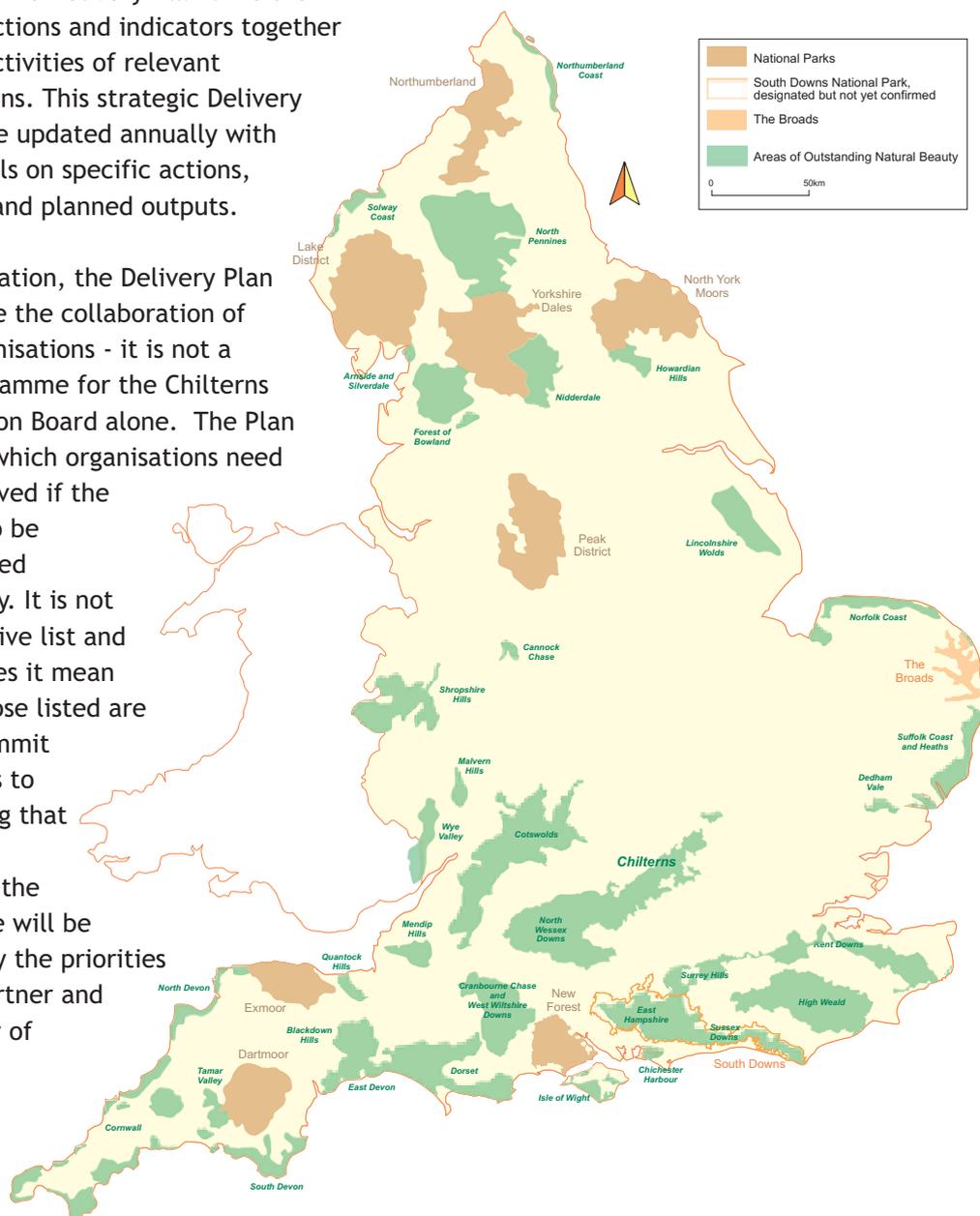
organisations and individuals. During the Plan's lifetime the Board will guide its implementation and will be responsible for undertaking many of the actions in it, in partnership with others. However, the Plan is not solely for the Board but is a guide for local authorities, statutory agencies, local organisations, landowners, businesses, communities and all whose activities influence the AONB.

6. To highlight how this Management Plan for the AONB is to be implemented a complementary Delivery Plan has been produced. The Delivery Plan links the policies, actions and indicators together with the activities of relevant organisations. This strategic Delivery Plan will be updated annually with more details on specific actions, resources and planned outputs.

7. For clarification, the Delivery Plan will require the collaboration of many organisations - it is not a work programme for the Chilterns Conservation Board alone. The Plan identifies which organisations need to be involved if the action is to be implemented successfully. It is not an exhaustive list and neither does it mean that all those listed are able to commit themselves to undertaking that action. Inevitably, the programme will be affected by the priorities of each partner and availability of resources.

Global, national and regional context of the AONB

1. The Chilterns AONB is one of 40 AONBs in England and Wales, which together cover 18% of the countryside. The AONB designation was created by the National Parks and Access to the Countryside Act of 1949, which also established the National Park designation. The aim was that the two designations would protect the finest countryside in England and Wales. In June 2000 the Government confirmed that AONBs and National Parks



- have the same level of landscape quality and share the same level of protection.
2. AONBs are part of the global network of protected landscapes. The International Union for the Conservation of Nature and Natural Resources (IUCN) has six management categories covering all types of protected areas. AONBs (and National Parks) fall into Category V - landscapes managed mainly for conservation and recreation.
 3. The Chilterns Conservation Board is a member of Europarc, the umbrella organisation for Europe's protected areas. As a protected landscape the Chilterns AONB, along with other AONBs, is playing a key role in the implementation of the European Landscape Convention, ratified by the UK in 2006. The Convention aims to improve the protection and management of important landscapes and to increase co-operation across Europe.
 4. The Board is an active member of the National Association for AONBs which represents the interests of the

designation and those bodies responsible for them at a national level.

5. The Board also participates in the South East Protected Landscape group to develop collaborative initiatives across the region and to develop working relationships with a range of regional partners. There is further scope for collaborative working in the East of England.

Influences on the natural beauty of the Chilterns AONB

1. There has long been pressure on the Chiltern Hills for development and for changes in land use which would have a deleterious effect on the quality of the landscape. It was partly these pressures which led to the designation of the area as an AONB in 1965. In more recent times the pressures have grown, leading to a greater-than-ever need for a comprehensive and widely-implemented Management Plan.



Track near Nettlebed

2. Sitting on London's doorstep, and immediately adjacent to several large towns, the Chilterns provides highly valued landscapes and places to escape to. It is a place which has to cope with growing populations and increasing traffic levels as well as pressures for development which come right up to the boundary. Luton, Aylesbury and the Thames Corridor have been identified as part of growth areas by the Government and will see population increases in the coming years, which will result in a greater number of people travelling through the AONB and using it for recreation. The consequent demand for road improvements and greater infrastructure at countryside sites could have a damaging effect on the AONB so needs to be appropriately managed.
3. Greater development close to the Chilterns, and some inevitable development within the area, will lead to more consumption of scarce water resources. Abstraction of water for domestic use already has an impact on Chilterns streams and rivers and it is vital that public demand for water is managed sustainably.
4. The landscape of the Chilterns is dominated by farmland and woodland, and changes in these land uses have a major influence on the natural beauty of the area. The reform of the EU Common Agricultural Policy and the introduction of new agri-environment schemes in the UK are affecting farming, with a greater emphasis on wildlife conservation. The de-coupling of support payments from production is enabling farmers to respond more readily to world market conditions. Rising grain prices are boosting arable farming but livestock and dairy farming, which are crucial to the management of special habitats like chalk grassland, have been in decline for some time.
5. Loss of traditional management practices - in particular grazing - and a decline in 'commoning' (the exercise of common rights) has affected the open habitats often associated with common land.
6. The long term decline in the market for UK timber is having a pronounced effect on Chiltern woodlands, with many suffering from a lack of management. The ageing beech woodlands no longer produce significant volumes of timber and are more valuable as places for recreation than as a part of the rural economy. The promotion of wood as a renewable fuel may stimulate improved management of some woodlands.
7. The pressures for development and the long urban fringe along the AONB boundary means there will be continuing pressure which may lead to urbanisation, illegal activities such as fly tipping and problems for landowners especially those who wish to continue commercial farming. This pressure may also lead to loss of tranquillity due to increases in noise from roads, railways, aircraft and the general background noise created in built up areas.
8. Climate change could have a major but unpredictable influence on the natural beauty of the Chilterns. It is likely that the long term changes will alter the species composition of woodlands and



Walkers at Sharpenhoe Clappers

the type of crops grown by farmers leading to subtle but ultimately significant alteration to the landscape - this is covered in more detail below and in Section 4.

Cross cutting themes of the Management Plan

A number of important themes, which will have a significant influence on the management of the AONB over the next five years, cut across all the chapters of the Plan. They are:

- climate change
- social inclusion
- health and well-being
- lifelong learning

1. Climate change

A changing global climate, principally caused by human activities, is now regarded as an indisputable fact by the Intergovernmental Panel on Climate Change (IPCC)¹. How much global temperatures will rise and how quickly are still under debate, but there is a broad consensus of opinion on the likely changes to the climate of southern England, and therefore the Chilterns AONB, over the next few decades. The likely long term changes are:

- summers will become warmer and drier.
- winters will become milder and wetter.
- storm events will become more frequent.
- weather generally will become more unpredictable.

Although short to medium term climatic cycles may be uncertain there is consensus on the likely long term trends.

These changes have the potential to affect the landscape, wildlife and communities of the Chilterns in many ways. Woodlands may be dominated by oak and ash which cope better

than beech with the likely changes in climate. The range of crops grown by farmers will change and there may be more growing of biofuels, although concerns over the security of food supplies may affect that market. Flows in rivers and streams could become more erratic and there will be changes in the fauna and flora of all habitats. The impact of tourism is particularly unpredictable. People may decide to holiday in the UK rather than to go abroad if the summer weather becomes warmer and sunnier but, as in recent years, poor weather may lead to fewer holidays taken in the UK. All these potential changes and ways to manage and mitigate them are discussed in Section 4.

2. Social inclusion

The Chilterns AONB is a national treasure, protected for all to enjoy and it receives millions of visits every year. Despite this, there are many who could benefit from the area and yet remain unaware of what it has to offer, or who face obstacles in accessing it. Ensuring that as wide an audience as possible understands the special qualities of the AONB and takes an active part in enjoying and caring for it is essential to the future of the area. The Management Plan seeks to achieve this in a variety of ways including reaching out to those in urban areas close to the Chilterns, improving public participation in conservation activities and increasing awareness of the AONB and its special qualities amongst those who are not regular visitors at the moment.



Aerial view of Bledlow Ridge and Bradenham Valley

¹IPCC Fourth Assessment Report: Climate Change (2007)

3. Health and well-being

Rising obesity levels and the ever-increasing costs of healthcare have prompted a much greater emphasis on preventative health solutions. There is an increasing perception of the countryside, and green space in general, as a place which offers tangible benefits to health and well-being. The value of protected countryside, like AONBs, in providing walking, cycling and riding routes and a tranquil rural escape from stressful lives is increasingly being seen in economic and social terms as well as environmental.

4. Lifelong learning

Lifelong learning is the concept of providing people with learning opportunities at all ages and in many different contexts: at work, at home and during leisure pursuits as well as through more formal channels such as adult education. It is a Government priority and one which ties in with the Conservation Board's primary purpose of increasing understanding

and enjoyment of the Chilterns AONB. With greater understanding comes a sense of ownership and of stewardship. The popularity of the natural environment amongst the public combined with the resources that the AONB offers such as wildlife, special habitats, history and built heritage creates many opportunities to stimulate understanding, develop skills and encourage creative responses.

In Section 5 there is a matrix showing which Management Plan policies address each of the cross-cutting themes.



View from Britwell Hill near Watlington



Hughenden Church and Valley

Section 1

Conserving and enhancing natural beauty

The primary purpose of designating an area of countryside as an AONB is to conserve and enhance the natural beauty of its landscape. In this sense, the term 'natural beauty' refers not only to the scenic qualities of the landscape but to all those other elements which together produce the special character of the AONB. These elements include wildlife and man-made features such as its archaeological and built heritage.

This section seeks to unravel the special qualities of the Chilterns AONB and to define the key issues which are affecting them.

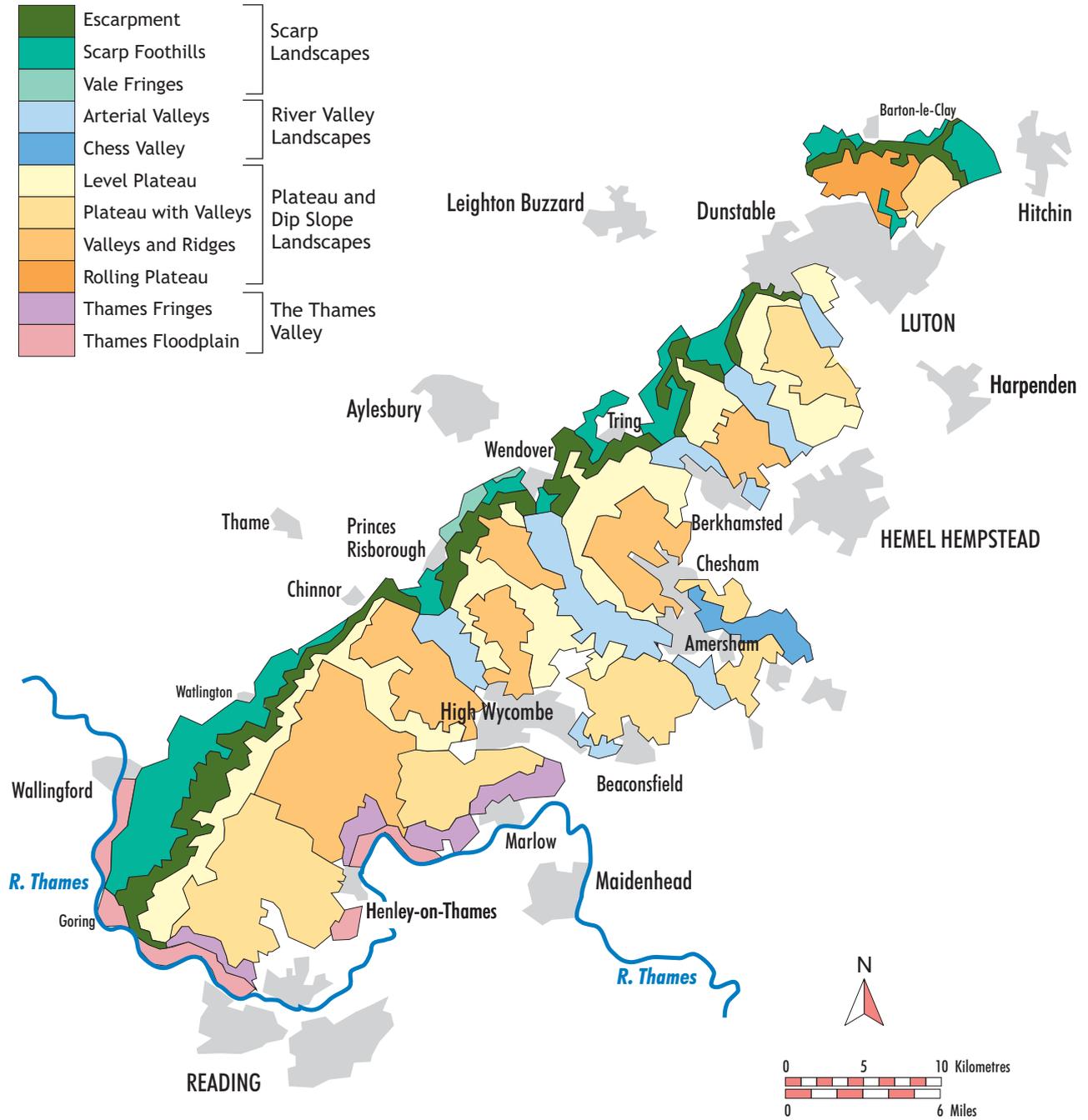
It is divided into chapters reflecting all the components which combined create the intangible sense of place of the Chilterns, namely:

- **Landscape**
- **Farming and forestry**
- **Biodiversity**
- **Water environment**
- **Historic environment**
- **Development**



Bluebells at Cowleaze Wood

Landscape Character



Landscape

Introduction

1. The landscape of the Chiltern Hills is defined by the chalk escarpment which runs along an axis from Hitchin in the north east to Goring-on-Thames, a distance of 50 miles. At its highest point, near Wendover, it reaches nearly 900 feet (267 metres). The steep scarp faces to the north west and to the south east the dipslope appears more like a plateau, gently shelving to the south east, incised by shallow valleys, some with chalk streams flowing to the River Colne and River Thames.
2. Chalk is a rare form of geology laid down during the Cretaceous Era (65 - 100 million years ago), found in the south of England and north-west France but almost nowhere else. The Chilterns shares many characteristics with other chalk landscapes in the Surrey Hills, North and South Downs. To the south west the chalk outcrop continues into the North Wessex Downs and beyond into Dorset.
3. Chalk is an unseen geology with few natural outcrops and is generally only exposed in quarries, now largely redundant. It was little used for construction and only the relatively hard forms of chalk known as Totternhoe Stone and Clunch were used in local buildings.
4. The landscape is a combination of the landform created by underlying chalk and the land uses and buildings on its surface, which owe more to the clay and flint which overlie it. The heavy clay soils support extensive woodland cover and mixed farming on mostly grade three land. There are also deposits of fire clay, suitable for commercial brick-making, and flint which lends such distinction to all forms of building from churches to cottages.
5. The landscape has largely been created by farmers and foresters and remains an ancient landscape with features from many ages. Even today, field and hedgerow patterns can be traced back many centuries as can most of the lanes, woodland banks and parish boundaries.
6. It is a landscape of many hidden quarters, of enclosures and surprise views, of dark beech woods and open downland. It is its variety and timelessness which give it such charm and places such a premium on maintaining those special qualities.
7. Climate change will result in some significant changes to the landscape but over a relatively long timescale with few noticeable changes in the short term. Over a period of 50 years or more the most noticeable changes are likely to be an altered species composition of woodland with less beech and a greater variety of arable crops better suited to warmer conditions. Those qualities which make the Chilterns a landscape of national importance today will almost certainly persist.



Sheep on Sundon Hills

¹The Chilterns Landscape: Countryside Commission CCP392 1992

Broad Aims

- Conserve and enhance the outstanding qualities of the Area of Outstanding Natural Beauty as part of the national landscape heritage.
- Maintain those features which make a significant contribution to the character and quality of the area and to regional and local distinctiveness.
- Enhance and restore those parts of the landscape which are degraded or in decline.

Special Qualities

1. A dramatic chalk escarpment rising to nearly 900 feet (272 metres) with flower rich downland and panoramic views. Once extensive, the downland survives in smaller fragments and now only covers 3% of the AONB, of which less than half is considered high quality calcareous grassland important for its biodiversity.
2. The main ridge of the escarpment provides fine long views across the lower lying vales to the north and west. To the south views are more restricted by dense woodland and low-lying ridges.
3. The underlying chalk ridge is covered by several feet of clay with flints, but along the ridge the chalk lies near the surface and is peppered with quarries, small and large, now largely redundant.
4. The landscape of the Chilterns is given unity by its escarpment but there are notable local variations. The northern Chilterns are generally more open with larger fields and less woodland, also a characteristic of the southern tip in the area known as the Ipsden prairie. The central and southern Chilterns are dominated by heavily wooded countryside with mixed farming and a large number of scattered villages and hamlets. In the south the hills come down to the Thames Valley and the River Thames itself which forms a long and sinuous boundary.



View from Watlington Hill

5. Woodlands, notably beech, cover over 17,000 hectares, more than 20% of the AONB, making it one of the most wooded landscapes in England. Once the woods were home to bodgers and other woodland workers but today are mainly valued for their amenity, wildlife and as places to visit.
6. Farmland covers approximately 60% of the Chilterns, creating a mosaic of fields with arable crops and livestock, bordered by ancient hedgerows and trees. The mix of crops, dairy cattle, sheep and pigs was once commonplace but grazing livestock are less prominent now and a greater variety of crops is found.
7. Chalk landscapes are dry landscapes, but in a few shallow valleys can be found gently flowing chalk streams, often bordered by pollarded willows and remnants of meadows and former watercress beds, once a common sight and thriving local industry.
8. The folds of the landscape hide many small dry valleys or coombs with no springs or streams. These places provide hidden 'secret' landscapes and unspoilt countryside.
9. Commons, heaths and greens are a defining characteristic of the Chilterns'



Walker in Hambleton Valley

landscape covering 2.4% of the AONB (2,000 ha). However this variety of landscape was once more extensive, former cover lost to a combination of enclosure, urbanisation and woodland encroachment. Whilst open landscapes tend to be associated with common land, a significant number of Chiltern commons would originally have been woodland or wood pasture.

10. Over 187 individual commons still provide special local landscapes largely untouched by development and modern agriculture. Much of the common land in the Chilterns is in close proximity to towns and villages, providing valued, easily accessible green spaces for local communities. Over 8% of the remaining common land in the AONB is ancient woodland.
11. The Chilterns has an extensive network of ancient routes, roadside hedges and sunken lanes. The Ridgeway (Icknield Way), reputedly the oldest road in the country, is elevated along the entire length of the Chilterns ridge, linking Wessex with Norfolk.
12. Villages and farmsteads with brick and flint cottages, churches and timber barns are scattered throughout the area. The more ancient settlements tend to nestle alongside streams and rivers or springs at the foot of the escarpment. More recent settlements have sprung up on the higher ground, strung along the edge of commons and besides droving routes.
13. The area boasts a wealth of great houses, follies, parkland and designed landscapes. Often built and embellished by statesmen and businessmen making their fortune in London, it is a trend which continues to this day. Foremost is the Prime Minister's rural retreat at Chequers near Wendover.

14. The Chilterns is a long settled landscape with relics of many different eras: Bronze Age barrows and fields, Iron Age hill forts, medieval deer enclosures, eighteenth century sawyer pits and chalk figures carved in unknown times.

Key Issues

There are many factors affecting the landscape and how it is managed. Often the causes of change are complex and the trends uncertain. The scale and variety of the Chilterns' landscape means that trends and issues affect different parts in different ways. Perhaps as much as at any other time, global factors and trends are influencing the Chilterns as, for example, farmers respond to world prices for grain and new landowners from overseas invest funds in newly acquired estates.

1. The growth of arable farming in response to the world price of cereals is likely to be a factor for several years as concerns about food security grow and demand increases from China, India and other countries. Traditional growers of grain may be affected increasingly by climate change and as prices rise above recent



View from Dunstable Downs to Ivinghoe Beacon

low, farmers in the Chilterns will grow crops for which they anticipate a steady if not increasing market price. This is unlikely to lead to ploughing up of grassland important for its wildlife, as it once did, as these sites are largely protected, but it will change the landscape as has been seen, for example, where short term grass leys have been converted to grow cereals and oil seed rape.

