OXFORDSHIRE WILDLIFE

and

LANDSCAPE STUDY

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Contents

OXFORDSHIRE WILDLIFE AND LANDSCAPE STUDY
EXECUTIVE SUMMARY

INTRODUCTION

The 3 year National Demonstration Project, started in April 2001, was jointly funded by Oxfordshire County Council, English Nature, the Countryside Agency and the Northmoor Trust. The aim of the project was to explore the relationship between landscape character and biodiversity and to produce a strategic framework for decision making by a wide range of stakeholders including local authorities and other statutory organisations. The Study could also be piloted by English Nature and the Countryside Agency to develop and promote good practice elsewhere as part of their previous work on Countryside Character Areas in England.

METHODOLOGY

The Landscape Assessment used and approved by the Countryside Agency is based on a national typology of landscape description units derived from national datasets. The biodiversity appraisal, and subsequent scoring system, was largely developed as part of the study but it was based on previous work undertaken by Reading University in conjunction with their Living Landscapes Project. Landscape and habitat information was recorded for each landscape description unit and the data was then placed on to a G.I.S. database. This field data was supplemented by additional information currently available for individual sites, such as Sites of Special Scientific Interest and county wildlife sites, within Oxfordshire.

THE LANDSCAPE TYPES

As a result of this work, 24 different landscape types were identified within Oxfordshire. For each landscape type a detailed description of its landscape character and associated habitats was completed, and this was followed by strategic guidelines which would help to safeguard, maintain and hopefully enhance this resource. As might be expected there was considerable variation between different landscape types ranging from the ancient beech woods and rich habitats of the Chilterns through to the intensively managed arable areas of the clay vales.

ACCESS TO THE RESULTS OF THE STUDY

There will a limited number of written reports and CD-ROMS made available to funding partners and other organisations. The G.I.S. database will be made available to all Local Authorities through a version of PLANWEB. Access for the wider community will be made through the study being placed on the County Council website.

FUTURE DEVELOPMENT OF THE PROJECT

At present, the study has only gone through a fairly limited consultation process with the main partnership organisations in the county. Once it has been placed on the website we will welcome and invite comment from the wider public so that the results and conclusions can be validated and made more robust. Eventually, the project will be used to provide Supplementary Planning Guidance for Local Authorities.

Resources for updating and reviewing the system are limited but it is hoped that the work of bodies such as the new Thames Valley Environmental Records Centre will contribute significantly to this process.

CHAPTER 1

INTRODUCTION

The Oxfordshire Wildlife and Landscape Study (OWLS) is a 3 year National Demonstration Project (April 2001-04) sponsored jointly by English Nature, the Countryside Agency, Oxfordshire County Council and the Northmoor Trust.

The key objectives of the project are:-

- To undertake a Landscape Character Assessment and Biodiversity Appraisal of Oxfordshire.

- To investigate the relationship between landscape character and biodiversity.

- To establish an integrated Geographical Information (G.I.S.) database of landscape character and biodiversity data.

- To provide a framework which can potentially be used to inform strategic decision making on related landscape character and biodiversity issues within the county.

- To establish a pilot project which could be promoted nationally by English Nature and the Countryside Agency.

1. **GENERAL METHODOLOGY**

   Introduction

   Both the landscape character assessment and biodiversity appraisal fall within the countryside character and natural areas framework developed by the Countryside Agency and English Nature respectively. The project also follows the Countryside Agency's new Landscape Character Assessment guidance. The methodology used for the biodiversity appraisal was largely designed as part of the project although it was based on previous work by Reading University as part of a "Living Landscapes Project" sponsored by English Nature.

2. **LANDSCAPE CHARACTER ASSESSMENT**

   Setting the scene

   The landscape character assessment keys into the Character of England, which combines the Countryside Agency's Countryside Character Area and English Nature's Natural Area Maps. The Character of England map divides into 181 Character Areas, and 8 of these fall within Oxfordshire.