2. The removal of set aside may lead to some relatively small losses of high quality field margins but as much of the permanent set aside in the Chilterns is on poor quality land it is not expected that much of this land will be ploughed. The value of set aside for wildlife, particularly farmland birds, is well known, however as set aside was introduced to reduce agricultural production it does not enjoy significant protection for its biodiversity.
3. The decline of livestock farming, of all types, is leading to problems for the management of sites which need grazing in order to retain their biodiversity and landscape qualities. There is little likelihood of a reversal of this trend as farmers give up livestock and increasingly choose to concentrate on growing cereals or leave farming altogether.
4. The potential for scrub to spread across open grassland landscapes is increasing due to a combination of the problem of grazing sites and the more rapid growth of scrub due to climate change, which is lengthening the growing season.
5. As new owners buy land they often place higher priority on leisure and amenity than production. This has been partly behind the expansion of the area covered by pony paddocks, extension of gardens and newly landscaped grounds. Often it is

- accompanied by the spread of fencing, screening of all kinds and inappropriate clutter such as lights and temporary buildings.
6. The general growth of leisure uses, notably equestrian, has resulted in a significant number of horses, new pony paddocks and associated buildings and equipment. Also prominent in the landscape are new and expanded golf courses. Whilst they can provide high quality habitat this is dependent upon extensive sympathetic management. Such land uses are often most prevalent on the outskirts of towns and villages, a perspective seen by large numbers of people for whom such a landscape may become the norm.
 7. A continuing and largely unnoticed trend has been the loss, usually partial, of unregistered parks and gardens, for example around large houses now used for institution or business use.
 8. Many Chilterns' commons are affected by the increasing demands for access and recreation and changing public attitudes, for example towards grazing livestock close to towns and villages.
 9. Although the number of full time farmers is declining there are many more small agricultural holdings reflecting the relative popularity of hobby farming. In some places this is leading to a fragmentation of the landscape with smaller fields, new buildings and a greater diversity of activity in a smaller area. Inevitably not all of these new holdings are well managed and some detract from landscape quality.
 10. The continuing fragmentation of the landscape by transfer to smaller holdings is affecting the scale and nature of management of land. Such fragmentation also highlights the nature of intervening land, for example between fragments of chalk grassland or ancient woodland. The links are important to allow wildlife to



North Dean near High Wycombe

- move around a larger network of suitable habitat.
11. Many types of woodland, especially small woodlands, are under-managed, even neglected. The long term decline of timber prices, notably for beech, has depressed the market and is unlikely to change in the near future despite an increase in demand for fuel wood. A corresponding decline of skills and the availability of skilled contractors will restrict the extent of woodlands actively managed. A long term concern is the loss of knowledge and experience of growing trees to produce timber.
 12. The current Government policy to remove plantations, especially of conifers, from ancient and semi-natural woods (PAWS) will help restore their natural qualities. Where existing conifers are important for their amenity, for example by providing winter greenery a careful and phased removal is advocated.
 13. The changing climate may change the landscape but predicting the nature of that change is difficult. Examples of possible effects include a reduction in the extent of beech woodland, effects on the flows of chalk streams and the introduction of new crops in response to different growing conditions.
 14. For the foreseeable future the landscape will still be dominated by farming and forestry and the spatial pattern of land use is unlikely to alter directly as a consequence of climate change. It is more likely that, for example, the species composition of woodlands may change but the general appearance will be similar to the woodlands of today but will become more varied over time.
 15. The changes to the many mature beech woods may result in long term changes in the woodland landscape. They will be barely discernible in the short term, but already ash, which regenerated in the gaps left by beech trees blown down in the early 1990s, has changed the landscape by altering the colours and timing of flushing and leaf-fall.
 16. It is likely that beech will persist in smaller pockets even through significant changes in climate, but it will no longer be as dominant. The balance of woodland cover needs to slowly change to reflect the tolerance of species to more extreme weather. If the Chilterns is to be a timber producing area in the long term unfamiliar species may have to be introduced.
 17. It is unlikely there will be many applications to erect wind turbines due to low wind speed and the unacceptability of siting them along the skyline where wind speeds are higher. There may be places where relatively small turbines could be accommodated without unacceptable intrusion in the landscape.
 18. The Milton Keynes and South Midlands growth area stretches down to Aylesbury, Luton and Dunstable. Large numbers of new houses are planned and, notwithstanding market fluctuations, construction will affect the land adjacent to and visible from the Chilterns on a larger scale. Land scheduled for



Gade Valley near Hemel Hempstead

development may be less well managed, even abandoned in anticipation of new development in the relatively near future. Once created there may be a harder, more defined edge between town and country. The view from the ridge of the escarpment will be significantly affected in some places, although green infrastructure provision is an intrinsic part of the growth area strategies.

19. A more immediate, but less obvious change, in the landscape is the impact of building new houses on infill sites and gardens in villages. Usually the resulting houses have small gardens and there is less scope for trees to grow to maturity and provide highly value amenity and screening. In some cases the infilling itself and unsympathetic design of the new development changes the character of the settlement.
20. As the Chilterns' landscape is a mosaic of the natural and built environment it is important that the design of new buildings needs to complement the existing character of the landscape and settlement, especially where it is based on vernacular architecture. New designs

must also exhibit the highest environmental standards in terms of energy and water conservation.

21. There is a tendency for clutter of all types (e.g. signs, masts, barriers and fences) to accumulate along roadsides, around settlements and along the skyline. It is an insidious problem which is difficult but not impossible to reverse. The co-operation of the highways authorities is essential as they are often responsible for much of the clutter.
22. According to national surveys half of all visitors to the countryside are seeking peace and quiet. The enjoyment of the landscape is being increasingly eroded by a loss of tranquillity - peace and quiet is harder to find largely due to traffic noise, notably the M40 and several of the trunk roads, and the dramatic increase in over flying by aircraft of all types using Luton, Heathrow and local airfields. The loss will intensify if the proposal by NATS (February 2008) to direct more aircraft over the Chilterns at lower altitudes and plans to expand Heathrow by building a third runway are given the go ahead.



River Thames near Goring

Policies

- L1 Recognise and manage positively those elements of the landscape that contribute to the overall identity and character of the Chilterns.**

The main characteristics of the Chilterns' landscape have been created by human intervention. In most cases they need to be managed actively in order to retain those qualities or restore natural characteristics which are in decline e.g. chalk downland, hedgerows, ancient woodlands and chalk streams.

- L2 Promote greater understanding and awareness of local landscape character and those elements which contribute to local distinctiveness.**

The main landscape types such as woodland, farmland, river valleys and downland are large in scale, but are owned by large numbers of individuals, who often own small plots. The challenge is to help all owners and managers to be aware of the character of the wider landscape and the context for their own activities. It also highlights the importance of managing boundary features well and where possible, ensuring there are no intrusive boundaries such as close board fencing in open countryside. This policy aims to help current stewards of the land to ensure that future generations benefit from an equally high quality landscape.

- L3 Resist developments which detract from the Chilterns' special character.**

There are significant pressures to change the use of land, erect new buildings and structures, improve transport infrastructure or expand economic and leisure activities. They can often be satisfactorily accommodated without detriment to the landscape, but not

always. The town and country planning system and other regulatory and advisory processes need to be in place and applied to ensure that damaging changes are prevented. A great deal of information and advice is available to help ensure proposed changes are in keeping with the special character of the AONB.

- L4 Enhance the landscape by restoring degraded landscapes, and encouraging the removal or mitigation of intrusive developments and features.**

In some senses the Chilterns is a busy landscape with a large number of buildings, structures and what some might call clutter. It tends to accumulate rather than be removed even after its useful life has ended. Sometimes concerted effort is needed to bring about its removal by planning conditions, regulations, advice, practical assistance or incentives. There is also scope to mitigate or even screen less attractive structures and features where they are still in active use or are unlikely to be removed.

- L5 Ensure the impact of development adjacent to the AONB is sympathetic to the character of the Chilterns and maintains the quality of views from it and of it.**

The Chilterns is surrounded by many market towns and the larger settlements of Reading, Hemel Hempstead and High Wycombe, together with Luton, Dunstable and Aylesbury which lie within the Milton Keynes and South Midland Growth area where large numbers of new houses will be built during the next 20 years. Associated with the housing is likely to be the development of employment sites. The design and location of these buildings also need to be sensitive to the AONB, for example by

not having excessively high or reflective roofs. The impact of development adjacent to the AONB will be significant in many ways including its visibility from many popular sites. It is important that appropriate landscape and visual assessments are undertaken.

L6 Conserve and enhance the distinctive character of buildings, rural settlements and their landscape setting.

A primary characteristic of the Chilterns' landscape is the large number of attractive towns and villages, buildings, farms, barns and churches. It is the combination of their charm and setting in the landscape that contributes so much to the special qualities of the Chilterns and reinforces what is distinctive about the area.

L7 Encourage local pride in the landscape and special sense of place to promote concern for their conservation.

The Chilterns is fortunate in that so many people and organisations are concerned about the environmental quality of the Chilterns. The Chiltern Society alone has over 6,500 members and the Wildlife Trusts, National Trust and RSPB amongst



Hughenden Valley

others are well supported. Together with local authorities, including 117 town and parish councils, voluntary and community groups there are many organisations with powers, resources and a willingness to work to conserve what is special about the Chilterns and to act as stewards of the landscape. These organisations and individuals all need support to maintain their active roles.

L8 Manage landscapes close to existing and new areas of development so as to be capable of absorbing higher levels of recreation whilst maintaining local character and biodiversity interest.

The boundary of the AONB is long and sinuous, curling around many towns and villages. The interface between the AONB and these communities is important and the quality of landscape in this belt is often under pressure. Such problems may be compounded where new development is planned, resulting in less intensive management and additional pressures placed by new residents seeking to use adjacent countryside for leisure and recreation. These places create what is being called green infrastructure and need to be identified in advance and appropriate management and investment put in place. The countryside close to home is often the most important, which means creating green spaces within the development zones as well as adjacent to them. It is essential there is no reliance on sensitive sites, for example along the scarp ridge, to provide green space in lieu of sites closer to new development.

L9 Manage landscapes sustainably to provide multiple benefits, which could include landscape character, biodiversity, opportunities for recreation and access, production of commodities, storage of carbon and water.

In a small country it is essential that land provides as many benefits as possible. In the Chilterns this means ensuring that in addition to any productive capacity land may have it is part of a high quality landscape, supports biodiversity, locks up carbon, helps ensure clean supplies of water as well as providing places for leisure and recreation. This may seem very demanding but much of the Chilterns is capable of providing such multiple benefits. This has long been the case but as demands on a limited area of land continue to grow such multiple benefits (ecosystem services) need to be generated and may be a requirement in return for public funding.

L10 Promote management of the landscape to enable it to adapt to climate change and help mitigate the causes.

The landscape of the Chilterns is changing constantly and one of the factors causing that change is the changing climate. For example, the chalk streams low flows were, until recently, due to prolonged periods of winter drought. The relative strength of climate change as a driver of change is likely to increase and be persistent over a long time. It is unlikely there will be rapid changes in the landscape and some changes barely discernible.

However more extreme weather events will become more commonplace requiring short term changes in management of the landscape, for example by coping with frequent heavy down pours and minimising run off. Longer term changes may affect the ability of beech to survive on many sites where it is now found. Foresters will need to consider how to manage woods to both adapt to changes, for example by making stands of trees less prone to wind throw, or to plan for a change of species to those more tolerant of predicted

climate changes - for example it is suggested that walnut might fare better as a timber tree than beech. In general natural regeneration is to be encouraged as these systems cope best with climate change.

To halt the damaging effects of climate change it essential that long term measures are put in place. For example, by ensuring that carbon dioxide is fixed in soils by maintaining or even enhancing organic matter content. Other measures may include the use of trees to provide shade to reduce the need for air conditioning of buildings.

The potential landscape impact of biofuels such as willow coppice or elephant grass must be given full consideration. Guidance has already been published, for example, on the growing of Miscanthus.

L11 The design and management of transport infrastructure and services should conserve and enhance the natural beauty of the Chilterns and reduce their harmful impacts including greenhouse gases.

Transport infrastructure has a major impact on the landscape of the Chilterns. Over 300 roads cross the AONB boundary and four railways including the west coast mainline. Many of the roads are ancient in origin and are part of the environmental and cultural heritage. Many roadsides are rich in wildlife and sunken lanes and milestones add to the landscape. In recent years the design and management of roads and other transport infrastructure has been unsympathetic to the environment which has changed the landscape. Inevitably the use of this infrastructure is a major source of greenhouse gas emissions and speeding traffic in villages and in open countryside adds to the negative impacts.

Actions

<p>1. Undertake a comprehensive, integrated, Chilterns-wide landscape assessment and publication of associated management guidance.</p>	<p>11. Develop a better understanding of the likely impacts of climate change on the landscape and support mitigating and adaptive action.</p>
<p>2. Work with adjacent urban local authorities to undertake more detailed landscape sensitivity studies of the urban hinterland to identify measures to conserve and enhance the special qualities of the landscape.</p>	<p>12. Campaign actively to prevent fragmentation of the countryside (e.g. by division into small plots) where this results in unacceptable impacts on the landscape and other forms of natural beauty.</p>
<p>3. Promote and support green infrastructure planning for new areas of development and to better link existing settlements with surrounding countryside.</p>	<p>13. Promote targeting and uptake of environmental stewardship schemes generally and actively lobby for provision of options most appropriate to the AONB.</p>
<p>4. Undertake a regular survey to identify trends in land use change and their causes.</p>	<p>14. Support management of trees, woodlands, chalk grassland, commons, hedges, chalk streams and other characteristic landscape features.</p>
<p>5. Undertake a five yearly survey of public perception and views on changes in the landscape.</p>	<p>15. Publish guidance and provide training for designers and managers of highways to enable them to conserve the landscape and remove unnecessary roadside clutter.</p>
<p>6. Publish good practice guidance for land managers, and target new owners of land and those involved in equestrianism and other non traditional uses of land.</p>	<p>16. Develop working arrangements with the North Wessex Downs AONB local authorities and Environment Agency and others to conserve and enhance the River Thames and its landscape corridor.</p>
<p>7. Assess planning applications and development proposals for their impact on the landscape.</p>	<p>17. Encourage the implementation of high quality landscape design and management which respects and enhances the landscape, particularly in and around settlements of all sizes.</p>
<p>8. Promote the Chilterns Building Design Guide and other relevant guidance to ensure all new development respects and enhances the landscape.</p>	<p>18. Implement the recommendations of the Chilterns Historic Landscape Characterisation.</p>
<p>9. Support provision of training in the skills needed by land managers to conserve and enhance the landscape.</p>	
<p>10. Support initiatives which help local people and visitors understand and enjoy the landscape.</p>	

Woodland cover

 Chilterns AONB boundary



Farming and forestry

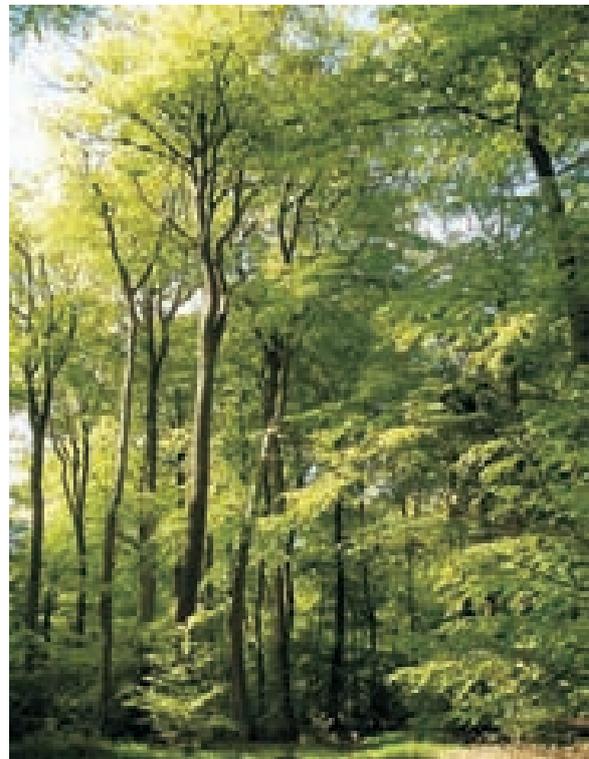
Introduction

Woodland

1. The Chilterns is perhaps best known for its woodlands which dominate the landscape, covering 21% (17,588ha) of the AONB¹, making the Chilterns one of the most heavily wooded parts of the country. Much of the woodland is ancient (9,830ha) but this may be an underestimate².
2. For many centuries the Chilterns provided significant quantities of fuel and timber to London, helping to make Henley and other towns thriving Thames-side ports. However, it was the emergence of furniture-making, especially chairs, in and around High Wycombe which generated a demand for beech which then came to dominate the woodland we see today. The industry has declined but not disappeared, however local beech is no longer a desirable timber.
3. The decline in traditional woodland management has also affected wooded commons, many of which would in the past have been managed as wood pasture and through the exercise of common rights. Over 8% of the remaining area of common land in the AONB is ancient woodland.
4. In the 20th century many native woods were inter-planted with other species, creating plantations on ancient woodland sites (PAWS) which cover 4,076 ha. Restoration to more natural conditions is a priority³.
5. About 75% of woods in the AONB are privately owned, 9% (1,703 ha) are

managed by the Forestry Commission and the National Trust, Woodland Trust, local authorities and other charities own over 10%.

6. The woods are now highly valued for their amenity, recreation, scenery and heritage. Most communities live within walking distance of a wood with open access or rights of way. They are full of largely un-surveyed remnants of past settlement and activity, especially of the sawyers, charcoal makers and bodgers who worked in the woods until the early 20th century.
7. Much of the beech is over-mature and, as it is near the northern edge of its natural range, thought to be vulnerable to climate change. Following the gales of the early 1990s the gaps were filled not with beech but regenerating ash. Forestry Commission forecasts suggest



Beechwood at Bradenham

¹Forestry Commission Woodland Inventory

²Chiltern Woodlands Project Ancient Woodland Survey 2007

³Forestry Commission Keepers of Time 2005

that beech will decline as climate changes but will not disappear, instead the woods will become more mixed, perhaps as they once were, with more oak, ash and birch. It is possible that new species, more tolerant of climate change, will be introduced in order to provide a timber crop in the future.

Farming

1. Farmland covers approximately 60% of the Chilterns⁴, creating a mosaic of landscape and habitats: small and large fields, ancient hedgerows, woodland, chalk downland and ponds. This figure does not include land used for equines, which makes up approximately 5% of the AONB land area. Farming also created the farmhouses and barns which dot the landscape and often form the heart of villages and hamlets.
2. Since the advent of farming in Neolithic times, the Chilterns' landscape has been incrementally altered and moulded, each period in history has contributed to the
3. In terms of its agricultural classification, much of the land is grade three, largely based on heavy clay soils with flints. Traditionally farming was mixed with both arable and livestock found on every farm. Now farms specialise and increasingly grow cereals and other crops rather than keep dairy cattle, pigs and other livestock.
4. Just over two thirds of Chilterns' farmland is devoted to arable crops, the balance is grassland. Sheep and cattle make up the bulk of livestock in the Chilterns but numbers declined between



Stonor Valley

⁴ Chilterns Land Use Survey 2007

1995 and 2006, particularly dairy cattle and pigs (both down over 50%). This was due to the combined effects of Foot and Mouth Disease and declining profitability.

5. There are 1,134 registered holdings in the Chilterns, 436 of which are under 5 ha⁵. The trend is for an increasing number of small and large holdings with a decrease in medium sized farms. This reflects the growing popularity of hobby farming and reduced economic viability leading to farm amalgamation.
6. The character of the Chilterns needs viable farming to maintain landscape features and habitats. The drift toward leisure uses may result in the loss of productive farmland, valued features and the skills needed to manage them.
7. Farming in the Chilterns is particularly affected by EU policies and global markets which, for example, have led to a decrease in uncropped land and an increase in the area of arable due to rising prices for cereals. It is yet to be seen if this will extend to the growing of

crops for biofuels. Inevitably climate change will combine with market forces to change the balance between arable and livestock farming and between traditional and new crops.

8. The current CAP regime is scheduled to be in place until 2013 although a 'healthcheck' is taking place in 2008, due to be completed in 2009. Likely outcomes of this include a further reduction in direct payments to farms, an increase in compulsory modulation and a permanent end to set-aside.

Broad Aims

- Woodland and farmland remain the dominant land uses in the AONB.
- Natural beauty is sustained by viable forestry and farming.
- The public have a high level of understanding of farming and forestry.



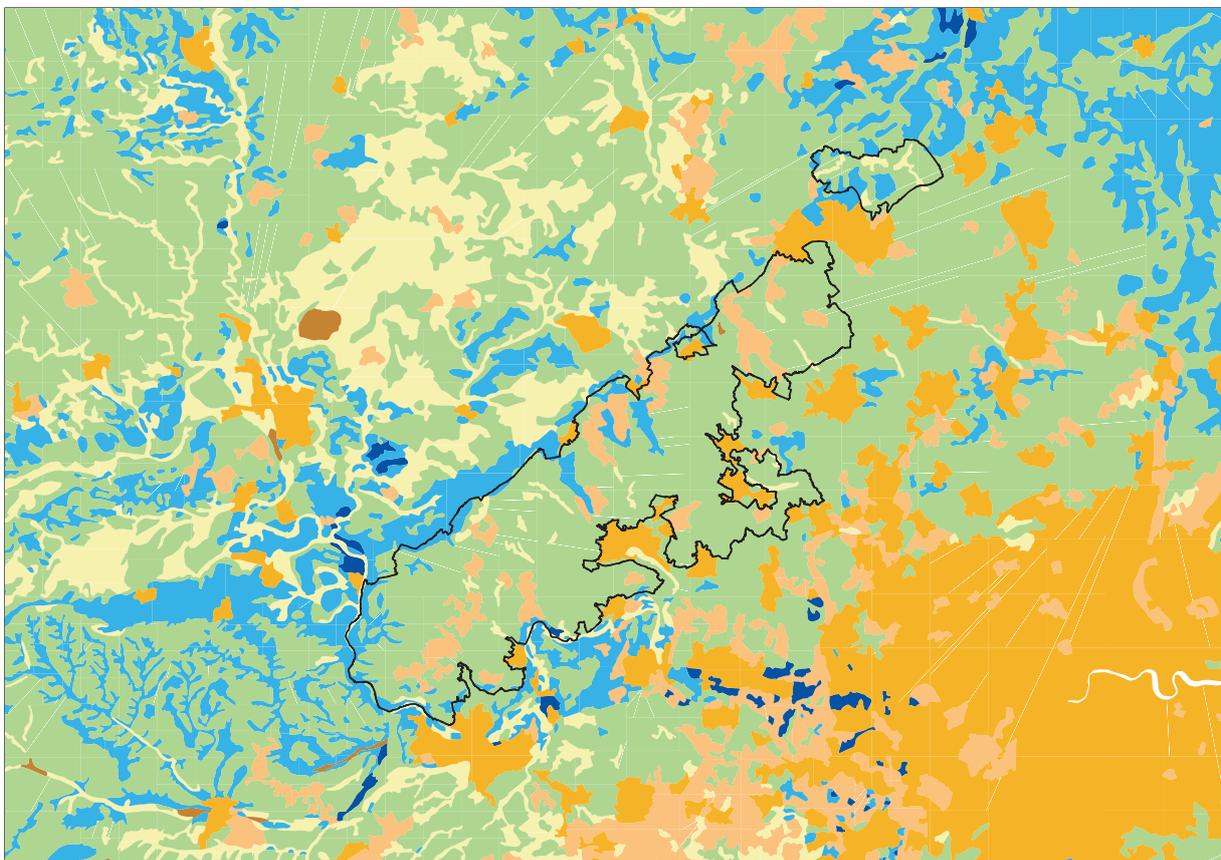
Autumn colours near Prestwood

⁵ Defra Farm Statistics 2006

Special Qualities

1. Farming and forestry created a landscape of national importance and continue to maintain its quality.
2. Small and medium-scale historic field patterns defined by hedges are visible in the Chilterns. Many of the hedges are species-rich. The estimated length of hedgerow in the Chilterns is 4,045km (2,528 miles)⁶ and there are approximately 44,000 hedgerow trees of many of which are veterans⁷.
3. Surviving areas of open chalk downland along the scarp ridge are one of the AONB's most valuable habitats.
4. Well maintained and sensitively managed farmland and farm buildings enhance the area.
5. An increasing number of farmers are diversifying into quality local food production and selling direct to the public.
6. The famed Chilterns' beech woods provide extensive high quality landscape and amenity, much of its close to local towns and villages.
7. Public access to woodlands is extensive and amongst the best in the country.
8. The beech yew woods, several of which are Special Areas of Conservation (SAC),

Agricultural Land Classification

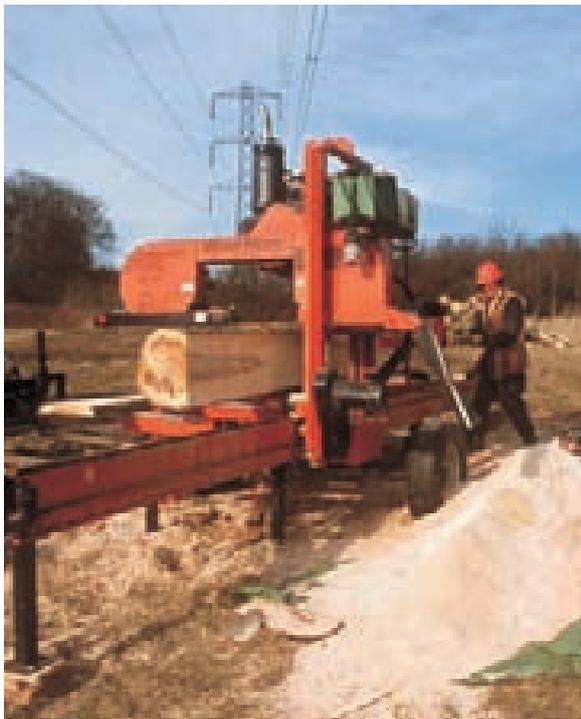


⁶ Chilterns Hedgerow Survey 2006 and 2007

⁷ as 6

are particularly important for their biodiversity.

9. Ancient woodland, especially beech, is a particularly distinctive and prominent feature. Some of this woodland is included within the Chilterns Beech Wood Special Area of Conservation, which indicates that it is of European importance.
10. Parkland is a feature of the area, including wood pasture, often associated with the large estates, with a significant number of veteran trees.
11. Chilterns' woodlands are capable of providing a sustained annual yield of 60,000 tonnes per annum⁸.
12. Remnants of woodland heritage are extensive including sawpits, charcoal hearths and wood banks. There is a considerable amount of archaeology in woodlands as yet unsurveyed.



Mobile sawmill near Great Missenden

Key Issues

1. Increasing global demand for food and fuel crops may lead to a reduction in valuable wildlife habitats created through set aside and expired agri-environment schemes.
2. There is pressure to grow more biofuels, but there is lack of certainty on where the net gains are to be made and over the balance between growing food and fuel.
3. The ageing population of Chiltern farmers and the declining numbers of new entrants is of concern, as much of the AONB landscape is underpinned by traditional land management.
4. Poor economic returns from livestock farming will result in the area of grassland declining and make it more difficult to manage sites important for wildlife that require grazing to maintain them.
5. Traditional common rights - particularly grazing rights - are now rarely exercised on Chiltern commons, allowing scrub and bracken encroachment, establishment of woodland and loss of open landscapes.
6. Increasing numbers of horses on land formerly grazed by livestock can have a damaging impact on the landscape through subdivision of fields into small paddocks, permanent exercise arenas, stabling, jumps and overgrazing. Approximately 5% of land in the Chilterns is used for equestrian purposes which equates to roughly 20% of the grassland in the AONB⁹.
7. The lack of infrastructure, particularly abattoirs and knacker's yards, causes difficulties for the livestock sector, particularly small producers and graziers. Increased transport distances add to

⁸Mike Render Ph.D thesis

⁹Chilterns Land Use Change Survey 2007

- production costs and are detrimental to animal welfare.
8. A shortage of skills needed for land management is compounded by the high cost of housing making it more difficult to recruit and retain skilled workers.
 9. Rising numbers of people visiting the countryside can bring problems such as dogs chasing livestock and disturbing ground nesting birds. They also bring opportunities, for example to develop farm shops and tourist attractions.
 10. More lifestyle farmers and smallholders have led to an increase in the diversity of livestock, in particular alpacas, but also bison, deer and emu¹⁰. Of the 1,134 registered holdings in the Chilterns, 436 are under 5 ha¹¹.
 11. The decline in small and medium sized mixed farms is leading to a homogenisation in land use and landscape character.
 12. The rising demand for local food could help viability of farming and help generate income to pay for management of the countryside.
 13. A permanent end to set-aside could lead to a reduction in farmland biodiversity if areas are cultivated that have developed into good wildlife habitats.
 14. High property values in the Chilterns reduce the amount of affordable accommodation available to those working in farming and forestry.
 15. Climate change may cause problems such as the arrival of the midge-borne Blue Tongue Virus to England and survival of pests once killed by winter frost, but may also provide a lengthened growing season and opportunities to grow new crops.
 16. The low prices for timber from the Chilterns have resulted in a relative lack of management of woodland, particularly small woodlands under 20 hectares. The growing demand for woodfuel could create a new market for low grade timber from the Chilterns. Woodfuel is most efficiently used to generate heat rather than electricity. Derelict and new coppice could be used for this market and other uses such as thatching and crafts.
 17. Management of woodland is made more difficult by increasing numbers of deer, including fallow, muntjac and roe, which can prevent regeneration. Damage by grey squirrels is a disincentive to growing beech and other trees.
 18. Loss of local sawmills and the high costs of transport are making woodland management less viable and leading to a loss of local skilled contractors.
 19. Climate change and extreme weather events may take their toll of older trees and woods, beech may become more restricted in distribution over the next hundred years and other species such as ash and oak may replace it in places. There are risks of further tree pests and diseases developing.
 20. Inappropriate management, especially by new owners of woods, could lead to loss of both biodiversity and the historical interest of woods.

¹⁰ as 9

¹¹ Defra Farm Statistics 2006

Policies

FF1 Work with farmers and other landowners to conserve and enhance the landscape, and the archaeological and ecological attributes of their land.

The natural beauty of the Chilterns was created by farmers, foresters and other landowners and the management of the landscape largely remains in their hands.

FF2 Support agricultural and forestry practices which assist adaptation to climate change and mitigate damaging impacts on the environment.

Climate change is likely to be the most significant long term factor affecting farming and forestry in the Chilterns and the health of the wider environment. The challenge is to enable management practices to adapt to those changes in the short term and contribute to the mitigation of the causes in the long term. It is likely that sustainable production of wood for heating will become a significant activity.

FF3 Promote sustainable management of woodland and farmland to provide multiple benefits, where appropriate, including amenity, production, wildlife conservation, recreation, carbon storage, water resources, conservation of historic heritage and other environmental benefits.

The task of managing farmland, woodland and other land uses is becoming more complex, not least as society places demands for a wider range of benefits and ecosystem services, especially in return for public funding. A significant policy is that of removing plantations from ancient woodland (PAWS), of which there is over 4,000 hectares.

FF4 Promote co-operative approaches to management of woodland and fragmented farmed habitats and landscapes to achieve landscape scale action.

Many of the aims to enhance the landscape depend upon landscape scale activity, which will require a large number of owners of fragmented,



Longhorn cattle in the Wormsley Estate near Ibstone

sometimes small sites to work co-operatively. For example the aim is to link chalk grassland sites to form larger swathes of open downland, and to link small blocks of ancient woodland.

FF5 Support the viability of farming, forestry and other forms of land management by enhancing the marketing of produce based on environmentally-sensitive production methods.

Much of the character of the landscape and the most valued elements in it were created as a by product of farming and forestry. That link is now weaker and, as a result, management of the environment is no longer an integral part of operational activity and often undertaken separately. Ideally high environmental quality will be delivered directly by the production of commodities which are part of viable farming and forestry.

FF6 Encourage forms of diversification and new business ventures that will contribute to the conservation, enhancement and enjoyment of the AONB.

Increasingly farmers and foresters are seeking to diversify into other forms of economic activity. This provides opportunities to develop ventures which contribute directly to the environmental well-being of the area.

FF7 Promote a wider public understanding of the importance of farming and forestry and the contribution they make to the Chilterns landscape.

The public places a high value on the amenity of the countryside and opportunities to enjoy it. There is widespread lack of awareness of farming and forestry, within rural and urban

communities. It is essential that there is a better understanding of how the countryside has been, is currently and will be managed in the future.

FF8 Resist fragmentation of farmland and woodland into small plots.

The character of the landscape can be affected by sub-division into small plots which often results in a variety of land uses and new, sometimes discordant, features. In some cases division can enable people to afford to become new and caring landowners. In general very small parcels of land are harder to manage in a way which maintains and enhances natural beauty.

The recent practice of dividing fields into house-sized plots has resulted in hundreds of hectares on dozens of sites being effectively abandoned as the owners either live abroad or have no interest in management as the site has been bought solely to speculate in property.

FF9 Resist the potentially damaging impacts on landscape and wildlife of large scale conversion of farmland to equestrian uses.

5% of the Chilterns is now managed for equestrian purposes. In itself this is not a problem, but when relatively large areas are converted from farmland to equestrian use the landscape can change dramatically with erection of ranch style and tape fences, new buildings and access tracks. The land is often well managed but the maintenance of some landscape features such as hedges and in-field trees is rarely a priority and in some cases such features are removed as it is not thought they are compatible with keeping horses in the same field.

Actions

1. Undertake and publish a regular survey of land use and analysis of land use change.	11. Encourage appropriate management of commons especially by grazing and other beneficial farming and forestry activity.
2. Update the 1990 Ancient Woodland Inventory by undertaking a new survey to include all woodlands under two hectares.	12. Support the identification, celebration and management of special trees and woods.
3. Support the provision of advice and training to promote management of woodlands especially those in public ownership and under 20 hectares.	13. Promote the development of appropriate infrastructure to support traditional land management practices, for example local abattoirs and sawmills.
4. Promote uptake of Environmental Stewardship and woodland management schemes particularly where they contribute to landscape and biodiversity gain.	14. Scope the likely impact of biofuels in the Chilterns and develop an action plan to ensure they are produced in a way consistent with the AONB's landscape and biodiversity objectives.
5. Promote the sustainable production of timber and other woodland products especially where this helps achieve multiple objectives e.g. PAWS, Biodiversity Action Plans and local landscape design plans.	15. Encourage collaboration and networking between farm and woodland enterprises to maintain viable businesses particularly those contributing to habitat management.
6. Organise regular fora on issues of concern and interest to farmers and foresters.	16. Actively discourage owners and agents from sub-dividing farmland and woodlands into small plots.
7. Support the survey, identification and conservation of archaeology in woodland, including provision of training for owners and managers.	17. Support the identification, management and planting of new hedgerow and in-field trees.
8. Publish regular information on climate change and how it could affect the landscape in the Chilterns.	
9. Organise, support and coordinate activities which help the public to understand better and appreciate the impact of farming and forestry.	
10. Encourage appropriate management of landscape features and habitats, in particular chalk grassland, chalk streams, ponds, ancient and semi-natural woodlands and hedgerows.	



Producing woodchips for use as fuel

Designated sites

- Chilterns AONB boundary
- Special Areas of Conservation (SAC)
- National Nature Reserves (NNR)
- Sites of Special Scientific Interest (SSSI)

All SACs and NNRs are also SSSIs



Biodiversity

Introduction

1. The Chilterns supports a diverse flora and fauna, with characteristic habitats including:
 - extensive ancient woodland, including internationally important beech woods.
 - nationally important concentrations of chalk grassland.
 - nationally important populations of a number of species including corn bunting and linnet.
 - river valleys with chalk rivers, an internationally rare habitat.
 - a variety of farmland habitats - including arable plant communities, ancient hedgerows, ponds and orchards.
 - remnants of heath, acid grassland and wood pasture - often associated with common land.
2. Many habitats and species have declined in extent and condition since the 1950s, due in part to the decline of traditional agricultural and forestry practices, loss of associated infrastructure, and changes in the rural economy.
3. Whilst the intricate mosaic of habitats is a feature of the Chilterns' landscape - and indeed, part of its charm - fragmentation of habitats is a concern as smaller patches become less ecologically viable and harder to manage effectively. Climate change makes the need for robust ecological networks to allow for natural movement of species even more pressing.

4. Many of the most sensitive sites and habitats in the Chilterns are in close proximity to centres of population. With around 55 million visits per year¹, the visitor pressure on some sites is considerable, and continuing to work to raise public awareness and understanding of the needs of wildlife is crucial.
5. Meanwhile, there have been a number of conservation success stories, most notably the reintroduction of the red kite in the 1980s-90s - an excellent example of what can be achieved with public support and partnership approaches.

Broad Aims

- Enhance the wildlife value of all habitats.
- Enlarge and link the areas of characteristic habitats of the Chilterns.
- Integrate nature conservation with social and economic activity.
- Increase public awareness and understanding of wildlife of the Chilterns.



Red kite

¹2007 Chilterns Leisure Visitor Survey

Special Qualities

Woodland

1. Woodland covers 21% of the AONB and represents a significant habitat for plants and animals including many locally and nationally rare species. Ancient woodland², especially beech, is a particularly distinctive and prominent feature of the hill tops. Around 9,830 ha of the woodland in the Chilterns (over half) is considered to be ancient woodland and of this, around 4,000 ha is currently mapped as plantation on ancient woodland sites (these estimates are currently being reviewed)³.
2. The Chilterns has a rich heritage of parkland, wood pasture and commons. Many of these sites contain important or veteran trees.

Priority woodland habitats found in the Chilterns:

- lowland beech and yew woods
- lowland mixed deciduous woodland
- wood pasture and parkland

Key associated species include:

- common dormouse
- marsh tit
- spotted flycatcher
- silver-washed fritillary
- bluebell
- coralroot
- bird's nest orchid
- ghost orchid
- violet helleborine
- red helleborine
- box
- violet click beetle
- stag beetle
- royal bolete fungi
- a crane fly - *Ctenophora flaveolata*
- bats



Autumn woods at Whiteleaf

²Forestry Commission woodland inventory

³Chiltern Woodlands Project Ancient Woodland Survey 2007

Chalk grassland

3. Chalk grassland in the Chilterns is predominantly associated with the steep scarp slopes of the chalk outcrop and dry valley slopes. Chalk scrub is also often of high wildlife value but needs active management. Of particular interest in the Chilterns are scrub communities dominated by juniper and box.
4. There are around 700 ha of chalk grassland mapped⁴ in the AONB. This is likely to be an underestimate of the total resource, excluding for example scrubbed former chalk grassland sites in need of restoration or arable reversion sites 'en route' to becoming chalk grassland. Of this total area, 64% is within a Site of Special Scientific Interest and the vast majority of the remainder within a Local Wildlife Site.

Key associated species include:

- Duke of Burgundy
- Chiltern gentian
- chalkhill blue
- early gentian
- adonis blue
- fringed gentian
- silver-spotted skipper
- pasque flower
- dingy skipper
- grizzled skipper
- skylark
- stone-curlew*
- military orchid
- box
- juniper
- mosses and liverworts
- wild candytuft

* Stone-curlew are no longer present in the AONB but the Chilterns is targeted as an area for their re-establishment.

Farmland habitats, farmland birds and arable flora

5. 60% of the AONB is farmland⁵. As well as the land used to grow crops or rear stock, farmland supports a wide range of habitats including hedgerows, trees, traditional buildings, ponds and old orchards. Over past decades, intensified agricultural management has led to the loss of many associated plants, insects and birds. However, farmland still makes a significant contribution to the biodiversity of the Chilterns.
6. A survey in 2002⁶ indicated that the Chilterns AONB holds nationally important populations of corn bunting and linnet, both red-listed as being species of high conservation concern. Above average populations of skylark and yellowhammer, both red-listed, are also present.
7. There are several known sites in the AONB which still support rare arable flora.

Priority farmland habitats found within the AONB:

- ponds
- arable field margins
- hedgerows - many of which are ancient/species-rich
- traditional orchards



Skylark

⁴ Chilterns Chalk Grassland Audit 2008 (Chilterns Conservation Board)

⁵ Land Use Survey 2007 (Chilterns Conservation Board)

⁶ Breeding Bird Survey of the Chilterns Area of Outstanding Natural Beauty, 2002 (CCB, RSPB).

Key associated species:

- farmland birds including corn bunting, linnet, skylark, yellowhammer
- rare arable flora including pheasant's eye, ground pine, broad-leaved cudweed, rough mallow
- mammals including brown hare and various species of bat
- invertebrates including common blue, small copper, small heath and brown argus butterflies
- a nationally-important population of green hound's tongue

Chiltern Commons

8. There are 187 registered commons in the AONB, covering 2,002 ha⁷. This is a small proportion of the former, pre-enclosure extent of common land, and much of the remaining resource is fragmented. Three-quarters of the remaining commons are less than five hectares in area; five commons are over 100 ha, the largest being 373 ha (Northchurch and Berkhamsted Common).

9. Common land is not in itself a habitat, but is associated with a number of habitats in the AONB - in particular acid grassland, heathland, former wood pasture, ponds, mixed broadleaved woodland and chalk grassland. Being largely uncultivated and generally on the less fertile soils, many commons have retained a rich biodiversity.
10. Over two-thirds of the area of common land is designated for its wildlife interest (SSSI, SAC or LWS).
11. The main threat to the biodiversity of common land is lack of management - in particular the loss of grazing, allowing bracken and scrub encroachment and woodland establishment.

Key associated species:

- dead wood invertebrates
- epiphytic lichens
- fungi
- heath spotted orchid
- star-fruit - nearly all UK sites are on Buckinghamshire commons



Moorend Common near Lane End

⁷ Audit of Biodiversity Data for the Chiltern Commons CCB /BMERC 2007

Chalk rivers and wetlands - see water environment chapter

European Protected Species

12. European Protected Species occurring in the AONB include

- bats
- common dormouse
- white clawed crayfish *
- great crested newt
- early gentian

*possibly extinct in the Chilterns.

Protected sites

13. There are a number of sites designated under national and European legislation, together with local wildlife sites of importance at a county level. There are three Special Areas of Conservation:

- Chilterns Beechwoods (a composite of 9 sites)
- Hartslock Wood
- Aston Rowant



Small tortoiseshell

14. The table below shows a summary of designated nature conservation sites.

Designation	Number of sites	Ha
Site of Special Scientific Interest (SSSI)	63	3,209
Special Area of Conservation (SAC)	3	1,359
National Nature Reserve (NNR)	3	215
Local Nature Reserve (LNR)	7	59
Local Wildlife Site (LWS)		
Bedfordshire	50	910
Hertfordshire	172	2,735
Buckinghamshire	179	2,108
Oxfordshire	46	812

(Note: Some of the above categories overlap -all SACs and NNRs are also SSSIs.)

15.

SSSI Condition (as at June 2008)	
Favourable	51.2%
Unfavourable, recovering	43.0%
Unfavourable, no change	4.3%
Unfavourable, declining	1.5%

Key Issues

1. Whilst future climatic conditions are uncertain, current indications suggest impacts in the Chilterns will include longer growing seasons, increased rate of vegetation growth, changes in species distribution and increases in pests and diseases. Long term changes in woodland composition are expected, with beech becoming less dominant; and open habitats more vulnerable to scrub

- encroachment. Robust ecological networks are important to enable movement of species across the area in response to climate change and other pressures.
2. Changes in farming and forestry have been the principal cause of many of the reductions in extent and condition of characteristic habitats and species in the post-war period. These changes include:
 - decline in the livestock industry leading to reduced livestock numbers in the Chilterns (e.g. 16% reduction in cattle over the period 2000 - 2006)⁸.
 - decline in markets for Chilterns timber leading to reduction of woodland management.
 - loss of rural skills and associated infrastructure such as livestock markets, abattoirs and saw mills.
 - changes in farming and forestry practices - for example, increase in autumn sowing leading to decline in winter stubbles; more effective use of pesticides.
 3. Viable farming and forestry businesses are crucial in helping to conserve and enhance the biodiversity of the Chilterns.
 4. Reductions in extent of semi-natural habitats over past decades have increased habitat fragmentation and added to the difficulty of sustaining appropriate management of sites. Conservation efforts need to continue to seek to address this through linking and extending existing habitat and targeting resources where they will achieve most biodiversity gain.
 5. There is a need to manage common land to prevent further losses in habitats and species.
 6. With 750,000 people living in or within 3 kilometres of the AONB, and 55 million visits per year⁹, the Chilterns is one of the most-visited AONBs in the country. Many of the best wildlife sites are close to urban areas and to areas where further housing growth is planned. Site managers report increasing issues arising from visitor numbers and from the behaviour of some visitors; sustaining grazing on urban



Barton Hills National Nature Reserve, Bedfordshire

⁸ Defra Farm Statistics 2000 - 2006

⁹ as 1

fringe sites is a particular concern. Visitor pressure needs to be carefully managed and key sites buffered and protected.

7. Increasing deer numbers, primarily fallow, muntjac and roe, are having a serious impact on woodland habitat, especially where coppicing or restocking by natural regeneration or planting is carried out. Deer control is practised by a number of the large estates. However, effective deer control in areas characterised by smaller land holdings is difficult, and requires joint effort between groups of landowners.
8. A number of non-native invasive species such as Himalayan balsam, Japanese knotweed, signal crayfish and American mink are already impacting on native species and habitats. Monitoring and strategies for control are needed.
9. Further work is needed to improve understanding of the biodiversity resource in the AONB, including the condition and extent of key habitats and species and the main factors which have an impact on them, for example climate change. Habitat mapping work is ongoing at a county level across parts of the AONB, but there is still a need to develop consistent approaches across county boundaries.
10. Limited resources currently constrain the management of both designated and non-designated sites.

Policies

NC1 Support delivery of local, regional and national Biodiversity Action Plan (BAP) targets.

Biodiversity targets are in place for the two regions and four counties covered by the AONB, as well as national BAP targets. The Conservation Board will work with county biodiversity partnerships and regional fora to support delivery of biodiversity targets, particularly those of significance to the Chilterns - for example chalk grassland, chalk rivers, woodland and farmland habitats.

In working towards these targets it will be important to seek to manage public access such that it does not exceed the environmental capacities of individual sites, BAP priority habitats and protected species.

The Board will also seek to promote awareness of the Biodiversity Duty placed upon all public bodies under the Natural Environment and Rural Communities Act 2006.



Pyramidal orchid at Hartslock Reserve near Goring-on-Thames

Local Biodiversity Partnerships are increasingly looking to deliver on BAP targets through landscape scale approaches, rather than looking at different habitats in isolation.

NC2 Support management and protection of all designated wildlife sites and European protected species to maintain favourable status.

The extensive network of designated sites in the Chilterns includes much of the area's important habitats and species. Ensuring the integrity and appropriate management of these sites is clearly a crucial element of an effective conservation strategy for the area.

With respect to SSSIs, the Government has established a Public Service Agreement (PSA) Target of 95% being in favourable or recovering condition by 2010. In the Chilterns good progress is being made towards achieving this aim with 94% currently in favourable or unfavourable recovering condition. It

will be important to ensure that this effort is sustained beyond 2010.

Increased resources are needed to monitor condition of local wildlife sites and to provide ongoing advice to land owners/managers. The monitoring of local sites will be driven in part by the requirement for local authorities to monitor the proportion of local sites in positive conservation management (National Indicator 197).

European protected species are those that receive protection under the Habitats Regulations 1994. Advice to land managers is needed to ensure they are aware of the regulations and the 2007 amendments.

NC3 Promote management of non - designated sites to enhance their value for biodiversity.

Biodiversity is not restricted to the designated sites and it is important to also manage and improve the quality of habitats in the wider countryside.



Bluebells

NC4 Increase public awareness, understanding and involvement in conservation of the Chilterns' wildlife and habitats.

There are many opportunities to engage and involve local communities in the conservation of local wildlife. This is important on a number of levels - promoting people's enjoyment and sense of connection to their local environment as well as safeguarding that environment through increased public custodianship and understanding. There is a particular need for better public understanding of what is involved in countryside management including sensitive issues such as deer management and grey squirrel control.

NC5 Maximise the area covered by environmental land management agreements.

Environmental land management agreements - currently including Environmental Stewardship (Entry Level Stewardship (ELS), Higher Level



Brown hare

Stewardship (HLS)) and the English Woodland Grant Scheme (EWGS) - are key to delivery of environmental benefits including biodiversity across much of the AONB. There are currently 13 HLS agreements across the AONB (including one Organic HLS agreement) covering 453 ha (0.56 % of the AONB) and 161 ELS agreements (including nine Organic ELS agreements) covering 34,281 ha, 41.15% of the AONB¹⁰. There are also 46 Countryside Stewardship agreements which will be coming to an end over the period of the management plan.

NC6 Develop landscape-scale approaches to buffer, extend and link fragmented sites of nature conservation importance.

Landscape-scale approaches have developed from an understanding that habitat cannot be maintained in good condition if it exists as small isolated sites. Many species depend on a mosaic of well-connected patches of semi-natural habitats. There is a need to enlarge and link habitats which are fragmented and/or isolated to allow natural movement across the landscape. Creation of new green open space ('green infrastructure') can contribute to this approach.

NC7 Promote the sharing of information on key species and habitats (BAP priority and characteristic species/habitats).

Improved knowledge of the biodiversity resource of the AONB is needed in order to manage key species and habitats effectively. The gaps in current knowledge reflect a mix of factors including patchy survey data and information being gathered using differing methodologies across the different counties/regions. Key data sets for management of the AONB need to be

¹⁰ Natural England statistics

clearly defined and consistent methodologies developed to collect and share that data across county boundaries. Local environmental record centres will be essential to delivery of this policy.