They are:

Countryside Character Areas	Natural Area
88. Bedfordshire and Cambridgeshire Claylands}	
89. Northamptonshire Vales }	West Anglian Plain (88,89)
95. Northamptonshire Uplands	Midland Clay Pastures (95,96)
107. Cotswolds	Cotswolds
108. Upper Thames Clay Vales	Thames and Avon Vales
(108,117)	
109. Midvale Ridge	Midvale Ridge
110. Chilterns	Chilterns
117. Berkshire and Marlborough Downs	Berkshire and Marlborough Downs

To place these 8 Countryside Character Areas into an Oxfordshire context they were slightly re-defined as 9 Regional Character Areas. In most cases they have the same name as the corresponding Countryside Character Area. However, the Upper Thames Clay Vale has been sub-divided into the Vale of White Horse, Vale of Aylesbury and Upper Thames Vale R.C.A.s. The Bedfordshire and Cambridgeshire Clayland has been subsumed under the Northamptonshire Vales because it occupies such a small part of the county.

They are:

Northamptonshire Uplands
Northamptonshire Vales
Cotswolds
Midvale Ridge
Upper Thames Vale
Vale of White Horse
Vale of Aylesbury
Chilterns
Berkshire and Marlborough Downs.

Their location is illustrated in Figure 1.

Methodology
The process of landscape character assessment involves a combination of desk study, field survey and analysis.

Desk study
The first key stage is to divide the Regional Character Areas into discrete, relatively homogeneous units of land sharing a similar pattern of physical and cultural components. These units of landscape are called **Landscape Description Units** (L.D.U.s) and are derived from a process of G.I.S. mapping overlays. (Figure 1). They are the building blocks of the landscape and can be used as mapping units across different administrative boundaries. They form the framework on which assessment, evaluation and decision-making are based.

Each L.D.U. is based on a number of **definitive** physical and cultural parameters which define the extent of each spatial unit. The three physical parameters are geology, topography and soils. These factors are not subject to change and are the most influential in defining the character of the landscape. The cultural parameters, reflecting man's influence, are land cover

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Figure 1: Regional Character Areas

Regional Character Areas

- Chilterns
- Midvale Ridge
- Vale of Aylesbury
- Northamptonshire Vales
- Upper Thames Vale
- Cotswolds
- Northamptonshire Uplands
- Vale of White Horse
- Berkshire and Marlborough Downs
- LDU boundaries

Banbury

Chipping Norton

Bicester

Kidlington

Witney

Oxford

Thame

Abingdon

Faringdon

Didcot

Wallingford

Wantage

Henley-on-Thames

0   5   10
kilometers
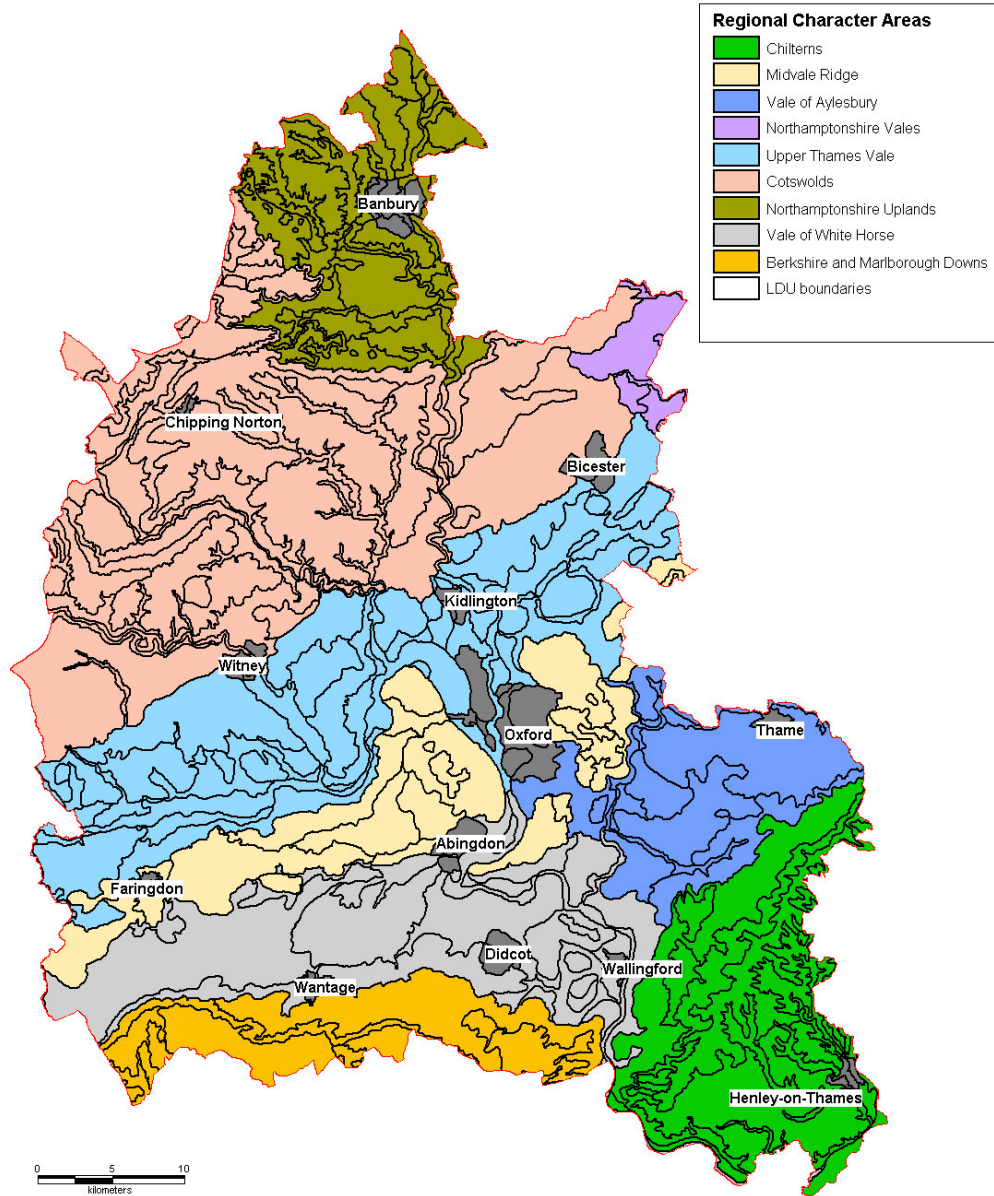
and settlement pattern. Historical maps were used to identify the settlement pattern. All this information is stored within the G.I.S. database and is linked to the L.D.U. polygons. There are 240 L.D.U.s within Oxfordshire. As there are small variations within a L.D.U., because of land-use and field enclosure pattern, the L.D.U.s were further sub-divided into smaller mapping units, known as Land Cover Parcels (L.C.P.s). These L.C.P.s are more likely to have a homogeneous character and are easier to survey because of their smaller size.