NC8 Develop effective monitoring of the extent and condition of key habitats and species, and the impact of visitor pressure and climate change on them.

At present data on impacts of visitors on sensitive sites and habitats is largely anecdotal. Strategies for monitoring and responding to these impacts are needed. The impact of climate change on key species and habitats also needs to be monitored.

NC9 Promote the improved management for conservation of farmland habitats, hedgerows, ancient woodland, veteran trees, arable plant communities and common land.

These are important features of the AONB which may not always be picked up through designated sites and yet need appropriate management.

NC10 Promote management to help vulnerable species and habitats to adapt to and mitigate the effects of climate change.

A key element of this is the development of landscape-scale approaches to support the development of robust ecological networks thereby allowing natural movements across the landscape.

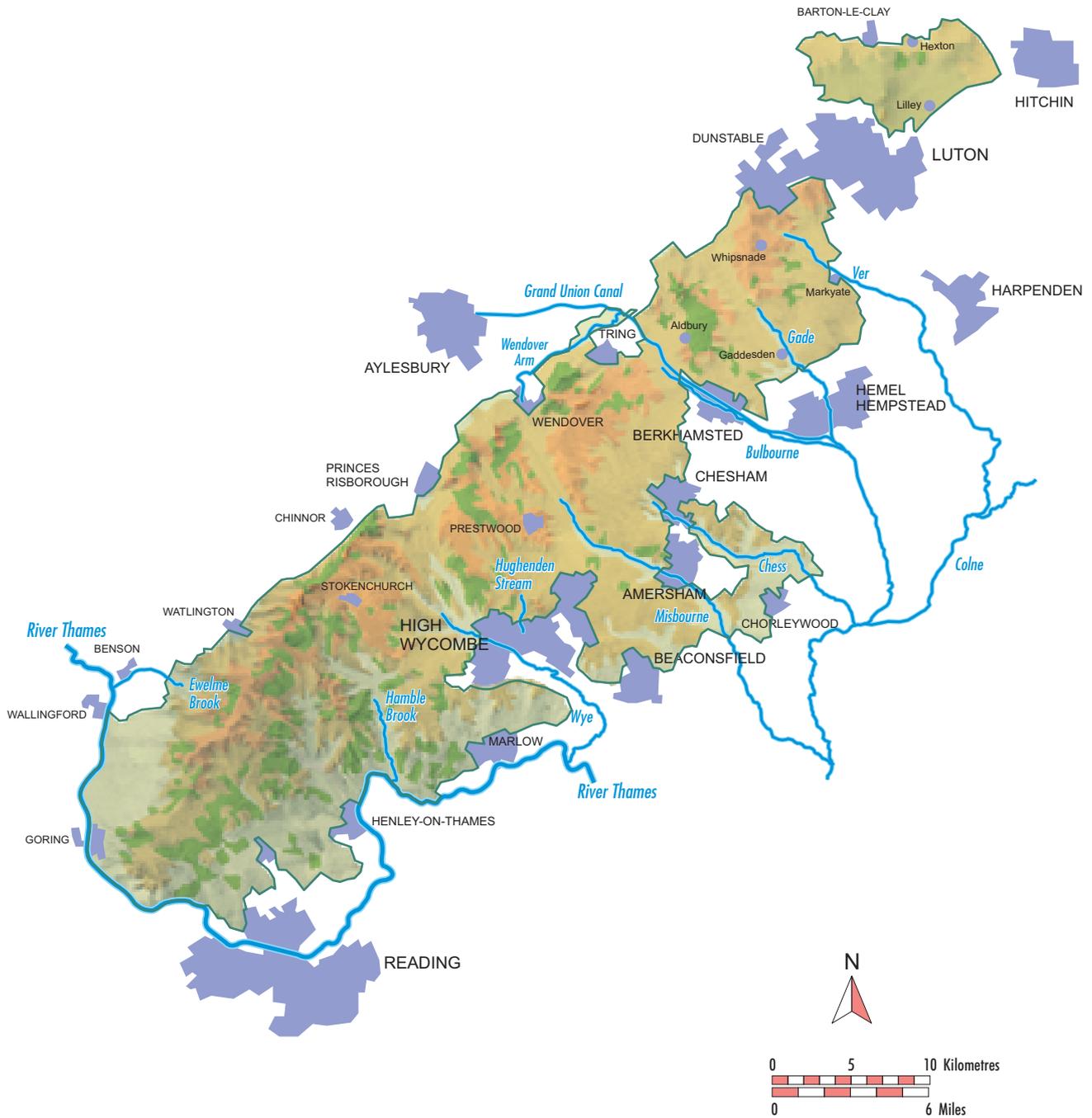


Flock of red kites

Actions

1. Develop projects to implement Biodiversity Action Plans, and ensure continuity across county boundaries.	11. Identify relevant climate change indicators for the Chilterns and develop a monitoring programme.
2. Support and develop landscape-scale initiatives and green infrastructure projects which extend and connect fragmented habitats and sites.	12. Develop approaches to monitor visitor impacts on sensitive habitats and support initiatives to relieve pressure on the most sensitive sites and wildlife habitats.
3. Support and promote expansion of the area of chalk grassland in appropriate management.	13. Work with urban communities adjacent to the AONB to raise awareness and understanding of the management needs of wildlife in the Chilterns.
4. Support and promote efforts to conserve farmland birds and rare arable flora.	14. Improve interpretation of Chilterns' wildlife and countryside management.
5. Conserve and enhance biodiversity on common land through development of a Chilterns' Commons Project.	
6. Develop training programmes and disseminate best practice to land managers.	
7. Obtain and collate information on extent, condition and management of key habitats and species so that baseline data is available across the AONB.	
8. Monitor and develop actions to prevent any further losses of priority habitats or species.	
9. Monitor the spread of pest species and invasive non-native species and develop strategies for control where appropriate to minimise negative impacts.	
10. Develop and support initiatives to involve more local people in wildlife conservation in the Chilterns and support existing community environmental activity.	

Chilterns Chalk Streams and the River Thames



Water environment

Introduction

1. The rivers and streams of the Chilterns flow over chalk giving them special characteristics. They have also played a major part in the location and development of settlements and industry.
2. The major river of the Chilterns is the River Thames which forms a long and sinuous boundary to the AONB, also the boundary between counties and once between Mercia and Wessex.
3. There are eight main chalk rivers in the Chilterns: the Ver, Gade, Bulbourne, Chess, Misbourne, Wye, Hughenden Stream and Hamble Brook with a total length of 49km. These rivers are a key feature of the landscape and flow mainly in a south easterly direction along shallow valleys into the River Colne and River Thames.
4. There are numerous smaller streams and springs located along the foot of the escarpment from Barton Springs in the north to the Ewelme Brook near Wallingford in the south.
5. Chalk streams are a globally scarce habitat confined mainly to England and north west Europe. They are fed by water stored in the underlying chalk aquifer which is of high quality and mineral-rich. Chalk streams are characteristically clear, shallow and fast flowing and contain an abundance of wildlife. They are home to some of the UK's most threatened species.

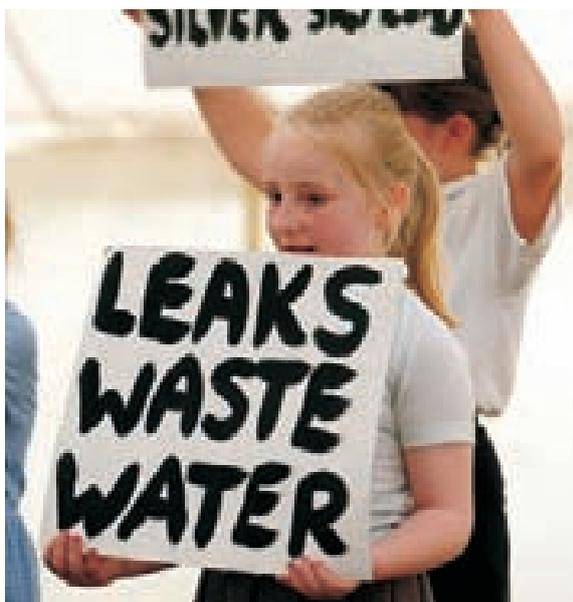


River Thames near Henley

6. The Chilterns supports a number of other aquatic habitats and features including lakes, gravel and mineral extraction pits, reservoirs, the Grand Union Canal and ponds. They are important for a range of nationally important species. Small areas of marsh, calcareous fen, wet flushes, wet woodland, alder carr and reed bed still occur.
7. River flows are naturally variable due to climatic changes but several are also affected by over-abstraction largely for domestic supplies.

Broad Aims

- Conserve and enhance the river valley and wetland landscapes characteristic of the AONB.
- Conserve and enhance the biodiversity of river and wetland habitats.
- Protect and improve the quality of the Chilterns' water resource.
- Increase public awareness and enjoyment of the water environment.



Schools event at the Water Festival

Special Qualities

Chalk Streams

1. Chalk streams are a globally scarce habitat, and a key landscape feature of the AONB. They are typically shallow, fast flowing water courses with a gravel bed and low banks, high water quality, rich in minerals, alkaline (pH 8-9), clear and stable in temperature.
2. Flows are dependent on the water table in the underlying aquifer.
3. Chalk rivers are listed in the UK Biodiversity Action Plan as a priority habitat for protection. They frequently have associated valuable habitats such as reed beds and wet woodland/carr habitats.
4. Chalk rivers support high biodiversity and are home to some of the UK's most endangered species. Associated UK BAP priority species include: reed bunting, water vole and brown trout
5. There are two SSSIs and 30 County Wildlife Sites which incorporate sections of chalk river within the AONB.
6. Winterbourne sections of dip slope streams are an important habitat supporting a unique assemblage of plants and animals, specifically adapted to ephemeral flow conditions.

River Thames

7. The River Thames is a dramatic landscape feature with a wide valley and many valuable associated habitats. Its role as a major navigable waterway has led to extensive modifications and the creation of an extensive range of facilities for leisure and recreation. The Thames Path National Trail follows its entire length as it passes through the Chilterns.

8. Along the banks of the Thames are some of the region's finest houses with associated parkland and ornamental landscapes.
9. Ecologically significant features along the main river and its backwaters include nationally-important species such as loddon lily, black poplar, club-tailed dragonfly and Daubenton's bat.

Ponds

10. There are many ponds, especially on farmland and common land, created to water livestock or sometimes resulting from extraction of soil or clay. They provide habitat for a variety of specialist flora and fauna including great crested newt and the nationally rare starfruit. One survey¹ found 932 ponds marked on the 1:25,000 OS maps. This is thought to be an underestimate.
11. Rivers and wetlands are a major educational resource and add significantly to the landscape, but need management to retain their character, for example, the pollarding of willows. Other places will need to be managed to ensure they provide sustainable places for visits and field study. Ewelme Watercress Beds and College Lake Nature Reserve are good examples. The River and Rowing Museum in Henley provides excellent educational facilities to learn about the River Thames.



Water vole

Key Issues

1. Abstraction from the underlying aquifer for public water supply is a major issue. The Environment Agency's Catchment Abstraction Management Strategy (CAMS) for the River Colne catchment (2007) states that the entire North East Chilterns is currently over-abstacted. The equivalent CAMS for the Thames and South Chilterns areas states that the southern part of the AONB is either over-licensed or 'no water available'. With demand for public supply predicted to increase over the next 25 years, in part due to plans for new development, the Chilterns' aquifer will remain under severe pressure.
2. Increased climatic variation and, in particular, increased variability of rainfall during October to March, the period essential for aquifer recharge, has increased the frequency of droughts in the last 40 years, with four occurring since 1975. Abstraction pressure on the aquifer has reduced the rivers' ability to withstand these drought periods.
3. Long term forecasts of climate change predicting drier summers and wetter winters² suggest there may be few winter droughts thus the aquifer will be re-charged to enable the streams to flow throughout the year. This may be counter-balanced by longer growing seasons thus reducing the re-charge of the aquifer in late autumn and early spring. However, although the frequency of droughts may continue to increase there may also be an increase in periods of high rainfall leading to high flows and even flooding. In the short to medium term there will be increasing uncertainty and variation in weather patterns leading to a fluctuating water table and stream flows.

¹ Chiltern Hills Pond Survey 1996, The Chiltern Society

² Intergovernmental Panel on Climate Change - IPCC, 2007

4. All chalk streams have been heavily modified particularly to power mills and to feed watercress beds. Recent modifications include flood defence works, dredging, canalisation, impoundments and creation of lakes for ornamental or fishery purposes, all of which have fragmented habitats, degraded the natural channel and created barriers for fish and invertebrates. Some modified sections, watercress beds for example, can provide the specific habitat requirements for particular species such the water shrew (*Neomys fodiens*).
5. There is pollution from a wide range of sources including industry, road and urban drainage, agriculture and illegal dumping.
6. There is increased siltation from road and urban runoff and farmland. Poaching of riverbanks by cattle can be a significant cause of siltation as can poorly planned ploughing.
7. Urbanisation of catchments has changed the hydrological character of chalk rivers. Urbanisation reduces the amount of water reaching the aquifer and increases the amount of rainfall reaching the river as run-off. Flow rates are consequently more variable and rivers more prone to flooding.
8. The spread of non-native species such as Himalayan balsam, Japanese knotweed, signal crayfish, rainbow trout and North American mink has had an impact on the ecological structure of the AONB's chalk rivers. The introduction of the American signal crayfish, for example, has led to the extinction of the native white clawed crayfish in the AONB. The North American mink has also been partly responsible for the dramatic decline in water vole numbers within the AONB³.
9. Disturbance and loss of wildlife habitats can result if the river and its banks are insensitively managed for recreational purposes. Riparian land in urban areas can become degraded through heavy recreational use.
10. Many of the Chilterns' ponds have low biodiversity caused either through many years of neglect or, conversely, through over-management.



River Chess

³ Biennial River Chess water vole surveys 2001 - 2007 (Chilterns Chalk Streams Project)

Policies

WE1 Seek the reduction of abstraction of water from catchments where rivers are affected by low flows due to over-abstraction.

Low flows are the key issue affecting the rivers as a major landscape feature and the quality of chalk river habitat. All the major chalk rivers have either been, or currently are, under investigation for low flows, through the Environment Agency's Restoring Sustainable Abstraction programme.

WE2 Promote the planning and sustainable management of water resources at a catchment scale.

Demand for potable water from groundwater sources is forecast to increase over the next 40 years as a result of planned development in the AONB and adjacent conurbations. There is a need to ensure that development is sensitive to this issue to ensure effective management of water resources.

WE3 Seek improvements to water quality and reduction in pollution levels.

Chalk rivers characteristically possess high water quality. As a result many of the species that inhabit them are sensitive to pollution. Many of the Chilterns' rivers have significant pollution issues, which require redress.

WE4 Promote best practice in riparian management.

Good riparian management is key to maintaining the habitats and landscapes characteristic of chalk rivers.

WE5 Promote development and long-term management of sustainable drainage systems.

Urbanisation of river catchments leads to increased runoff, flood risk, and pollution. Further development in river catchments must be sensitive to these issues and seek to minimise their impact.

WE6 Maintain, enhance, protect and monitor BAP priority habitats - including chalk rivers, ponds and other wetlands, and key species such as water voles, water crowfoot and water shrews.

Water bodies are relatively sparse in their distribution within the Chilterns. Their continued health is essential for sustaining a diverse range of plants and animals. Many of the water bodies in the Chilterns are home to UK BAP priority species. Protection of these species is important both from a local and national perspective.



A dry Hughenden Stream in April 2006

WE7 Promote restoration schemes to restore natural flow conditions and improve connectivity of rivers.

Chalk streams are heavily modified systems. This has led to degradation and fragmentation of habitat. Schemes which 'naturalise' river channels and improve flow continuity by the removal of impoundment structures will enhance habitat, restore natural drainage regimes and create more sustainable river systems.

WE8 Safeguard and promote appropriate management on all sites designated for nature conservation (statutory and non-statutory), and pursue the designation of further sites.

The conservation of sites which possess quality habitat is essential to prevent further degradation of the AONB's rivers.



River Wye in High Wycombe

WE9 Increase public awareness of the link between demand for water, climate change and environmental quality.

Raising awareness of the link between water use and the flow of chalk rivers will help to change attitudes to water efficiency. The variability in river flow needs to be better understood by the public and will assist in introducing appropriate management to reduce low flows and cope with flooding.

WE10 Increase the involvement of local communities in the conservation and enhancement of the water environment.

The public is particularly interested in rivers and water quality. A sense of community ownership and responsibility is important in the protection of the AONB's rivers, particularly in urban areas where they often flow through land in public ownership and close to residential areas.

WE11 Encourage greater public enjoyment of the water environment of the AONB and promote sustainable access to it.

Chalk rivers are an important and beautiful part of the Chilterns landscape. It is important to enable the public to experience and interact with them. Encouraging the public to engage with chalk rivers is key to instilling a sense of value of these important and beautiful parts of the Chilterns' landscape.

Actions

- | | |
|--|---|
| 1. Support the delivery of sustainable abstraction, through the Environment Agency's Catchment Abstraction Management Strategy. | 7. Promote education and interpretation programmes to enhance understanding of chalk rivers and to promote water efficiency. |
| 2. Provide site-specific advice and support for management of chalk rivers, particularly targeting areas with UK BAP priority species such as water voles. | 8. Encourage the management of existing ponds - particularly those on farmland and commons - to enhance their biodiversity and support the creation of new ponds. |
| 3. Support management of important riverside trees, especially willow pollards. | 9. Encourage the involvement of local communities in the management of their local streams, rivers and ponds. |
| 4. Develop and implement management plans for scarp slope streams. | 10. Support measures to promote environmentally-sustainable recreation and tourism initiatives based on local rivers and canals. |
| 5. Prepare and implement landscape and wildlife management plans for all major rivers. | 11. Collate existing data on ponds in the AONB and support further pond survey initiatives. |
| 6. Work with local authorities and wildlife trusts to identify and designate new chalk river sites as County Wildlife Sites. | 12. Oppose proposals which reduce the environmental quality of the river channel and water. |



Cricketer's Pond in Sarratt

Historic environment

Introduction

1. The landscape of the Chilterns is above all a “cultural landscape”, the product of a long legacy of human influence. Over 1,400 years ago the tribe that lived in what we now know as the Chilterns gave their name to the area. In the late 7th century a document known as the Tribal Hidage recorded the Cilternsaetan, “people of the Chilterns”, as a distinct group possessing a nominal 4,000 hides (family units).
2. The Chilterns is an ancient landscape with traces of many eras and previous settlers. The historic environment they created over millennia helps define a sense of place and the strength of local landscape character. The area has many Bronze Age barrows and field systems, Iron Age forts, medieval churches and deer enclosures, 18th century sawyer pits and 20th century military trenches. All

create layers of civilisation and settlement which provide a timeline for the evolution of the landscape and help define what is different and special about the Chilterns.

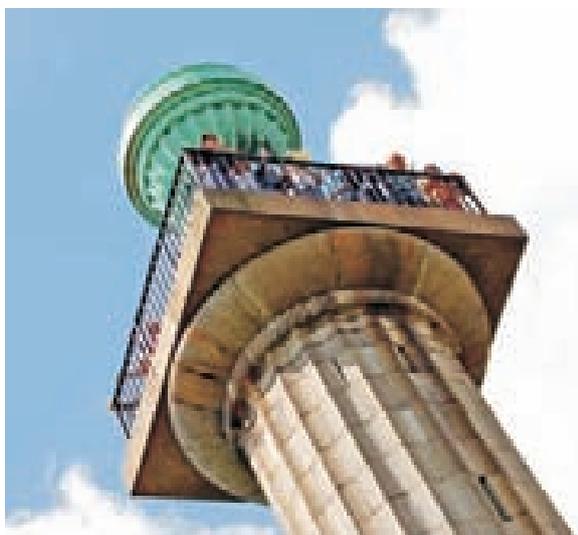
3. It is because relatively little of the Chilterns has been subject to intensive cultivation that so much survives. The downland and commons, rarely ploughed but grazed for centuries, have helped to conserve much of interest. The commons, mostly dating back to medieval times, and the manorial system are important in their own rights as part of the historic environment, but also for the features which survive on them, many of which are still to be surveyed and identified. The woodlands, so extensive and yet so little surveyed, hide a great deal that is still to be discovered. The farmsteads, churches and many old buildings are both part of the historic environment and a direct link with the modern day, still in every day



Lewknor Church

use providing the core of much loved villages and towns.

4. The concept of the historic environment is wide ranging and holistic encompassing all physical manifestations of mankind's activities from earliest prehistory to the present day. It includes buried archaeological remains and palaeo-environmental deposits, sites surviving as earthworks or ruins, historic buildings and villages, landscapes still in use such as farms and field boundaries, industrial and military structures, ancient woodlands and commons and country houses with their associated parks and gardens.
5. There are strong links between the historic and natural environments as the modern ecology of the Chilterns is determined to a considerable degree by historical patterns of land use. The historic environment helps define a sense of place, can provide a focus for community activities and contributes to the local economy. It also has important cultural associations with topics such as social history, folklore, arts and literature.
6. Policy and advice on the historic environment is provided at a national



The Bridgewater Monument at Ashridge

level by English Heritage, although there is overlap with the landscape responsibilities of Natural England. Each County Council or unitary authority has an archaeological service responsible for maintaining and developing its Historic Environment Record and the provision of planning and conservation advice. To aid understanding of the historic landscape the Chilterns Historic Landscape Characterisation project has been undertaken. Building conservation advice is the responsibility of conservation officers based in the District Councils. The National Trust is an important landowner in the Chilterns and employs its own conservation and archaeological staff.

7. More changes are anticipated with the planned introduction of a new Heritage Protection Act which will integrate heritage designation and consent regimes and give statutory status to Historic Environment Records.
8. There are many voluntary and community groups working in this field notably the Chiltern Woodlands Project, which undertakes surveys and training in woodland archaeology, and the Chiltern Open Air Museum which houses an important collection of relocated historic buildings.

Broad Aims

- The historic environment of the AONB is conserved and enhanced for the benefit of current and future generations.
- The public have a greater appreciation, understanding and enjoyment of the historic environment of the AONB.
- The public have good access to the historic environment.

Special Qualities

Prehistory

1. The chalk ridge of the Chilterns contains many traces of prehistoric occupation and the majority of the monuments which survive as visible earthworks lie along the escarpment.
2. Prehistoric settlements, often indicated by scattered flint artefacts on the surface of fields, are common within the Chilterns, as are barrows (or burial mounds).
3. Neolithic barrows are to be found at Whiteleaf and at sites around Dunstable, but Bronze Age barrows are far more common and examples can be seen at Edlesborough, Wendover and Dunstable.
4. The Ridgeway (the Icknield Way) is an important prehistoric trackway, and is believed to have provided the basis of a major communications and trading network stretching from Wessex to East Anglia.

5. Earliest surviving elements of the Chiltern landscape include pre- Roman “co-axial” patterns of parallel trackways and fields.
6. 17 Iron Age hill forts were constructed along the summits of the scarp and along the Thames Valley.
7. The Iron Age linear dykes (evidence of extensive land divisions) of which Grim's Ditch is the best known and which stretches for more than twenty miles from Great Hampden to Dunstable.

Roman

8. The Roman roads of Watling Street (now the A5) and Akeman Street (now the A41) run through the Chilterns.
9. There is evidence of Roman iron-smelting in Chiltern woods and villa sites adjacent to Roman roads.

Saxon

10. Anglo-Saxon cemeteries and settlements are found mainly around the periphery of



Ivinghoe Beacon hill fort

the Chilterns - for example around Aylesbury, Dorchester, Luton and Dunstable.

11. The Saxon parish structure survives with its distinctive long, narrow strip-parishes running from the Vale up onto the Chiltern scarp to give each Vale settlement a share of the Hills' woodland and pasture resources.

Medieval

12. A substantial number of buildings survive from this period including churches and chapels (typically built of flint) and timber-framed barns, manor houses and farmhouses.
13. Strip lynchets (cultivation terraces) were created in the late 12th and 13th centuries at a time of a great need for arable land.
14. Medieval field patterns with ancient hedges, boundaries and lanes. About 40% of hedged field patterns in the Chilterns



Sawpit in Bradenham Woods

are thought to have pre-18th century origins.

Post-medieval

15. Many of the archaeological earthworks found in Chiltern woods, such as wood banks and sawpits, reflect their management in this period to supply timber for the furniture industry.
16. The construction of turnpike roads, canals and later railways created new landscape features as well as opening up access to the Chilterns and affecting its economy.