Field survey
Once the L.D.U.s and L.C.P.s were defined, the field survey was undertaken to gather additional **descriptive** information about the landscape. Recording the descriptive attributes included the collation of information on land use, treecover, enclosure pattern and field boundaries. The field survey also captured the visual dimension of the landscape. Prominent landscape elements are those that have an immediate visual impact at the L.D.U. level. Aesthetic qualities, such as scale, form and enclosure, were also recorded to reflect the way that natural and cultural elements interact to create distinctive patterns. In addition, observations were made about the condition of the landscape and forces for change. All this information was recorded on a standardised survey sheet (Appendix 1). The field survey was completed for each L.C.P. and the information for all the parcels was then summarised at the L.D.U. level. During the survey, the accuracy of the L.D.U. boundaries were also verified, and in a few cases, larger L.D.U.s were sub-divided into smaller L.D.U.s which were perceived to be more homogeneous in character.

Characterization process
Having completed the field survey all the information was entered into an Access database and linked to the G.I.S. system. The characterization process involved the identification of distinctive patterns in the landscape created by the way the natural and human influences on the landscape interact. Areas of recognisable and consistent common character were classified into **Landscape Types** or Landscape Character Types. L.D.U.s that had a similar pattern of geology, landform, topography, vegetation, land use and settlement pattern were grouped into Landscape Types based on the visual prominence of these elements. The same combination of landscape elements can be found within many different Regional Character Areas within the county as well as other similar areas in different parts of the country. This does not imply that every area will be identical but rather that they have broadly recognizable, common pattern.

The process of identifying L.T.s was a combination of manipulating the data both within the Access database and G.I.S. In the database, clear correlations among L.D.U.s emerged when the data was grouped and sorted by the three most influential parameters of topography, geology/soils and landform. In the G.I.S., the parameters of topography, geology/soils, tree cover and settlement pattern were converted into visual layers and these were also combined with layers reflecting visual prominence. This overlay process allowed L.D.U.s of similar characteristics to be identified and mapped. The characterisation process resulted in the identification of 24 Landscape Types (Figure 2). The visual prominence of certain landscape elements determined the key characteristics of each L.T. The names of the individual L.T.s reflect the dominant influences on landscape character, mainly associated with geology, landform, land cover and settlements.