The twentieth century

17. The impact of the 20th century was greatest in the southern Chilterns where the London suburbs of Metroland grew up rapidly until the designation of the Metropolitan Greenbelt in 1959.
18. Some modern features, such as the First World War practice trenches on Marlow Common and relics of activity from the Second World War, can now be recognised as important archaeological monuments.

Settlements and buildings

19. The historic settlement pattern is one of larger nucleated towns and villages along the river valleys and below the Chilterns' escarpment, with more dispersed patterns of hamlets and farms on the higher ground with newer settlements on the edge of commons.
20. There are many dwellings, farmsteads and other buildings within the Chilterns which are of architectural or historic importance and which make an essential contribution individually, or in groups within settlements, to the character, and aesthetic qualities of the landscape.

21. The most common building material in the Chilterns is brick, the use of which dates back to the 15th century. During the 18th century it became the universal building material. Bricks were almost always made locally, the variations in quality and colour of local brick earth giving a distinctive character to buildings in different parts of the AONB. Three active brickyards are still operating.
22. In most areas of the Chilterns, flint is also widely used as a building material, commonly used in combination with brick. It is particularly common in the central plateau areas of the Chilterns and can be found in farmhouses of the 17th century, cottages in the 18th century and universally in the late 19th century.
23. The local abundance of clay meant that clay tiles became the general roofing material from the 16th century onwards but thatch was still being used on humbler buildings at the end of 18th century. Welsh slate became commonplace in the 19th century.

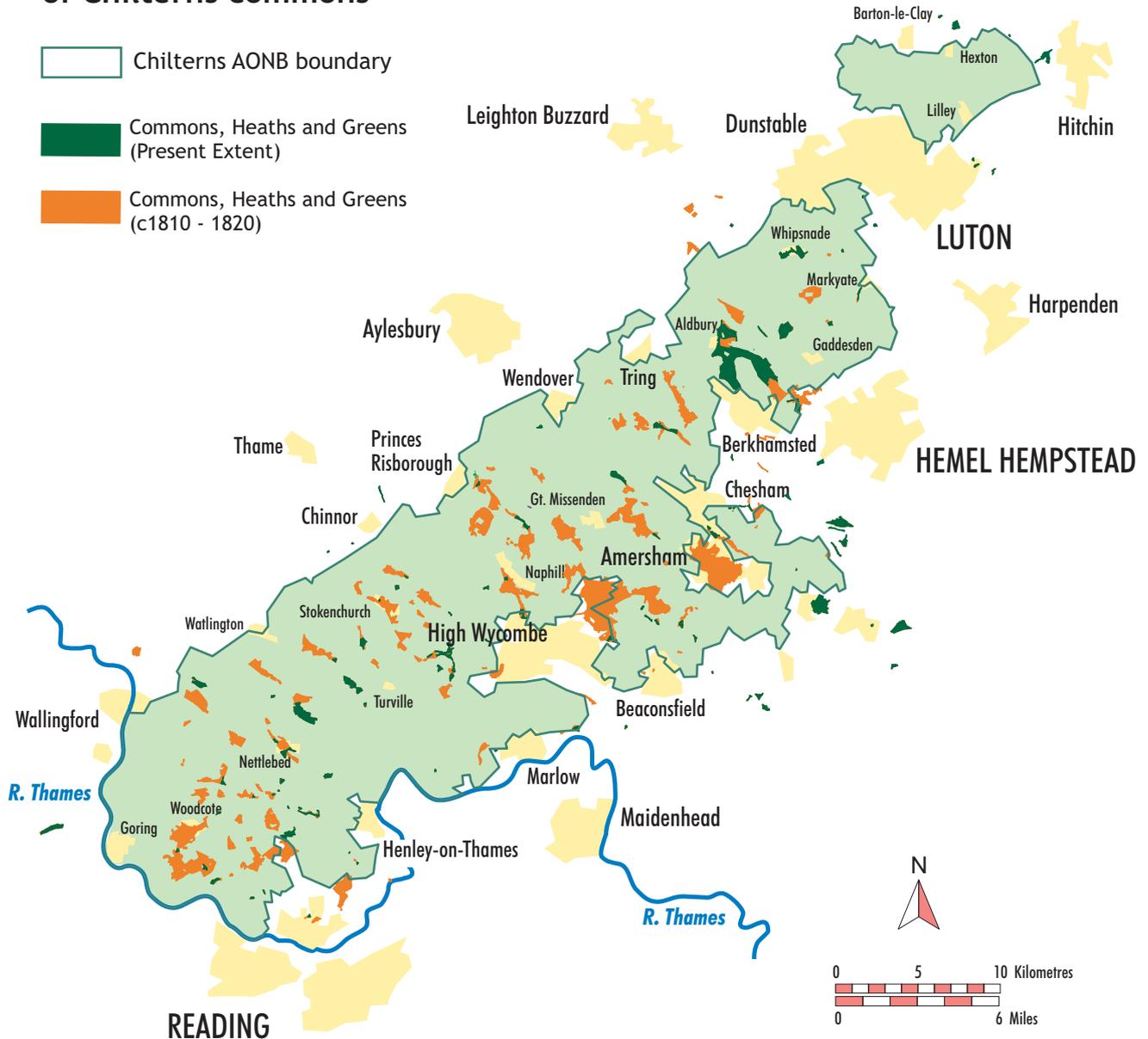
Parks and gardens

24. The attraction of the Chilterns as a country retreat where the varied topography of the landscape allowed the location of grand houses in prominent positions and within a reasonable distance of London, led to the development of numerous grand country houses and parks, reaching a peak of around 600 parks in 1820, with examples of every period and style between the 17th and late 19th centuries. There are 15 historic parks and gardens on the English Heritage register.
25. The designed landscapes of the 18th century are the best known and include examples of the work of some of the most famous landscape designers of the period, including Charles Bridgeman, 'Capability' Brown and Humphrey Repton.
26. In some places the owners of these estates rebuilt adjacent villages creating a distinctive estate architecture. Most of these country estates and parks have survived to the present day although only a few remain with their original families, many having been turned to other uses such as schools.



Chenies Manor near Amersham

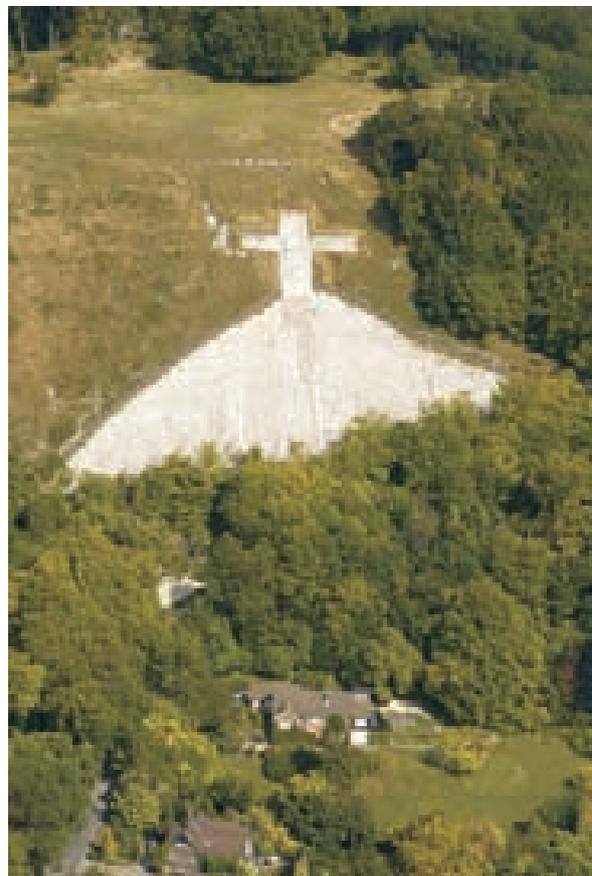
Historic and current extent of Chilterns commons



Key Issues

1. There is a need to promote a wider understanding of the historic environment to ensure its sustainable management. More use could be made of the Historic Environment Records (HERs) held by local authorities, which record the historic buildings, landscapes and archaeological sites of their area.
2. The importance of responding to the problems identified by the Listed Buildings at Risk Survey covering grade I and II* buildings and a Scheduled Ancient Monuments at Risk Survey.
3. The knowledge of the historic environment is partial and in some areas, such as archaeology in woodland, under-surveyed.

4. The Chilterns is a popular area for informal recreation which attracts large numbers of visitors. There is potential for conflict between conservation and public access particularly evident, for example, at some archaeological sites along the ridge.
5. The conservation of the special qualities of the historic environment relies on good management and sustainable use by owners, managers and all users including the general public. There is a need for enhanced provision of information and advice for all these audiences.
6. Involving local communities in the identification, conservation and celebration of local heritage is essential. The cultural associations of the historic environment should be recognised and local community interest fostered wherever practical.
7. There is a need for survey, identification and management of historic environmental features on common land.
8. A great deal of new development is taking place and is planned. There is a need to identify and take appropriate action to ensure new development does not damage sites or their setting where that is important. Where development or land use change involves significant and unavoidable impacts, appropriate recording should be undertaken.
9. The importance of good design, taking account of local characteristics and materials, both in new buildings and extensions and the conversion of historic buildings is vital to conserve the character of the built environment and its setting in the landscape.
10. A wide range of utilities have permitted development rights relating to, for example, the installation of pipelines and cables, although larger schemes may require an Environmental Impact Assessment. Most of these organisations have duties of care towards the historic environment and have published environmental policies, although their practical interpretation and application of these measures is variable.
11. Intensive agriculture is a potentially serious threat to the historic environment through the loss of historic buildings and field patterns, ploughing up of archaeological sites and the removal of historic features such as ponds and trackways.
12. Many archaeological sites survive as earthworks within woodland including historic woodland management features (eg wood banks, sawpits) as well as earlier remains such as prehistoric barrows, hill forts and boundary ditches. The conservation and sustainable



Whiteleaf Cross near Princes Risborough

management of the Chilterns' woodlands is therefore a high priority from an historic environment perspective. From an archaeological perspective, there is a need to extend the coverage of survey (including laser surveying (LiDAR)) to identify and record features hidden within woodland. New planting should be informed by historic landscape characterisation and located to avoid archaeological sites.

13. The Treasure Act 1997 has replaced the ancient legal concept of "treasure trove" and requires the reporting of all suspected treasure items. Nevertheless, most "portable antiquities" found by metal-detectorists fall outside the remit of the Act. A priority should be to prevent "treasure hunting" metal detecting on the most important and vulnerable sites.
14. The interests of nature conservation and the historic environment often coincide but there can sometimes be tensions - for example, burrowing animals or tree planting can damage archaeological remains.
15. Country houses and their associated parks, gardens and other designed landscapes are a particularly distinctive and important feature of the Chilterns' landscape within the AONB as well as many others which are worthy of conservation. These buildings and landscapes can face particular pressures of neglect and unsympathetic change of use whilst they require sympathetic management and, in many cases, restoration.
16. There is a need to identify important unregistered historic parks and develop conservation plans for both registered and unregistered parklands (especially those which are "at risk").

17. Climate change could have serious impacts on certain archaeological remains, historic buildings and the natural components of historic landscapes. Specific topics of concern are:
 - increased flood risk affecting historic buildings;
 - increased rainfall and water penetration affecting historic buildings;
 - changes in woodland composition and increased vulnerability to wind-blow (the latter a particular concern on archaeological monuments).

It is worth noting that the climate has changed before and an understanding of the historical and archaeological record could assist in planning a sustainable future.



Brick kiln in Nettlebed

Policies

HE1 Improve the understanding of the character, and conservation and management needs of the historic environment to assist site and property management.

This is essential to ensure its conservation and appreciation. Currently knowledge levels are partial and, in key fields, less extensive than is desirable. This is particularly true amongst groups who have the capacity to approve or initiate change which may affect the historic environment.

HE2 Resist land use changes and management practices which would harm nationally designated and locally important historic assets and their settings.

The historic environment is irreplaceable and damage must be avoided especially where the site's importance has been identified and protection conferred by some form of designation. Additionally, it is the setting of many sites which adds to their importance and the way they are appreciated. This facet of site management is not always taken into account fully.

HE3 Promote best practice for the conservation of the historic environment.

Relatively few land and buildings managers receive any formal training in conservation of the historic environment, and yet much of what they do has a direct bearing on it. A great deal of experience is available to provide advice and many good examples of best practice are available. Where appropriate HERs and Historic Environment Services should be consulted for information and advice. Often the most effective training and

advice is in the form of learning from what others did successfully when faced with similar issues.

HE4 Support economic and social activity, benefiting local communities, based on the sustainable management of the historic environment.

The public has a high level of interest in the historic environment, some of which is capable of sustaining social and economic activity. Examples are the development of tourism based on heritage and social activity founded on local culture and folklore, often linked to specific sites. Such activity helps both to strengthen the identity of local communities and foster sustainable economic activity.

HE5 Ensure the design and location of new development is sympathetic to the character of the historic environment.

The pressure to accommodate new development in the Chilterns is high, with potential impacts on the existing settlements and the wider landscape where it is to be situated in more open countryside. Where ever it is to be located it is essential that the design and materials are sympathetic to the setting and historic character of that place. That does not necessarily require a slavish adherence to vernacular architecture but it should nonetheless complement and respect existing character.

HE6 Promote community involvement in the conservation and interpretation of the historic environment.

The conservation and interpretation of the historic environment provide a wealth of opportunities for community involvement. In so doing all parts of a community can find a role including volunteers, schools, local businesses as

well as local statutory bodies and experts. This type of involvement encourages social activity within the community and helps link it to its past.

HE7 Support the preparation and implementation of conservation plans for appropriate areas and sites.

The preparation of conservation plans is proposed because of the importance of so many sites. Such a plan is the best way of reinforcing the importance of sites, involving appropriate agencies, identifying appropriate action, providing a stimulus to take that action and to provide guidance for others undertaking work which may have an impact on those special areas and sites.

HE8 Promote public awareness and enjoyment of the historic environment and involvement in its conservation and stewardship.

In addition to encouraging local people to become involved in the conservation and celebration of the historic environment in their own communities, they should

ideally have a better understanding and enjoyment of the historic environment of the wider Chilterns. Such a policy needs a wide ranging programme to address all types of audience in a way that both increases their understanding but also willingness to become involved in its care and stewardship.

HE9 Promote the management of sites and properties to enable them to adapt to the impacts of climate change and mitigate the causes.

As the climate changes some sites will be vulnerable to the likely impacts such as increased flash flooding and trees being blown over in high winds. All conservation plans need to take potential impacts into account and ensure appropriate management is implemented in response to the site's vulnerability.

The management of the historic environment can also contribute to mitigation of the causes of climate change by, for example reducing energy usage and using materials for repairs with low embedded energy.



Restored watercress beds at Ewelme

Actions

1. Publish best practice guidance for management of locally important sites for community groups, landowners and managers.
2. Publish best practice guidance for use by agencies and other groups (e.g. utilities) whose activities fall outside of planning controls and draw their attention to their responsibilities towards the conservation of the historic environment.
3. Implement the Environmental Guidelines for the Management of Highways in the Chilterns, to help protect the historic character of highways and adjacent land.
4. Identify and promote opportunities to improve the management of important and threatened historic parks and gardens, or other scheduled monuments in public ownership.
5. Undertake research and survey work to improve knowledge and understanding of the historic environment in order to identify important and locally distinctive historic landscapes and features.
6. Contribute to any maintenance or updating of the Chilterns Historic Landscape Characterisation.
7. Undertake an “historic environment risk assessment and management project” to assess risks and identify opportunities for enhanced access and limits of acceptable change.
8. Implement a programme to raise public awareness of the historic environment including provision of information, holding of events and improving physical access to suitable sites.

9. Undertake a survey of all settlements to identify the character of their built environment.
10. Develop and offer training programmes for land managers and local communities.
11. Support a programme to develop the visitor appeal, based on the historic environment, of suitable sites.



Turville

Development

Introduction

1. The attractiveness of the Chilterns' landscape is due to its natural, built and cultural environment. It is not a wilderness but countryside adorned by villages, hamlets and scattered buildings. It is surrounded by large towns and is within easy commuting distance of London, all of which increase the pressure for new development. As a result house prices in the Chilterns are amongst the highest in the country and there is a severe shortage of affordable housing.
2. Towns, villages, hamlets and individual buildings all form a vital part of the character of the Chilterns, particularly because of the widespread use of local building materials (bricks, clay tiles and flint) and the locally distinctive architecture. New development, both within and adjacent to the AONB, should conserve and enhance the natural beauty of the area.
3. The Chilterns is very accessible due to the number of roads, railway lines and waterways running through it. Major transport routes link the Chilterns to London and other major cities and towns. With the exception of a single road (the modern successor to the Icknield Way) which follows the foot of the escarpment, very few transport links run south west to north east. The network of ancient routes, railways and canals has added to the cultural heritage of the Chilterns, but more recent works have often had a negative impact on the landscape.
4. The continued pressures for new development, particularly housing, create demands for aggregates and other minerals for construction. Historically, large quantities of chalk were extracted to manufacture cement, but these quarries are now largely redundant. Three relatively small brick-making enterprises survive using local clay.



Cottages in Hambleton

5. Local communities generate considerable quantities of waste. The redundant quarries are not suitable for land filling and, other than on a small scale, it is unlikely that there will be suitable sites for new waste incinerators.

Broad Aims

- Ensure that the natural beauty, local distinctiveness and aesthetic qualities of the built environment of the Chilterns are conserved.
- Ensure that all new development contributes to the special qualities of the built environment of the Chilterns.
- Improve the built and natural environment of the Chilterns, particularly degraded landscapes, to enhance its distinctive character.
- Conserve and enhance the special qualities of the Chilterns in the development and operation of transport networks and services.
- Reduce the negative impacts of transport on the environment of the Chilterns including lighting, noise and emissions of greenhouse gases.
- Reduce any adverse impact of former extraction sites on the character of the AONB.
- Ensure that the policies within local and minerals and waste development frameworks complement the objectives of AONB designation.

Special Qualities

1. The attractiveness of the Chilterns' landscape is partly due to its settlements and buildings.
2. There are many attractive villages such as Ewelme, Turville, Hambleden and Aldbury which are popular places to live and visit.
3. The Chilterns has a distinctive vernacular architecture based on the use of local brick, clay roof tiles and flint. Despite this other architectural styles ('Metroland' for example) have also had an important influence.
4. There are many notable individual buildings and follies including stately homes, monuments, mausoleums and windmills. They provide interest in the landscape and support the tourist industry.
5. There is a wealth of medieval churches, many built from flint.
6. There is a strong link between the management of the countryside and the character of old and new development. The vernacular architecture, as so often, was based almost entirely on the use of locally available materials. In the Chilterns this included clay to make bricks and roof tiles, timber, chalk for mortar and flints from fields and quarries. All these materials remain available for new development.
7. Many buildings are of historical importance either in their own right or for the people with which they are connected.
8. The ancient lanes, canals and railways (including significant Brunel bridges) are important parts of the landscape.

Key Issues

1. The Chilterns and surrounding areas, particularly within the Milton Keynes and South Midlands and Cambridge-Stansted-Peterborough Growth areas, are under considerable pressure to accommodate significant numbers of new houses.
2. There is continuing pressure to locate large scale developments in or adjacent to the AONB. Assessment of the impact of these proposals needs to accord with national policy as set out in Planning Policy Statement 7 (paragraph 22)¹.
3. The retention of open space and the need to try and restrict the scale of new development are key to conserving the natural beauty of the AONB.
4. New development of all types needs to respect vernacular architecture, settlement character and the local landscape. This will require developers to do more than try to use standard designs. The Board has published guidance on design and the use of building materials.
5. All new development needs to accord with the highest environmental standards to minimise impact on the environment and help mitigate the causes of climate



A modern brick and flint house near Chesham

change. This means maximising energy efficiency and minimising water use (by the inclusion of grey water recycling for example). In order to help avoid flooding and to encourage aquifer recharge sustainable urban drainage systems should be encouraged.

6. There is a need for the design of new buildings to show adaptation to climate change, for example to ensure buildings remain cool in the summer without using air conditioning.
7. Society must seek ways of reducing its demand for energy (switching off streetlights is one of many) and reduce its dependency upon fossil fuels by switching to renewable energy sources. The options include solar, wood fuel, ground source, hydro and wind, all of which have some potential in the Chilterns. It is the prospect of wind turbines which would be most controversial. It is highly unlikely that large scale wind turbines would be appropriate because of the relative lack of wind and the visual intrusion, especially along the ridge of the escarpment but also when located outside the AONB within its setting. However there is scope for installation of smaller-scale turbines in less intrusive locations where there are suitable wind speeds. The use of wood fuel would be the preferred option because of the extent of the woodland resource which is currently under-utilised.
8. There is a need for a better understanding and awareness of what contributes to local distinctiveness, especially amongst those groups who propose, design and approve new development.
9. In some places the attractiveness of the landscape is diminished by degraded sites, unattractive buildings and other

¹ Planning Policy Statement 7: Sustainable Development in Rural Areas (Office of the Deputy Prime Minister, 2004)

structures and their use. The challenge is to remove, screen or mitigate the visual intrusion.

10. There is a need for active promotion of environmentally sensitive construction methods and the necessary skills, particularly in the use of locally produced building materials.
11. There is an increasing need to guide developments and activities which are exempt from normal planning controls.
12. The physical impact of transport infrastructure and its use have major environmental impacts. The environmental damage or benefits need to be given greater weight. This includes ensuring that the design and management of highways, including maintenance and small works, does not damage environmental quality. They should be constructed and surfaced to minimise noise pollution, a particular problem along the motorways (M40, M25 and M1) and trunk roads. The Board and highway authorities have published the Environmental Guidelines for the

Management of Highways in the Chilterns which, amongst many issues, seeks reductions in road side clutter and light pollution.

13. There is a small number of active and redundant quarries for which there are no long term plans once quarrying has ceased. There is a need to decide their future, not least to maintain the environmental qualities they have (Chinnor Quarry is a geological SSSI). It is unlikely that landfill would be an acceptable use.
14. The Chilterns is a wealthy area and produces an above average amount of waste per capita. It is increasingly unacceptable to send waste out of the area in which it was generated. In future efforts must concentrate on minimising waste and the option of waste incineration (possibly to generate energy). The choice of suitable sites will be contentious. It is unlikely that large scale incineration plants could be accommodated within the Chilterns AONB without unacceptable environmental impacts.



Traditional fingerpost sign in Aldbury

Policies

D1 Conserve and enhance the natural beauty of the Chilterns AONB, by reinforcing the local distinctiveness of the built environment.

The design and location of new development and the extensive use of standardised, suburban designs and non-local materials has in the past resulted in many villages losing some of their special and distinctive character. There is a need for a greater understanding of the factors that contribute to the visual harmony between built development and the landscape, and to local distinctiveness and the sense of place, so that these qualities can be conserved and enhanced through sensitive and imaginative design, and the character of existing settlements can be positively improved where appropriate.

It is the role of the Local Planning Authorities to firmly apply policies which safeguard the AONB from further detrimental change, while accommodating the small-scale development necessary for the continued economic and social well-being of Chiltern communities.



Manor Farm in Bledlow, winner of Chilterns Buildings Design Awards 2006

D2 Promote the highest standards of development which respect vernacular architectural styles and represent high environmental standards in terms of energy and water efficiency.

Buildings design guidance can help inform those involved in decision-making as well as helping landowners, developers, designers and local communities to plan for and control change in an appropriate way. The Board has published the Chilterns Buildings Design Guide and Supplementary Technical Notes on Chilterns Building Materials. Revisions to the Design Guide will address issues such as climate change, energy and water efficiency, renewable energy, and the development of new agricultural and other rural employment buildings.

Flooding is increasingly becoming an issue and in order to try and alleviate this problem, as well as to encourage aquifer recharge, sustainable urban drainage solutions should be considered. One way to decrease water usage would be by incorporating grey water recycling in new developments.

The intention is that the Guide will be added to the Management Plan as an Appendix in order that it can be taken account of as a significant material consideration in determining planning applications. The Design Guide will also aim to reduce the impact of those works which are 'Permitted Development' and do not require planning permission. If carried out unsympathetically these developments can contribute to the increasing 'suburbanisation' of the countryside.

D3 Promote best practice in the use of traditional materials, namely flint, brick and roofing materials.

The Conservation Board actively promotes environmentally sensitive construction

methods (primarily the use of locally produced building materials and lime mortar) through the production and use of its Supplementary Technical Notes on Chilterns Building Materials - flint, brick and roofing materials (clay tiles in particular).

D4 Support the sustainable use of local natural resources, notably timber, clay (bricks and tiles) and flint, for local building purposes.

Bricks, tiles and flint are still commonly used in new developments. Local clay is still used for brick making by the three existing brickworks. The development of other small workings may be possible which would serve a useful purpose by providing a source of locally made materials for use in the area, ensuring compatibility with the materials traditionally used. Another source of locally produced building materials are the Totternhoe Clunch pits. They are only opened occasionally to provide material for historic building restoration. Although small-scale these activities also provide local employment opportunities.



Locally-made bricks

D5 Seek a reduction in the damaging impacts of telecommunications infrastructure.

Many telecommunications masts were sited within the AONB in the past resulting in damaging landscape impacts. There has been a slowdown in the roll out of new systems which has meant that there are fewer applications for new masts. A reduction in the damaging impacts may be achieved by the removal of redundant masts and better design and siting of new masts through the application of guidance.

D6 Seek enhancement of the quality of the landscape of the AONB by the removal or mitigation of existing visually intrusive developments.

There is a need to ensure that all developments conserve and enhance the natural beauty of the AONB. The Board will promote action to improve the quality of the AONB landscape. This would be particularly valuable in the following contexts:

- around the fringes of urban areas, to soften the often harsh edge of new residential and other developments;
- in locations where it helps to screen or integrate unsightly buildings or structures;
- in strategic locations where it could help to reduce the visibility of intrusive infrastructure, and
- where it would result in the removal or enhancement of unsightly buildings or other eyesores.

Encouragement should also be given to the replacement or improvement of elements which detract from visual harmony, including domestic features such as inappropriate urban styles of fencing, street and other forms of lighting that leads to light pollution, as well as overhead electricity lines.

D7 Pursue opportunities for landscape improvement and creation of green space (green infrastructure) when development is proposed in, or adjacent to, the boundaries of the AONB.

With significant pressure for housing and employment growth there will be a need to provide green open space in the form of green infrastructure (which can have multi-functional benefits for biodiversity, landscape, access and in contributing to sustainable drainage), provided this does not conflict with the purposes of the AONB's designation. For new developments that are on the edge of the AONB, there will also be opportunities to improve degraded landscapes and access to the countryside.

D8 Encourage appropriate development, especially on previously developed land, that will improve the economic, social and environmental well-being of the area, whilst having regard to the special qualities of the AONB.

Sustainable development involves meeting current needs without compromising the ability of future generations to meet theirs. This entails accommodating change whilst maintaining and, wherever possible, enhancing the quality of the environment for all. There will also be a need to meet the economic and social needs of the people who live and work in the Chilterns. Improvement of the economic, social and environmental well-being of the area might be achieved through:

- the delivery of affordable housing for local needs;
- improved employment opportunities; maintaining the viability of the rural economy;
- addressing the general decline in, and improved access to, key rural services, and

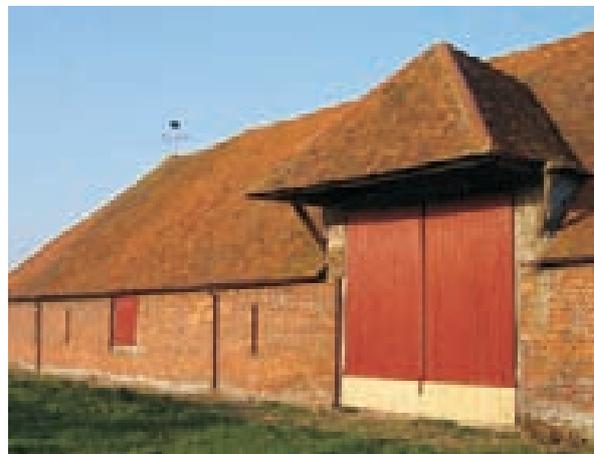
- open space and green infrastructure provision.

D9 Encourage appropriate densities on new housing developments which reflect the local context, whilst having regard to the special qualities of the AONB and to policies in Development Plans.

The Board will generally support the provision of smaller residential schemes that lead to the provision of affordable and local needs housing. All housing schemes should be sustainably located and should take particular account of the settlement's and site's contexts and should reflect densities that are prevalent locally. The operation of nationally agreed minimum densities is not always appropriate and in order to deliver wider benefits and the conservation of the special qualities of the AONB it may be better to operate to lower, maximum, density levels.

D10 Encourage the use of renewable energy, in appropriate circumstances, and particularly of wood fuel, solar, hydro-power and ground source heat pumps.

There may be pressure for the development of wind power in the Chilterns in the future, and full account should be taken of the potential impacts on the landscape, including the setting of



Long barns at Ipsden near Wallingford

the AONB. Other renewable energy forms that may be developed include solar (hot water and photovoltaics), small-scale hydro schemes and woodfuel. Solar power and ground source heat pumps are more likely to be installed at the domestic scale and there may be some supply from community based hydro-electric schemes. The use of locally sourced woodfuel from existing woodland could support both domestic scale and community-based combined heat and power schemes.

D11 Promote measures which assist adaptation to climate change which are compatible with the character of the built environment of the AONB.

The Board will work with others to promote measures which will help people and buildings to adapt to climate change, subject to the overriding consideration of the need to be compatible with the character of the built and natural

environment. Some of the measures that will be considered include: a greater understanding of the embedded energy in any development; the increased use of local building materials; water and energy efficiency; the way that buildings are orientated, and allowing for more comfortable living conditions with increased summer shading.

D12 Seek a reduction in the level of noise and other forms of pollution caused by all types of aircraft flying over the Chilterns and associated vehicle traffic using the airports.

Growth in air traffic is continuing and expansion plans for major airports would exacerbate this. Significant numbers of passengers arrive at airports by car and there will therefore need to be much greater provision of public transport in order to allow modal shift. The Chilterns has a significant number of smaller airfields nearby and is increasingly being



Aircraft vapour trails over the Chilterns

overflowed by all types of aircraft. The Board will work with operators to lessen the impacts of the use of these airfields.

Any proposals to alter flight paths in order to allow more aircraft to fly over the AONB will be strongly opposed and the Board will seek changes to take air traffic away from the AONB.

D13 Promote the restoration and management of redundant quarries into the landscape whilst conserving and enhancing their biodiversity, geological and archaeological features.

Large chalk quarries had a dramatic impact on the landscape, although only Kensworth in Bedfordshire is still active. Any restoration and management plans should ensure that any environmental qualities (including geological or archaeological remains) are maintained, protected and interpreted. In such cases landfill proposals are unlikely to be appropriate. Should landfilling take place

in the future in smaller sites, only inert waste should be used and restoration of the site back into the landscape should be achieved using appropriate contouring whilst encouraging biodiversity.

Some quarries may be suitable for the development of both passive and active recreational facilities in conjunction with low key associated infrastructure (informal car parks, picnic areas and nature trails for example). The development of wildlife habitats, where natural re-vegetation has occurred or wet areas remain, will be encouraged.

D14 Encourage the continuation of the local brick-making industry, to ensure a continued supply of high quality, traditional building materials, consistent with the principles of environmental sustainability.

Within the Chilterns there are three remaining brick-makers. They are all small in scale and make high quality



Learning to build a flint wall

bricks in traditional ways. The use of such local materials in sensitive ways helps developments to have limited impacts and contribute to local distinctiveness.

If used locally such building materials will have travelled a limited distance and will emit lower levels of CO₂ in their transport comparative to other materials.

D15 Support the demand for local building materials by seeking their use in new developments, in accordance with the Chilterns Buildings Design Guide and related Supplementary Technical Notes.

When responding to relevant planning applications the Board will seek the use of local building materials because of the positive impacts that their use would have on the landscape and environment. Developments should conserve or enhance the natural beauty of the AONB and planning applications should comply with the Chilterns Buildings Design Guide and Supplementary Technical Notes.



Traditional brick and flint work

D16 Promote the reduction of waste by supporting policies which result in re-use, reduction and recycling of waste materials.

In the future there is going to be a greater focus upon 'sustainable waste management.' This will involve moving away from the landfilling of waste. Other methods of waste management may result in demand for sites for waste reduction, waste transfer or incineration which are likely to prove difficult to accommodate in the AONB. It will be important to ensure that any waste facilities are sensitively sited and located to avoid a detrimental impact on the landscape or settlement character and to avoid disturbance to local amenity.

D17 Seek to minimise the environmental impacts on the Chilterns of quarrying and management of landfill sites adjacent to the AONB, including the impacts of through traffic.

There are few active chalk quarries left within or near the AONB and any landfill operations associated with redundant workings will need to be very closely monitored and managed. Workings for aggregates are generally nearby rather than within the Chilterns AONB. However, deposits in the Thames Valley are known to extend into the AONB. Development pressures will maintain demand for aggregates. The Board will resist proposals for quarrying within the AONB due to the damaging impacts of both extraction and the through traffic associated with transportation.

Actions

1. Comment on significant planning applications which would affect natural beauty or its enjoyment.	11. Contribute to studies undertaken to assess tranquillity in the AONB.
2. Review and comment on all relevant planning strategies and policies which would affect the Chilterns.	12. Seek a reduction in noise pollution from road traffic, in particular the M40 and all trunk roads.
3. Produce and promote revisions to The Chilterns Buildings Design Guide, particularly to take account of climate change, renewable energy and farm and other rural employment buildings.	13. Encourage the use of low noise surfacing in connection with all new roads and any re-surfacing work.
4. Continue to promote the Supplementary Technical Notes on Chilterns Building Materials (flint, brick and roofing materials) and review, as appropriate.	14. Encourage highway authorities to switch off street lights in appropriate circumstances.
5. Develop a monitoring system for the built environment to enable an assessment of changes.	15. Seek a reduction in the noise pollution created by over-flying aircraft and a reduction in the number of over-flying aircraft of all types.
6. Produce guidance that seeks to lessen the impact of telecommunications developments.	
7. Continue to press for the undergrounding of overhead powerlines.	
8. Support the local planning authorities in their efforts to bring about the provision of green infrastructure.	
9. In conjunction with others (Building Research Establishment and the Commission for Architecture and the Built Environment, for example) publish guidance on how building design should reflect the need to adapt to climate change.	
10. Promote the use of the Environmental Guidelines for the Management of Highways in the Chilterns.	



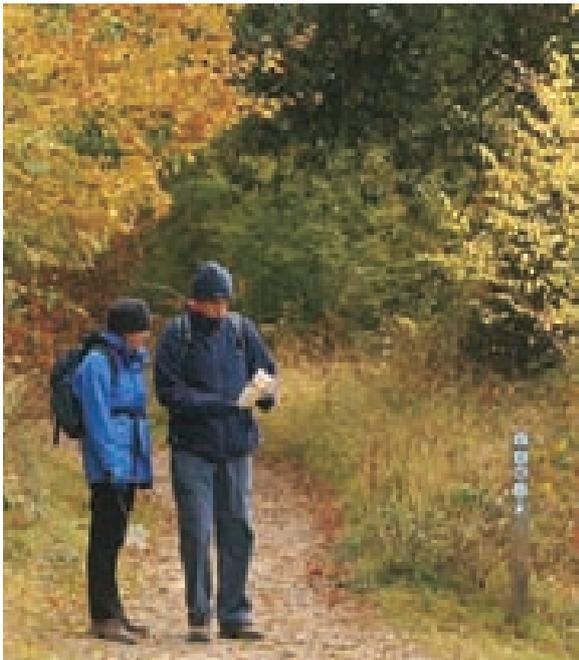
Horse rider near Fingest

Section 2

Understanding and enjoyment

Introduction

1. There are 55 million leisure visits to the Chilterns every year making this one of the most popular protected landscapes in the world. Despite the popularity of the honeypot sites it is still easy to find isolation and peace and quiet.
2. The Chilterns' countryside is highly valued for the wide variety of recreational opportunities it offers, everything from walking, cycling and horse riding to gliding, canoeing and bird watching. Above all it is a landscape ideal for rambling with an extensive rights of way network, two national trails and dozens of sites with open access. 44% of leisure visitors to the Chilterns said that walking was the main purpose of their trip¹.



Walkers in the Ashridge Estate

3. One of the primary functions of the Chilterns Conservation Board is to 'increase the understanding and enjoyment by the public of the special qualities of the area of outstanding natural beauty'. This has the potential to increase respect for, and environmental awareness of, the countryside thereby encouraging people to care for and protect it.
4. The Chilterns' countryside should be available for all to enjoy, which means that special encouragement should be given to 'hard to reach groups' that live in and around the AONB.
5. The countryside offers opportunities for fresh air and exercise, with benefits for physical and mental well-being. The proximity of accessible countryside to all the towns, small and large, on the AONB boundary, and London, means these opportunities are open to urban as well as rural communities.

Broad Aims

- High quality and enjoyable recreation and access opportunities should be available to all.
- Good health and a sense of well-being should be encouraged by promoting activities based on the sustainable enjoyment of the countryside.
- Every resident and visitor should be aware of, and helped to enjoy, the Chilterns' special qualities.

¹ 2007 Chilterns Leisure Visitor Survey

Recreation and Access

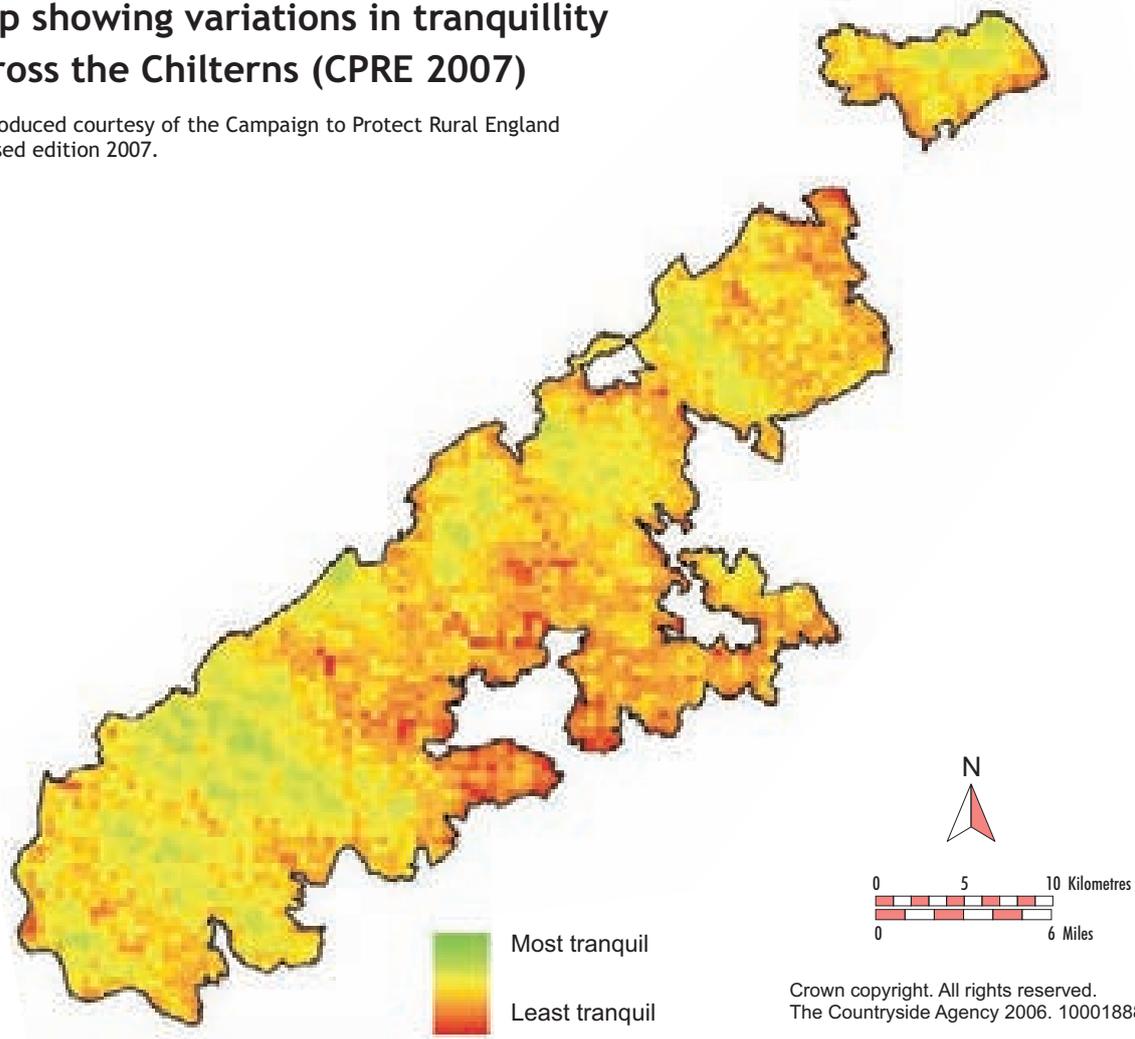


Special Qualities

1. The Chilterns is one of the largest and most popular rural areas for informal recreation in the UK. An estimated 55 million leisure visits are made to the Chilterns annually, with a high proportion of local users.
2. It is a landscape attractive to both local visitors and those from London and surrounding towns because of its accessibility. The Chilterns is served by four rail routes and the London Underground. Visitors are seeking peace and quiet as part of their visit. Whilst by no means a wilderness the Chilterns does offer relative tranquillity compared to surrounding towns and cities.
3. It has a broad ranging appeal based on its varied and intimate landscape of beech woodlands, chalk hills, common land, picturesque villages, country houses and parks and gardens. It is also an historic landscape, with hill forts, ancient barrows, medieval churches, and a strong cultural heritage.
4. There is an extensive and well-maintained public rights of way network in the Chilterns (over 2,000km), a wide range of promoted routes (such as the Chilterns Country series), two national trails passing through the area (the Ridgeway and the Thames Path) and two notable long distance regional routes: the Icknield Way and the Chiltern Way. There are also many rural lanes suitable for cycling, horse-riding and walking.

Map showing variations in tranquillity across the Chilterns (CPRE 2007)

Reproduced courtesy of the Campaign to Protect Rural England
Revised edition 2007.



5. There are 2,883 ha of Open Access land available for informal recreation (889 ha of chalk downland and 1,994 ha of common land) in addition to the large areas opened to the public by bodies such as the National Trust, Forestry Commission, wildlife trusts and local authorities. There is a particular assemblage of these sites along the ridge of the escarpment on sites of exceptional quality with magnificent views. Much of the common land is in close proximity to towns and villages, making it particularly useful for local recreation and educational purposes.
6. There is a wide variety of sites managed specifically to encourage the public to visit, ranging from small picnic sites to large estates owned by the National Trust and Forestry Commission. Many sites are quiet tucked away places with no facilities at all but others have car parks, toilets, visitor centres and a year-round programme of events.
7. The range of facilities and opportunities for outdoor recreation is extensive. The area is best suited for quiet pursuits such as walking, horse riding and cycling, but there are plenty of opportunities for more active pursuits such as canoeing, gliding, mountain biking, orienteering, canal and river cruising.
8. There are a large number of organisations involved with managing recreation in the Chilterns. This means that there are plenty of events which appeal to a wide audience. Increasingly this is a year-round programme often with events held during the week as well as weekends.



Grand Union Canal

Key Issues

1. Whilst the Chilterns attracts a large number of visitors, certain groups are under-represented, in particular the less mobile, the young, urban-based people and ethnic minorities as illustrated by the 2007 Chilterns Visitor Survey.
2. The rising traffic levels pose challenges for the Chilterns, in particular honeypot sites, with issues such as overflow parking and congestion. The 2007 Chilterns Visitor Survey showed that a third of visitors to the most popular countryside sites had travelled less than 5 miles, yet 94% of visitors came by car. There is clearly scope to encourage more people to walk from home or use public transport.
3. There are gaps in the rights of way network, particularly bridleways, forcing horse-riders, cyclists and walkers on to often busy roads. With the increase in volume and speed of traffic, roads which were once commonly used as link routes to public rights of way are no longer considered safe by many users.
4. Not all communities have access to green spaces close to where they live, with barriers such as roads or railways making it difficult to reach the surrounding



Sign on the Ridgeway Link near Whipsnade

5. Most of the popular countryside sites in the Chilterns are on environmentally-sensitive sites, especially chalk grassland where there is a need to balance recreation and conservation. Certain sites experience intense recreational pressure (leading to problems of dog fouling, parking problems, litter and congestion on the roads) and careful visitor management is required to prevent their degradation. The Board advocates adherence to the Sandford principle where such conflicts arise, which gives primary importance to conserving the environmental quality of the resource over its use for recreation. The unsustainable use of sensitive sites could be addressed by additional buffer areas being added to those sensitive sites that are likely to become more heavily used by visitors. This has been done successfully at the Aston Hill Mountain Bike course which was created as a dedicated mountain biking facility, to alleviate pressure on more sensitive sites in the area.
6. Sensitive management and guidance (e.g. promotion of the countryside code) is required to ensure visitors behave responsibly and are aware of the need to protect the countryside they enjoy.
7. Given the large number of visitors to the Chilterns, occasional conflicts between different users (e.g. mountain bikers and walkers/horse riders) are inevitable. Noisy activities such as trail biking and quad

countryside by foot or bike². Priority should be given to improving access for those communities with low green space provision. Plans for housing growth in and around the Chilterns need to include additional and accessible green spaces close to where the new homes will be built. It will not be appropriate to assume new residents can use existing, but sensitive and vulnerable, sites as the nearest green space.

² An analysis of accessible natural greenspace provision in the South East 2007

- biking are a particular problem to users seeking peace and tranquillity. Problems are not widespread, but do occur, particularly on shared-use paths.
8. New housing developments will exert additional pressure on the countryside, particularly at nearby honeypot sites, for example the Ashridge Estate, Coombe Hill, College Lake, Tring Reservoirs, Wendover Woods, Dunstable Downs, Pegsdon Hills and Barton Hills will all receive additional visitors because of the nearby growth areas at Aylesbury, Dunstable and Luton.
 9. The provision of information and interpretation, in their many forms, is a vital means of increasing understanding and enjoyment of the Chilterns. It can help with the planning and visiting of sites in the Chilterns and should be present at key visitor points. The growth of the internet and other electronic media will continue to provide new and exciting possibilities for presenting real-time information and interpreting the Chilterns in imaginative ways. The use of audio trails and podcasts may help to reach new and younger audiences. The growth of electronic media should supplement rather than replace face-to-face interpretation such as guided walks or events, which remain a popular and effective means of engaging visitors.
 10. The provision of education and learning opportunities can help to reach new audiences and encourage a deeper understanding and care for the Chilterns. This can take the form of guided walks, talks, events, workshops and production of educational material.
 11. The tranquillity of the Chilterns is under threat from increased vehicular traffic, aircraft flying over and population growth in and around the area. Whilst localised noisy activities are a feature of larger settlements and along the urban fringe, increasingly traffic noise along busy roads and, in particular, over-flying aircraft of all types are reducing the places and times when peace and quiet can be found.



Chilterns Countryside Festival

12. The River Thames and Grand Union Canal offer a wide range of leisure and recreation opportunities including water-based activities such as boating, fishing and canoeing. The waterways act as corridors linking town and country and the promotion of sustainable visits from home will become increasingly important. Improvements in access for all, visitor facilities and interpretation should underpin the promotion of the waterways.
13. The Chilterns' countryside, its beautiful landscape and the opportunities it provides for recreation is the primary basis of the leisure visitor market. There is scope to promote rural accommodation and encourage short breaks as the Chilterns is predominantly a day visitor destination at present. Any initiatives to promote tourism in the Chilterns should encourage sustainable visiting of the countryside.
14. There is no unified countryside service in the Chilterns and as a result there are some large variations in the quality and availability of countryside services across the area. The Conservation Board has an important role to play in bringing together the many different countryside service providers, co-ordinating access projects and encouraging consistency in standards of information, interpretation and visitor facilities. The Conservation Board will continue to work with local authorities, The Chiltern Society, countryside agencies, parish councils, Local Access Forums and other partners to contribute to the delivery of Rights of Way Improvement Plans and other access initiatives in the area.
15. The way visitors enjoy the countryside and their potential impact will be affected by climate change in the long term but more particularly by short term

weather patterns. There is evidence that visits are becoming shorter partly in response to recent poor weather and also its general unpredictability. Increasingly wet summer weather is leading to very muddy paths, especially on the clay soils, affecting the routes used and often deterring visitors. Another consequence of the recent poor summers is that the predicted increase in the number of people taking holidays in the UK may not happen. Event organisers are also facing challenges of managing and promoting events which are susceptible to unpredictable weather, for example more shelter needs to be provided either from the rain or sun.



Cyclists near Ibstone

Policies

UE1 Provide special encouragement to non-traditional visitors including the less mobile, the young, urban-based and ethnic minorities, to visit the countryside.

The 2007 Chilterns Visitor Survey shows that certain groups are under-represented in the countryside. The provision of high quality access opportunities and facilities to encourage all types of user remains a priority.

- 97% of leisure visitors to the Chilterns classified themselves as white.
- 5% of visitor survey respondents were aged 16-24; the overall age profile of respondents has increased in comparison with the 1997 visitor survey.
- 4% of groups had at least one member registered disabled and/or a blue badge holder.

The Conservation Board will work with partners to encourage and facilitate better access to these groups through events and guided walks, improving access on the ground (e.g. new 'access for all' trails) and improving the quality and accessibility of information.

Care will need to be taken that visitor numbers do not exceed the capacity of the resource to absorb visitors without detriment to local character, biodiversity or quiet enjoyment.

UE2 Enhance the quality of welcome given to visits including the development of new facilities and services where appropriate.

For many people the provision of visitor facilities such as toilets, car parking and refreshments is an important part of their visit and will influence their

decision on where to go. Given the large number of visits in the Chilterns, the provision of facilities and countryside services remains relatively sparse. That said, there have been considerable improvements at many of the formal countryside sites (such as Dunstable Downs, Wendover Woods, the Ashridge Estate), with new visitor facilities, additional car parking and better interpretation and information. There is scope to make more of country pubs as a base for pub walks and rides, providing additional facilities such as bike racks and information boards.

UE3 Promote and support management of countryside suitable for recreation whilst conserving its environmental quality and assisting all visitors to behave responsibly.

The Conservation Board will continue to work with local authorities, the National Trust, Natural England, community groups and the many other organisations managing the Chilterns' countryside to ensure that recreational opportunities are maintained and promoted. The maintenance, waymarking and promotion of the rights of way network remain a priority. Visitors need to be made aware of their rights and responsibilities when



On Chorleywood Common

visiting the countryside. This requires not only wider communication and education but also countryside staff on the ground undertaking face-to-face engagement with visitors.

UE4 Develop environmentally sustainable access and recreational opportunities which strengthen links between town and country.

The rights of way network potentially offers many people an opportunity to walk, cycle or ride from their homes to the countryside (or from their village into town). There are many large settlements both within and immediately adjacent to the AONB and the challenge is to improve the physical quality of routes linking town and country, and to increase awareness that they exist. Initiatives such as the Ashridge Cycle Network are aimed at providing high quality walking and cycling links from nearby settlements to countryside sites, encouraging local people to walk or cycle rather than drive a short distance.

UE5 Enhance the accessibility of the countryside and, in particular, address the special needs of those with mobility and other impairments and in so doing conserve environmental quality.

It is estimated that nationwide 1 in every 7 people is registered disabled, a figure that does not include those that suffer with other mobility limitations such as arthritis, or those who use a pushchair for young children³. In the last decade much progress has been made in the Chilterns with the development of several new wheelchair trails and an extensive programme of stile-removals. However, provision of 'access for all' routes and information is patchy. Provision needs to be made for a much broader range of disabilities, including those with visual impairments. The availability of accurate, honest and accessible information is crucial in giving people the confidence to plan visits to the countryside.



A Disabled Ramblers outing near Bulbourne

³ Disabled Living Foundation, Disability Awareness fact sheet

UE6 Promote the use of public rights of way and improve routes by covering gaps in the network.

The rights of way network provides the basic resources for the large numbers of visits to the Chilterns' countryside. They are generally well maintained and waymarked and this is appreciated by visitors; in the 2007 visitor survey 87% of leisure visitors rated rights of way as good or very good. The Chilterns Conservation Board will continue to work with The Chiltern Society, local authorities and other partners to ensure that public rights of way (and particularly those of the popular promoted routes) are maintained and promoted to a high standard. However there are gaps in the network, particularly the bridleway network which can be fragmented, forcing users on to busy roads. This is a particular issue for horse riders, who no longer feel safe using some of the road link routes they traditionally used, due to the increase in volume and speed of traffic. The challenge is to link up bridleways where these gaps exist, preferably by creating new rights of way. The Conservation Board supports the local authorities' Rights of Way Improvement Plans in addressing the fragmented network and should co-ordinate the efforts of the authorities involved.

UE7 Promote management of highways to encourage their use for walking, cycling and horse riding.

The Chilterns has a large network of quiet lanes which are ideal for walking, cycling and riding. However, many of the busier highways have become less safe for users, due to the increase in volume and speed of vehicular traffic. Highways should be managed to encourage their use for recreational activities, particularly those which are included in

promoted routes. This may include the introduction of traffic calming measures, providing safe crossing points and introducing speed restrictions (as done on the Ashridge Estate). In some cases there may be opportunities to make more of road verges for walkers. On very busy roads, the creation of separate routes for cyclists/riders is the ideal, to be encouraged wherever possible.

UE8 Encourage more effective co-ordination of countryside services, volunteers and other partnerships across the Chilterns in order to enhance service delivery and quality of environmental management.

The AONB straddles many local authority boundaries, but there is no unified countryside service. The Conservation Board has an important role to play in bringing together the many different partners on joint projects, co-ordinating access initiatives and encouraging consistency in standards of information and interpretation provision (for example maintaining the successful Chilterns Country brand) and in the quality of countryside services and facilities.

UE9 Raise the level of understanding and appreciation amongst visitors of the area's special qualities and the quality of their experience and encourage them to contribute to the area's conservation.

Research from the Bucks Rights of Way Improvement Plan showed that lack of information about where to go was a major reason for not using rights of way. Information should be improved to include details of passenger transport links, services such as pubs, shops and toilets and route details such as gradients, surface type and structures. In addition feedback from disabled groups suggests that a major barrier for not

visiting the countryside is lack of accessibility information when planning trips, not knowing what to expect and a lack of confidence in the usability of the routes.

UE10 Promote the health and other benefits of visiting the countryside and in particular by walking, cycling and horse riding.

Lack of exercise is now a recognised health issue, with increasing levels of obesity, particularly among young people. The countryside offers opportunities for fresh air and exercise, with benefits to people's physical and mental well-being. National initiatives have led to a number of successful healthy walking schemes in the Chilterns. However there is scope to expand this programme, particularly in the north part of the Chilterns, in Dunstable and Luton, where there is a lack of such opportunities. The health benefits of visiting the countryside and the opportunities to participate in healthy walking schemes should be actively promoted by the Board.



A guided walk at Downley Common

UE11 Encourage visits to the countryside and local villages without travelling by car.

Most visitors to the Chilterns arrive by car; the 2007 Chilterns Visitor Survey showed that 94% of visitors to the popular countryside sites arrived by car. Encouragement must be given to visitors to leave their car at home, by walking or cycling from home or using public transport. Walks and rides from railway stations should be further developed and promoted, capitalising on the Chilterns' rail lines and the London Underground Metropolitan line which can bring urban visitors directly into the Chilterns' countryside. The Conservation Board strongly supports initiatives such as the Tring Station Gateway.

UE12 Enhance appreciation of the Chilterns by residents and visitors by conserving tranquillity and resisting noisy or damaging activities.

Getting out into the country for many people means a search for peace and quiet, a chance to get away from it all for a short while. Occasionally the peace is disturbed by a noisy activity such as quad biking, although the main source of noise pollution is from traffic, particularly that using the M40 and other motorways and trunk roads and, increasingly, all types of aircraft.

UE13 Enhance the contribution to the local economy from all types of visitor trips.

Recreation and tourism have the potential to make a substantial contribution to the local economy. A number of sustainable tourism itineraries have been developed in the Chilterns and these should continue to be promoted. The Chilterns is predominantly a day visitor destination but there is scope to develop and promote the short break market which

will contribute far more to the local economy.

UE14 Promote the interest of young people in the countryside to help them appreciate and enjoy its natural beauty and develop a concern for caring for the environment.

The 2007 Chilterns Visitor Survey highlighted the ageing profile of visitors to the countryside. The increasingly sedentary lifestyles of young people and the rise in obesity and related health problems among them gives cause for concern. The Chilterns' countryside offers young people the opportunity to get active and facilities aimed at this market should be encouraged, for example the Go Ape facility at Wendover Woods and the Aston Hill off-road biking centre. There is a lack of budget accommodation in the Chilterns, with just one youth hostel (too small to accommodate school groups) and few camping facilities, therefore encouragement should be given to developing additional budget accommodation across the AONB, in appropriate locations, particularly where there is good access by foot, cycling and public transport.

UE15 Promote a sense of responsibility amongst users and visitors and their willingness to care for the environment.

Millions of visitors are able to enjoy the Chilterns, usually without damaging the countryside they have come to enjoy. Sometimes there are conflicts between recreation and conservation/land management, but these can be minimised by raising awareness of the Chilterns' special landscape and promoting responsibility amongst users and visitors. Every opportunity should be

taken to promote the countryside code, producing guidance to help the public understand their rights and responsibilities.

UE16 Promote the use of the River Thames and Grand Union Canal for quiet leisure activities consistent with maintenance of environmental quality.

The Chilterns' waterways are much loved and provide numerous possibilities for quiet leisure activities and water-based activities such as boating and canoeing. Access improvements have been made to many stretches of the River Thames and Grand Union Canal towpaths to make them more accessible to all, but there is still scope to improve access for all, this should be a priority near urban areas. The availability and quality of visitor facilities, waymarking and interpretation is integral to many people's enjoyment and understanding of the waterways and the Board must work with its partners to support this. The use of the Thames for leisure boating has been in decline for some years and provides potential for growth.



Tring Canal Festival

Actions

1. Implement a 'Countryside for All' promotional campaign to encourage those groups currently under-represented.	11. Identify and resist activities and development which would reduce tranquillity arising from, for example, noisy sports, vehicle and aircraft traffic, and railways.
2. Enhance provision of on-site information and interpretation where appropriate. Develop an on-going and co-ordinated events programme with broad appeal.	12. Promote social and economic activities based on sustainable visits to the countryside.
3. Promote investment in access and recreation facilities on appropriate sites to improve the quality of visitor experience.	13. Actively promote the health and other well-being benefits of visiting the countryside and quiet leisure activities.
4. Develop improved access links between town and country, in particular where new development is proposed through green infrastructure initiatives.	14. Provide educational resources and support for field visits and organisation of special events.
5. Enhance management of common land to provide public benefits including recreation, access, healthy lifestyles and education.	15. Promote the Ridgeway and Thames Path National Trails, the Chiltern Way and other promoted walking and cycling routes, including the Chilterns Country series.
6. Enhance accessibility of suitable sites and routes through physical improvements and provision of information.	16. Maintain and develop the Chilterns AONB website incorporating information on the Chilterns for all types of visitor and all types of visits compatible with the AONB designation.
7. Identify and bridge gaps in the public rights of way network.	17. Publish a range of literature to assist visitors to plan their visits.
8. Improve collaboration between site managers and other providers of countryside services.	18. Work with local authorities and other appropriate bodies to identify noisy activities and diminish their impact - to include the impact of over flying aircraft.
9. Develop a Countryside Close to Home initiative to encourage non car-based visits.	19. Raise awareness of Open Access land and public rights of access.
10. Create the Chilterns Cycleway with a linked network of shorter routes.	



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Super Products

Borton
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lumber
floor
9
per
day



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Mobile sawmill at work

Section 3

Social and economic well-being

Introduction

1. The Chiltern Hills is a landscape of national importance, home to 80,000 residents and is a destination for 55 million visits every year. Over a million people live close to its boundary in major towns including High Wycombe, Luton, Dunstable, Hemel Hempstead, Hitchin and Reading. Approximately 10 million people live within an hour's travelling time. This landscape was, and still is, being shaped by people's everyday activities of work, leisure and movement, in addition to those whose business is that of managing the environment.
2. This management plan for the AONB is not the primary strategy for tackling the social and economic needs of the

Chilterns, but it does reflect the statutory duty on the Conservation Board to foster the social and economic well-being of local communities when pursuing its primary aim of conserving natural beauty. It is also a recognition that much of the natural beauty of the Chilterns derives from the activities of local people at work and play, and that much of that activity in its turn is dependent on the environmental assets of the Chilterns. Ultimately, economic and social activity have to be environmentally sustainable and this plan helps to identify and cultivate those links.

3. The Chilterns is perhaps best known for its beech woods, which were for centuries a home to sawyers, bodgers and other furniture makers. Their legacy is a landscape dominated by beech woods now



Farmers' market in High Wycombe

protected for their amenity and wildlife. The woodland workers, however, regarded the woods as a place of work using a renewable natural resource, supplying the wood fuel market in London and the furniture factories in High Wycombe and other local towns. The management of those woods is now often in the hands of those concerned with the amenity of a wooded landscape, but ultimately the scale of management required, not least to deliver the desired environmental benefits, will rest on supplying an economic good to a buyer willing to pay a market price.

4. A similar tale can be told for the landscape shaped by farmers who created the chalk downland, managed hedgerows, planted trees and dug ponds. They too built the brick and flint farm houses and timber barns and even carved out the sunken lanes and ancient tracks. They did so to serve social and economic needs and by working with nature created the landscape valued so highly today.



Felled timber at Moorend Common

5. Today tourism is a major part of the rural economy. There are over 55 million leisure visits a year to the Chilterns which result in a total spend of over £400m. These are people seeking to enjoy the countryside, and to indulge in recreation best suited to a rural landscape. The tourism industry both benefits from the Chilterns' natural beauty and has a vested interest in its conservation.

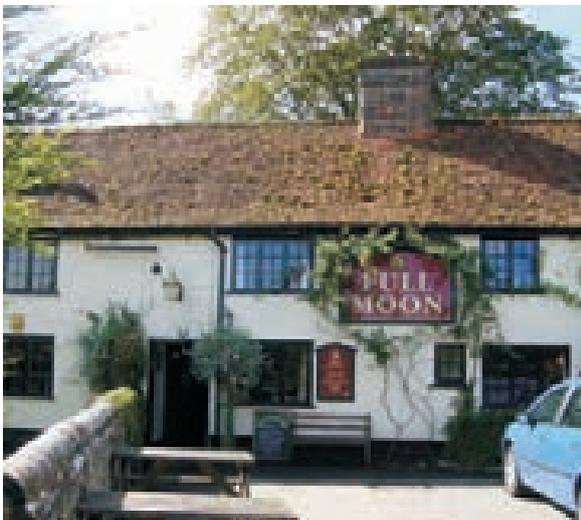
Broad Aims

- The local economy is based on environmentally sustainable principles.
- The natural beauty of the Chilterns is conserved as a result of sustainable social and economic activity.
- A high quality environment contributes to the social and economic well-being of local communities.
- Local communities are involved in caring for the local environment.

Special Qualities

1. The Chilterns has a high quality natural and cultural environment which attracts a large number of leisure visits.
2. Local people benefit from a high quality of life which is partly dependent upon a high quality environment.
3. The accessibility of the countryside provides excellent opportunities for its enjoyment and for taking exercise.
4. The close links between local communities and the environment provide opportunities for community-based activity and volunteering.

5. The natural and cultural environment provides a wealth of learning opportunities for all ages.
6. Many local people have valuable skills to help conserve and celebrate natural beauty, and are often willing to volunteer their services to help care for it.
7. The public transport network, especially the railways, is excellent and provides convenient car-free options to visit the countryside. The Chilterns is the only protected landscape accessible by underground railway (The Metropolitan Line to Amersham and Chesham).
8. The Chilterns is a wealthy area whose local communities have the spending power to generate significant demand for local products and services, the production of which can contribute to sustaining a high quality environment. The Chilterns is surrounded by a mixture of smaller market towns which although not in the AONB are nonetheless Chilterns' towns. There are also a number of much larger urban settlements including Luton, Dunstable, Reading, High Wycombe and Hemel Hempstead which are very different in character with a broader mix of communities and pockets of significant economic and social disadvantage.



Full Moon pub in Cholesbury

Key Issues

1. The management of the landscape needs a range of skills which, until comparatively recently, were supplied by people living in local communities. That is no longer the case and many of the skilled workers needed are in short supply, for example foresters and flint workers.
2. The economic viability of farming and forestry has suffered in recent years, resulting in a relative lack of management of many valued landscape features. Downland and common land is under-grazed, hedge-laying is rare and many small woods are under-managed. Increasingly these features are no longer managed as part of day to day operations and their care depends upon considerate owners using funds earned elsewhere, public subsidy or with the help of local volunteers.
3. Diversification of the rural economy has long been underway and for many small to medium sized farms is essential to remain viable. Diversification is not always straight-forward in the AONB because of restrictive planning policies. What is approved needs to be sympathetic to its immediate setting and wider landscape.
4. The growth of farmers' markets in recent years has demonstrated the strength of demand for local produce, reflecting an increased interest in where food and other products come from. Not only does this encourage environmentally-sustainable activity, although it does not guarantee it, it also helps support the management of features which contribute to the landscape. For example, demand for local lamb will help to maintain sheep grazing of chalk downland.

5. The local tourism economy is significant and much of it is based on visitors coming to enjoy the countryside and seek peace and quiet. Currently there is a good balance between visitors and their environmental impact with relatively few examples of unsustainable visitor activity. There is scope for tourism-related businesses to be 'greener' and for a closer economic relationship between tourism spending and the need for resources to manage the landscape they come to enjoy. An ongoing issue is to ensure that the tranquillity, which is important to local residents and an attraction to visitors, is not spoiled by noisy activities, road traffic and overflying aircraft.
6. Increasingly the management of the environment is dependent upon local people volunteering their services. The work of The Chiltern Society, National Trust, Green Gyms (BTCV) and Wildlife Trusts are good examples of what can be achieved by many thousands of hours of effort by, often experienced and highly skilled, volunteers. There are also many examples of local businesses supporting the work of voluntary bodies. Such relationships help to strengthen the link between local communities and their environment as well as giving many thousands of volunteers the opportunity to learn new skills and become more involved in their community.
7. There is significant evidence to show that the sense of physical and mental well-being improves when taking outdoor exercise in the countryside. Nearly all communities in and around the Chilterns enjoy good access to the countryside and many are close to places which are managed to encourage active exercise with way-marked routes, fitness trails, cycle routes and even organised walks and other health programmes.
8. The environment provides opportunities for learning as a place for school field trips, work as a volunteer, an outdoor workshop for learning new skills and to hear from experts on guided walks and countryside events. Unless local people have a good understanding of the environment they are unlikely to care about it or for it. Many Chiltern communities have common land near to where people live, often providing opportunities to get involved and take pride in caring for their local area.



Kite-flying at Aston Rowant National Nature Reserve near Watlington

Policies

SE1 Support an increase in the provision of affordable housing which respects local landscape and settlement character.

The cost of housing in the Chilterns, amongst the highest in the country, is causing significant problems for local people wishing to remain in the area and those wishing to move into the Chilterns. There are inevitably consequences for businesses which find it difficult to attract and retain skilled workers. The AONB, in combination with greenbelt designation, can potentially have an impact on the supply of affordable housing because of the strict planning policies applied. However, this plan recognises that fact and urges that an imaginative approach is taken to increase the supply of affordable housing whilst ensuring the design and location of new housing is sympathetic to, and respects, the special qualities of the Chilterns' landscape. In appropriate cases rural exceptions affordable housing schemes will be supported.



Producing bricks at a local brickmakers

SE2 Promote the provision and use of public transport to assist local people to gain access to services and facilities.

Car ownership in the Chilterns is amongst the highest in the country and yet 1 in 12 of households does not have access to a car. Those in this position in rural settlements are reliant on public transport services. It is also an aim to encourage more visits to the countryside, by local people and visitors, by public transport rather than car. The benefits include making rural roads safer for other users and helping to combat the cause of climate change by reducing the emission of greenhouse gases.

SE3 Promote the rural economy by supporting rural diversification and innovation which add value to local products and services which contribute to environmental sustainability.

This policy aims to encourage economic activity which contributes to the conservation and enhancement of the environment, especially those products and activities which helped to create the special qualities of the landscape. The way these products are created also needs to be environmentally sustainable.

SE4 Encourage buying policies which reduce or minimise the impact on the environment generally, and the Chilterns in particular.

The Chilterns is a wealthy area and has considerable spending power. The way that spending power is used by the public, public bodies and local businesses can help boost the demand for products produced in an environmentally-sustainable way. This can both increase local production of environmentally-sustainable products and minimise the environmental impact of other goods brought into the area with, for example,

scope to reduce the emission of carbon dioxide from unnecessary travel and goods produced in an unsustainable way.

SE5 Promote the sustainable development of the local tourist economy, to increase the contribution of visitors, in particular the increased provision of accommodation for visitors.

Over 55 million leisure visits are made to the Chilterns each year, with an estimated value of over £460m. However the per capita spend per trip is low (approx £5) and there is considerable unrealised potential to attract more staying visitors who spend considerably more per visit (£190 per capita). This low level of spending is probably a reflection of the preponderance of local visitors who have not travelled far from home. Currently only 2% of visits are accounted for by visitors staying overnight in the AONB.



Farm shop near Marlow

SE6 Promote the special distinctiveness of local towns and villages to help develop their visitor appeal.

The towns and villages of the Chilterns have a distinctive charm and character of their own which contributes considerably to their attractiveness to visitors and the media. Many films and well known TV programmes, such as *Midsomer Murders* and *The Vicar of Dibley*, are based in the Chilterns.

SE7 Promote the role of villages and market towns as centres in the rural economy.

Traditionally many local towns and villages held their own market and were home to cottage industries. Today many have become largely residential, often dormitory towns home to many commuters who spend their working day in London, Reading and other major towns nearby. However, their role as market towns is being promoted, by organisations as diverse as groups of local traders and parish councils to larger local authorities and regional development agencies, to help retain those economic functions and to strengthen community identity and spirit. This trend is being fostered by the increasing number of people who wish to give up commuting and work at, or closer to, home.

SE8 Promote healthy lifestyles by using the countryside for exercise and opportunities for volunteer work.

Although people are living longer, obesity and other illnesses related to lack of exercise are on the increase. The population of the Chilterns has almost unrivalled easy access to countryside close to where they live. This is largely based on an excellent public rights of way network and the large number of sites with open access, often owned by

public bodies for the purpose of encouraging public use. Many studies have shown the benefits to physical and mental well-being of spending time in a natural environment and taking exercise. Such benefits are compounded if that can be combined with volunteering work, such as provided by the Green Gyms and bodies including The Chiltern Society and the National Trust.

SE9 Provide opportunities for local people and visitors to learn about the Chilterns and to help care for its environment and heritage.

The Chilterns is a man-made landscape that requires continuous management to retain its special qualities and to enable wildlife to flourish. Its natural environment is complemented by a rich historic and cultural environment, the combination of which is attractive to local people and visitors. The aim of this policy is to help both residents and

visitors learn about the Chilterns thus enhancing both their enjoyment of, and desire to help conserve, its natural beauty.

SE10 Advise local communities on how climate change might affect the Chilterns and on courses of action to help them adapt to the effects and mitigate the causes.

Climate is and will continue to change and will affect the environment and communities of the Chilterns. It is important that it is better understood how those changes will affect the natural beauty of the Chilterns and that this is communicated to everyone affected. It is an equal and contemporary challenge to boost activity to mitigate the causes and help adaptation to likely impacts. This will affect, for example, how woods and fields are managed, events organised, buildings designed, water resourced and wildlife conserved.

Actions

- 1. Provide information on public transport especially to reach sensitive recreation sites.
- 2. Provide support and advice to enable sensitive diversification of the rural economy.
- 3. Actively promote local products which benefit the local environment.
- 4. Encourage the adoption of local procurement policies which benefit the environment of the Chilterns.
- 5. Promote the Chilterns as a visitor destination to local people and potential tourists from further afield.

- 6. Assist local business to green their activities and develop marketing and activities sensitive to the local environmental heritage.
- 7. Actively seek the introduction of policies and measures which conserve tranquillity by restricting noise pollution from all sources and, in particular, from road traffic, railways and over-flying aircraft.
- 8. Develop initiatives to encourage volunteering, participation and local pride in the Chilterns' environment.
- 9. Support appropriate activities in the countryside which promote good health and a sense of well-being, such as health walks and conservation work projects.



Oil seed rape near Ipsden

Section 4

Climate change

The evidence for climate change

1. This plan for the Chilterns is based on the conclusion of the scientific community, as stated by the Intergovernmental Panel on Climate Change (IPCC)¹, that the climate is changing and is largely caused by mankind.
2. In April 2002 a report, called UKCIP02, based on research by the IPCC, was released showing climate scenarios for the UK. These four scenarios ('Low Emissions', 'Medium-Low Emissions', 'Medium-High Emissions' and 'High Emissions') present different possibilities of how our climate might change.
3. They took into account possible changes in technology and lifestyles over the next 100 years. The scenarios do not claim to

be definitive - the climate may not change in exactly the same way as is predicted. The four UKCIP02 climate change scenarios forecast changes in temperature and precipitation as follows:

Temperature

- Annual average temperatures to rise by between 2°C and 3.5°C by the 2080s. The south and east of the UK will most likely see the largest rise.
- Most of the warming will be in summer and autumn.
- Summer rises in southern England are expected to be the highest.
- Temperatures in the south east may rise by as much as 5°C on average, by the 2080s, according to the 'high emissions' scenario and over 4°C with the 'medium-high emissions' scenario.



Extreme weather events will become more frequent

¹ IPCC Fourth Assessment Report: Climate Change 2007

Precipitation

- Precipitation in winter will increase.
- The increase is predicted to range from between 10% and 20%, depending on the area of the country, for the 'low emissions' scenario. For the 'high emissions' scenario the range increases to between 15% and 35%.
- Precipitation in the summer will decrease.
- The 'low emissions' scenario predicts the country will become up to 35% drier. The 'high emissions' scenario forecasts 50% less rainfall by the 2080s.
- The largest changes are predicted for southern England.
- Less snow will fall throughout the UK - a decline of up to 90%.

These are all long term scenarios with the likelihood of considerable variability over the short term to medium term.

Impacts in the Chilterns

4. The Chilterns Conservation Board has undertaken an initial assessment of some of the most likely impacts on the Chilterns. Inevitably any such assessment can only be based on the best available information and an interpretation at a local level (see Table 1 at end of Section). Any predictions are in the context of the increasing variability and unpredictability of the weather as experienced in the last few years.
5. Some of the most likely impacts on the natural beauty of the Chilterns include:
 - Gradual shrinkage of the range of beech woodland, but it is unlikely to disappear altogether.
 - Higher winter rainfall will recharge the aquifer to maintain higher flows during the year.

- More flash flooding with run off from fields.
- More rapid growth of scrub on downland due to the longer growing season.
- Gradual appearance of new crops which are better suited to the changing climate.
- Disappearance of wildlife which needs damper cooler conditions in the summer.
- Appearance of species adapted to new climatic conditions.
- Changes in the design of houses to cope with higher summer temperatures.

Taking action - mitigation and adaptation

6. The UK Government's Climate Change Bill will make carbon dioxide reduction (against a 1990 baseline) targets binding:
 - 26 to 32% reduction by 2020
 - 60% reduction by 2050
7. This Management Plan for the Chilterns AONB is an important local strategy in helping to raise awareness of the issues and the potential impacts of climate change and in helping to stimulate mitigation and adaptation measures. A clear message is that taking no action is not an option.
8. A double-headed strategy is needed to both adapt to the changes which are already happening and to mitigate the causes of climate change which are largely related to the emission of harmful greenhouse gases. The increase in gases such as carbon dioxide is already so great that the climate will continue to change for decades irrespective of how much

emissions can be reduced in the short term.

9. Some activities have longer timescales than others. Whereas farmers can make changes over a comparatively short timescale, often annual, foresters need to think 80 -100 years ahead. Will the species they select now be suitable for the conditions in 2100? It is certainly the case that most tree species found in the Chilterns now, such as beech, oak and ash, can be found growing well in continental Europe which currently has a similar climate to that the UK will experience in the future.
10. It is not known whether the combination of soils, climate and genetic origin of the current stock is also capable of tolerating significantly changed climate. If good quality timber is to be grown in the Chilterns to be harvested in 100 years time it may be necessary to carefully select different strains of familiar species, or even to begin planting currently less familiar species which are known to be tolerant of the climate which will prevail in 100 years time.
11. The Chilterns Conservation Board urges everyone to play their part in mitigating the causes of climate change. The



Sustainable travel

reduction of greenhouse carbon dioxide is largely achieved by using less energy generated by fossil fuels. This can be achieved, for example, by reducing miles travelled by car, insulating buildings, using renewable forms of energy appropriate to the Chilterns such as wood fuel, ground source heat pumps and solar and using material with lower levels of embedded energy.

Leading by example

12. In 2007 the Conservation Board set itself a target to become carbon neutral by 2011. Within one year it:
 - Reduced CO2 emissions due to gas and electricity use by 24.7%. This was achieved by improving loft insulation, replacing faulty radiator thermostats, repairing drafty windows and removing unnecessary lighting.
 - Installed solar panels which generate 15% of its electricity.
 - Reduced the distance travelled by car by each staff member by 14%.
 - Reduced the distance travelled by car by each Board member by 20%.
13. The Board technically achieved carbon neutrality in 2008 by offsetting some of its emissions. This took the form of giving away low energy light bulbs to parish councils and churches, and planting trees. Although some offsetting schemes are controversial the Board was faced with a position of not being able to reduce its direct energy use significantly any further. The outstanding carbon balance was reduced by helping others to reduce their energy use and therefore emissions of greenhouse gases.

Next steps

14. The Conservation Board will work with its many partners to investigate in detail the changes happening to the environment of the Chilterns which can be attributed, even partly, to changing climate. These changes and the consequences for the natural beauty of the Chilterns will be assessed and if necessary action will be taken and guidance issued. Identification of these changes and the longer term trends will take time. Longer term climatic impacts on wildlife, for example, can be masked by variation in short term weather patterns.

15. The Board will publish information as it becomes available on how the climate is changing locally and its impacts and will publish guidance on appropriate measures to adapt to those changes and to mitigate the causes.



Chilterns wood - a renewable energy source

Table 1

Initial assessment of potential impacts of climate change on key characteristics of the Chilterns

This assessment is based on the predicted medium to long term changes in climate - hotter drier summers and warmer wetter winters. In practice the climate is likely to show considerable variation within each year and between years.

Special Features and Qualities of Chilterns AONB	Relevant Aspects of Climate Change	Nature of Impact	Impact		Response		CCB role
			Short Term	Long Term	Mitigation	Adaptation	
Chalk Grassland	Hotter and drier summers	Changed growing seasons	low	medium		Provision of water supply to enable grazing.	Monitoring Support for grazing related infrastructure Support for site planning and management Promotion of appropriate reversion techniques Review areas suitable for habitat recreation and reversion
	Earlier spring	Disrupted ecological relationships				Link sites to facilitate species migration	
	Wetter and warmer winters	Changed species composition				New varieties of grazing stock	
		New species of invertebrates				New habitat management regimes for 'new species'	
		Grass fires				Improve site linkages to enable species migration	
		Year round breeding of rabbits - increased grazing pressure Changes in micro climates					

Special Features and Qualities of Chilterns AONB	Relevant Aspects of Climate Change	Nature of Impact	Timescale		Response		CCB role
			Short Term	Long Term	Mitigation	Adaptation	
Woodland	<p>Earlier spring</p> <p>Hotter and drier summers</p> <p>Fewer frosts (timing)</p> <p>More frequent gales</p> <p>Wetter winters</p> <p>Increased CO₂ in atmosphere</p>	<p>Drought stress/soil moisture deficits</p> <p>Periodic water logging</p> <p>Windblow</p> <p>Reduced growth rates/crown and root die back</p> <p>More disease/pests</p> <p>Change in species composition - reduced suitability for beech in particular</p> <p>Changing associated flora and fauna - both losses and gains</p> <p>Increased risk of scrub fires</p> <p>CO₂ concentration will affect growth rates of some species</p> <p>Warmer and wetter summers may lead to higher growth rates for some species</p>	low	high	Woodland creation	<p>More careful species selection</p> <p>Promote demand for wood fuel</p> <p>Link woods to facilitate species migration</p>	<p>Information (e.g. potential impacts according to soil types)</p> <p>Monitoring</p> <p>Promote and assist with preparation of long term management plans</p> <p>Promote adherence to the Forestry Commission's guidance on managing ancient and native woodland</p>

Special Features and Qualities of Chilterns AONB	Relevant Aspects of Climate Change	Nature of Impact	Timescale		Response		CCB role
			Short Term	Long Term	Mitigation	Adaptation	
Water Resources/ Chalk Streams	Variable rainfall patterns but probably wetter winters and drier summers Hotter Summers	Erratic Flows More frequent and unpredictable periods of drought and flood Longer growing seasons may reduce percolation to the aquifer Variable impact on selected species - ecological balance will be affected Reduced water quality (e.g. due to heating, lower oxygen levels, pollution run off) Changed species balance and growth rates Changed channel profiles	high	high		Reduce demand for water Reduce Abstraction Protect stream bed and banks Channel and floodplain restoration Flood management Promote water storage Promote use of grey water systems	Information Lobby for reduced abstraction and demand reduction Help protect channel in times of prolonged drought Promote flood prevention plans Promotion of design of development to reduce run off, including Sustainable Urban Drainage Systems

Special Features and Qualities of Chilterns AONB	Relevant Aspects of Climate Change	Nature of Impact	Timescale		Response		CCB role
			Short Term	Long Term	Mitigation	Adaptation	
Economy	Seasonal variability Hotter summers Milder winters	Opportunity to introduce new crops and livestock breeds Expanded demand for wood and other biofuels More visitors in winter Promotion of local food Promotion of local building materials Trend for more UK based holidays Possibility of disruption to economic activity and loss of assets			Promote local produce Develop tourism profile as an alternative to long distance destinations Develop wood fuel market Develop markets for new crops/ breeds	Give greater weight to uncertainty of weather in business activity	Promotion of the issues

Special Features and Qualities of Chilterns AONB	Relevant Aspects of Climate Change	Nature of Impact	Timescale		Response		CCB role
			Short Term	Long Term	Mitigation	Adaptation	
Farmland	Hotter Summers	Longer growing seasons	medium	medium	Reduce use of fertilisers	New crops	Monitor changes Support promotion of local markets and procurement policies Provide guidance on growing biofuels
	Milder, wetter Winters	Variable and unpredictable yields			More targeted use of fertilisers	Avoid crops requiring irrigation	
	Fewer frosts	Opportunities to grow new crops including biofuels			Conserve soil organic matter	Water storage	
	Drought	New pest species and greater abundance of pests			Reduce food miles - seek local markets	Reduce vulnerability to erosion and leaching	
	Winter run off	Summer drought stress for crops			Grow biofuels and biomass	New production methods	
	Variable weather with more extreme weather events	Soil erosion (winter run off) and water logging at any time of year				Different breeds of livestock	
		Leaching of nutrients from soils				Target agri-env support to increase ecological connectivity	
		Summer drought stress for livestock					
		Possibility of more insects, which may support more farmland birds					
		Demand for water to irrigate crops					
	Hedgerows and field trees subject to drought stress						

Special Features and Qualities of Chilterns AONB	Relevant Aspects of Climate Change	Nature of Impact	Timescale		Response		CCB role
			Short Term	Long Term	Mitigation	Adaptation	
Wet Grassland	Hotter and drier summers	Soil moisture deficits	medium	high		Safeguard sites in times of drought	Monitoring Advice Site identification
		Changed species composition					
		Changed hydrology					
Acid Grassland/ Heath	Hotter and drier summers	Associated species may benefit e.g. reptiles	low	medium		Encourage spread of heath	Monitoring Advice Site identification
		Heath fires					

Special Features and Qualities of Chilterns AONB	Relevant Aspects of Climate Change	Nature of Impact	Timescale		Response		CCB role
			Short Term	Long Term	Mitigation	Adaptation	
Built Environment	Hotter summers	Buildings will be hotter in summer	low	medium	Enhanced energy efficiency	Change design of houses/all buildings	Guidance Lobbying for higher building standards - aiming for carbon neutrality for new buildings Promotion of energy efficiency Promotion of local building materials Promotion of water conservation and "blue infrastructure" and grey water systems Promotion of Sustainable Urban Drainage systems
	Heavy rain	Winter damp may be more of a problem			Reduced energy demand	Retro fitting of energy efficiency measures	
	Milder winters	Vulnerability to flooding			Installation of renewable energy capacity	Bigger rainwater goods	
	Increased number of extreme weather events	Response to climate change will result in further environmental impact, e.g. design of housing and installation of renewable energy technology Installation of solar panels and wind turbines Increase in timber boring insects. Increase in subsidence especially on clay soils Drainage capacity/flooding Demand for air conditioning Flooding of roads More pollution events from run off Road verge fires Storm drains overwhelmed resulting in pollution incidents			Use of building materials with low embodied energy	Rainwater storage	
					Use of permeable surfacing to reduce run off	Re-design gardens to use less water	
						Porous surfaces	
						Use of vegetation to provide shade/cooling	
						Cutting of road verge vegetation to reduce fire risk	
						Storm drains with bigger capacity	
						More regular maintenance of drains to remove blockages	
			Promote garden designs which are more tolerant of climate change e.g. require less or no irrigation				

Special Features and Qualities of Chilterns AONB	Relevant Aspects of Climate Change	Nature of Impact	Timescale		Response		CCB role
			Short Term	Long Term	Mitigation	Adaptation	
Historic Environment	Hotter Summers	Erosion of soil covering	low	low		May need to import soils and divert recreation uses	
	Heavy rain	Windblown trees damaging sites					
	Extreme weather events	Growing more cereals and biofuels may result in more ploughing damage					
		Appearance of historic parks may change if significant trees die					
		May not be possible to maintain water features in historic parks and gardens					
	All year breeding by rabbits resulting in more burrowing						

Special Features and Qualities of Chilterns AONB	Relevant Aspects of Climate Change	Nature of Impact	Timescale		Response		CCB role
			Short Term	Long Term	Mitigation	Adaptation	
Enjoyment and Understanding	Hotter Summers	Hot summer weather may deter visits	high	high	Promote visits without use of car - close to home Promote public understanding of how their actions can lead to the way they use and enjoy the natural environment	Give greater weight to weather dependency at planning stage of events, e.g. avoid hottest months, provide under cover areas Hold events in, and visits to, shady woodland. Cover may be needed because of heavy rain events Water logged ground may affect site suitability for public events	
	Milder winters	Mild winter weather may lead to increased number of visits					
	Unpredictable weather	Some sites and routes will be damaged -water logging in winter and erosion in summer					
		May be more holidays taken in UK Unpredictability of weather may deter holding of outside public events					



Walkers near Sundon Hills

Section 5

Integration of cross-cutting themes with Management Plan policies

1. A number of important themes, which will have a significant influence on the management of the AONB over the next five years, cut across all the chapters of the Plan. They are:
 - climate change
 - social inclusion
 - health and well-being
 - lifelong learning
2. Climate change and its likely impacts on the Chilterns have already been covered in detail in the previous Section. Social inclusion, health and well-being and lifelong learning are also issues being given priority at a national level.
3. The wealth of natural and cultural resources available in the Chilterns offers great potential to address these issues, and this is reflected in the policies that have been formulated for this Plan. Table 2 shows which policies address each of the cross-cutting themes.

Table 2. Matrix of cross-cutting themes and Management Plan policies

Chapters	Cross-cutting Themes			
	Climate Change	Social Inclusion	Health and Well-being	Lifelong Learning
Landscape	L9, L10, L11	L7	L7, L8, L9	L2
Biodiversity	NC8, NC10	NC4	NC4	NC4, NC7
Historic Environment	HE9	HE4, HE6, HE8	HE6, HE8	HE6, HE8
Development	D2, D10, D11, D15	D8, D9	D7	D3
Water Environment	WE9	WE10, WE11	WE10, WE11	WE4, WE9, WE11
Farming and Forestry	FF2, FF3	FF3	FF3	FF7
Understanding and Enjoyment	UE11	UE1, UE4, UE5, UE13, UE14, UE15	UE2, UE7, UE10, UE12, UE16	UE9, UE14
Social and Economic Well-being	SE2, SE3, SE4, SE10	SE1, SE2	SE8	SE9, SE10



The Grand Union Canal near Tring

Section 6

Implementation and monitoring

Implementation

1. This plan sets out an ambitious vision for the Chilterns which could be realised by the application of the policies proposed by the Chilterns Conservation Board and many others, especially those able to manage and influence land use change and development. Many actions are proposed and they too will require the direction of resources from many organisations, businesses and individuals as they are beyond the direct resources available to the Conservation Board.
2. The Board will contribute by directing its own resources including Board members, staff, expertise and funds. It will provide leadership in its role as a champion for the AONB. There are many others with skills and resources and the Board will endeavour to co-ordinate their activity and encourage collaboration.
3. The owners and managers of land and the communities of the Chilterns are the most important players in conserving and enhancing natural beauty. There is a long history of local people caring for the Chilterns who volunteer in large numbers often with organisations such as The Chiltern Society, the National Trust and wildlife trusts. The Conservation Board is also fortunate to be able to call on many skilled and enthusiastic volunteers to help with its work and, in particular, to work with the public.
4. There are many other public bodies which aim to care for the environment, several of which have considerable resources and legal powers. The Board

aims to work with them all and to seek their support for the aims of this Plan for the Chilterns. Many of these bodies are subject to the Countryside and Rights of Way Act 2000 Section 4 which states:

General duty of public bodies etc.

85. - (1) In exercising or performing any functions in relation to, or so as to affect, land in an area of outstanding natural beauty, a relevant authority shall have regard to the purpose of conserving and enhancing the natural beauty of the area of outstanding natural beauty.

(2) The following are relevant authorities for the purposes of this section-

- (a) any Minister of the Crown,
- (b) any public body,
- (c) any statutory undertaker,
- (d) any person holding public office.

(3) In subsection (2)-
'public body' includes

- (a) a county council, county borough council, district council, parish council or community council;
- (b) a joint planning board within the meaning of section 2 of the Town and Country Planning Act 1990;
- (c) a joint committee appointed under section 102(1)(b) of the Local Government Act 1972;

'public office' means-

- (a) an office under Her Majesty;

- (b) an office created or continued in existence by a public general Act; or
 - (c) an office the remuneration in respect of which is paid out of money provided by Parliament.
5. The availability of several significant grant schemes provides considerable incentives for environmentally-sensitive management. They include the Environmental Stewardship Scheme managed by Natural England, the England Woodland Grant Scheme offered by the Forestry Commission and the LEADER Programme for the Chilterns which will support rural development projects from 2008 to 2013.

All three funds are supported by the Rural Development Programme for England (RDPE) which is provided with funding by the EU and UK government.

6. This Plan is specific to the Chilterns Area of Outstanding Natural Beauty. It is a requirement of the Countryside and Rights of Way Act 2000 that it is produced and published by the Conservation Board. There are many other plans which are a statutory responsibility on a wide range of organisations. It is important that they are consistent insofar as they also support the aims of this Plan. Such plans include Local Development Frameworks produced by local planning authorities, Local Transport Plans produced by highway authorities and Community Plans produced by Local Strategic Partnerships.

Business Plan

7. The Conservation Board publishes an annual business plan with budget and work programme. All its activities are directed to delivering the aims of this Plan and to encouraging others to do so. The Board's resources are largely derived



Lacey Green windmill

- from Natural England and the local authorities in which the AONB lies.
8. The Board aims to attract additional funding for special projects, many of which are outlined in this Plan as actions. There is considerable competition for funds from, for example, sponsors, the Lottery and the EU, and it is difficult to predict from one year to the next how successful those bids will be.
 9. The Conservation Board realises fully the value of skilled and hard working volunteers and will be helping to develop the volunteering resource in the Chilterns. The value of this support is hard to estimate and often does not appear in financial statements but it is worth tens, even hundreds, of thousands of pounds every year.
 10. The Board intends to produce rolling three year plans in future to enable it to plan more effective work programmes in the long term. From 2008 onwards Natural England has notified the Board of its intention to provide a more secure grant over three years during which time, however, the value of the grant aid will decline. If the same level of activity is to be maintained new sources of funding will have to be found.
 11. The overriding aim of this plan and the Conservation Board is to conserve, and where possible enhance, the natural beauty of the Chilterns. It also aims to enhance the levels of understanding and enjoyment of its special qualities. Monitoring the effectiveness of the plan with its aims, policies and actions requires a baseline on the condition of the Chilterns against which progress can be monitored.
 12. No such baseline exists for the special attributes of the Chilterns. There is considerable information available for some attributes, but not always specific to the Chilterns. A particular challenge during the period of this plan is to produce a meaningful baseline to enable the regular publication of a State of the Chilterns Environment Report. To reach that stage will require considerable co-operation and assistance from organisations set up to gather environmental data, notably DEFRA, Natural England, the Forestry Commission and the Environment Agency. Local authorities and wildlife trusts also have much useful information.
 13. Ideally for each key attribute of the Chilterns an indicator can be identified and information gathered on a regular basis to enable its condition to be assessed. Where that exists it has been included in this plan. Where it does not a proxy indicator has been selected. This range of indicators on the state of the environment will be complemented by indicators showing the progress of implementing actions in the Management Plan. They are designed to achieve the aims for the AONB and if properly implemented should enhance the condition and enjoyment of the Chilterns.

Monitoring

Proposed headline condition indicators

Landscape and Biodiversity

- Length of hedge in good condition using DEFRA condition criteria
- Area of calcareous grassland in positive conservation management
- Number of agreements and area of land covered by the Environmental Stewardship Scheme

- Area of woodland covered by England Woodland Grant Scheme agreements
- Area of land managed for equestrian purposes (as defined by Chilterns Conservation Board land use survey) - this is an indicator of poor quality
- Area of SSSIs in favourable condition
- Percentage of Local Sites and commons in positive conservation management
- Quality of water in rivers
- Livestock numbers
- Length of main river unaffected by low flows
- Water vole population and numbers of rivers and canals with water voles
- Countryside Quality Counts status (maintained or enhanced)

Social and Economic

- Number of visitor attractions which have published information on access by public transport
- Number of businesses registered with the Green Tourism Business Scheme

Understanding and Enjoyment

- Area of land with statutory or voluntary Open Access
- Visitor satisfaction on rights of way and use of the countryside (Local Authority Citizens Panels)

Development

- Percentage of planning applications approved in line with Conservation Board comments
- Length of overhead power lines put underground

Historic Environment

- Listed buildings (grade I/II*): Total number/Number at Risk
- Registered Historic Parks: Total number/Number at Risk
- Scheduled Ancient Monuments: Total number/Number at Risk
- Conservation Areas: Total number/Number with Appraisal reviewed within last 5 years (information would need to be obtained from conservation officers)

14. The condition of some attributes may be based on samples rather than a complete survey or assessment due to resource and timing limitations. The Board will also use other information which may be published from time to time where this helps assess the overall condition of the environment of the Chilterns.

15. In 2009 the Board will publish a State of the Environment Report, based on the most up to date information, in which appropriate targets will be set to be achieved by 2013 to coincide with the period covered by this plan. The selection of targets will be agreed between the Board and its partners.



Bradenham Valley

Abbreviations

AONB	Area of Outstanding Natural Beauty	ESS	Environmental Stewardship Scheme
BAP	Biodiversity Action Plan	EU	European Union
BMERC	Buckinghamshire and Milton Keynes Environmental Records Centre	HLS	Higher Level Stewardship
BTCV	British Trust for Conservation Volunteers	LiDAR	Light Detection and Ranging
CAP	Common Agricultural Policy	LNR	Local Nature Reserve
CCB	Chilterns Conservation Board	LWS	Local Wildlife Site
CRoW	Countryside and Rights of Way Act 2000	NAAONB	National Association for AONBs
Defra	Department for Environment, Food and Rural Affairs	NATS	National Air Traffic Service
EGWS	English Woodland Grant Scheme	NNR	National Nature Reserve
ELS	Entry Level Stewardship	PAWS	Plantations on Ancient Woodland Sites
		SAC	Special Area of Conservation
		SSSI	Site of Special Scientific Interest



Walkers on the Pegsdon Hills



Cottage and windmill at Turville