The 24 Landscape Types are:-

1. Alluvial Lowlands
2. Chalk Downlands and Slopes
3. Clay Vale
4. Estate Farmlands
5. Farmland Hills
6. Farmland Plateau
7. Farmland Slopes & Valley Sides
8. Lowland Village Farmland
9. Pasture Hills
10. River Meadowlands
11 Rolling Clayland
12. Rolling Farmland
13. Rolling Village Pastures
14. Settled Ancient Pastures
15. Terrace Farmland
16. Upstanding Village Farmland
17. Vale Farmland
18. Wooded Downland
19. Wooded Estateland
20. Wooded Estate Slopes and Valley Sides
21. Wooded Farmland
22. Wooded Hills
23. Wooded Plateau
24. Wooded Pasture Valleys and Slopes

In addition, each Landscape Type was further subdivided into separate **Local Character Areas.** These are single, unique geographical areas, and their chosen names are linked to place names of nearby localities or settlements. Their boundaries correspond with the L.D.U. boundaries shown on Figure 1.

The final stage was the preparation of landscape character descriptions for each L.T., including forces for change and the preparation of specific landscape strategies and guidelines.   A more detailed description of the report format for each landscape type is provided under Chapter 2.

3.   **BIODIVERSITY APPRAISAL**

(i)   **Introduction**

The data used for the biodiversity appraisal was derived from two main sources:

- Field survey data collated at the L.D.U. level.

- Existing habitat data for designated statutory (S.A.C.s/S.S.S.I.s) and non statutory (C.W.S.) wildlife sites within the county.

Field Survey Data

The data on individual habitats was collated at the L.D.U. level using a survey sheet originally designed as part of Reading University's Living Landscape Project (Appendix 2). The record sheet incorporated parameters for area and linear habitats including:

- habitat type
- habitat size
- habitat extent within each L.D.U.
- habitat proximity within each L.D.U.
- habitat condition.

For linear habitats, such as hedgerows, additional factors such as width and height were also recorded.

Existing Habitat Data

Most of the reliable, up to date information on existing habitats is largely associated with a number of designated statutory or non-statutory sites.

Statutory Sites

- **Sites of Special Scientific Interest (S.S.S.I.s)**
  These sites have been designated by English Nature and are deemed to be of, at least, national importance. There are 108 within Oxfordshire.

- **Special Areas of Conservation (S.A.C.s)**
  These are also S.S.S.I.s but are regarded as important within a European context. There are 6 S.A.C.s within Oxfordshire :

  Cothill Fen
  Hackpen Hill
  Hartslock Wood
  Aston Rowant
  Little Wittenham
  Oxford Meadows

Non-Statutory Sites

Within Oxfordshire there are 358 wildlife sites deemed to be of county importance and there are agreed selection criteria used for confirming their status.

Many of these sites support specific priority habitats.

Priority habitats are defined as habitats identified within the U.K. Biodiversity Action Plan which are recognised as being of National/International importance. A number of these fall within Oxfordshire and are highlighted in the Oxfordshire Biodiversity Action Plan.

They include:-

- Calcareous grassland (lowland calcareous grassland UK B.A.P.).
- Neutral grassland (lowland meadows UK B.A.P.).
- Acid grassland (lowland dry acid grassland UK B.A.P.).
- Dwarf scrub heath (lowland heathland UK B.A.P.).
- Fen, marsh and swamp (reedbeds UK B.A.P./fens UK B.A.P.).
- Standing open water and canals (mesotrophic standing waters UK B.A.P.).
- Broad leaved, mixed and yew woodland (lowland beech UK B.A.P.).
- Boundary and linear features (ancient and/or species-rich hedgerows UK B.A.P.).

(ii)   **Scoring System**

In order to try and reflect any variation in habitat biodiversity between different L.D.U.s a simple, arithmetic scoring system was devised.

It was based on:-

- The number of habitats within each L.D.U.
- The type of habitats within each L.D.U.
- The parameters of size, extent, proximity and condition of each habitat within an L.D.U.
- The relative status (S.A.C./S.S.S.I./C.W.S.) of each habitat within an L.D.U.

An initial list of all the habitats found in Oxfordshire was derived from the National Vegetation Classification system. (Appendix 3)

To simplify the scoring process English Nature sub-divided these habitats into six separate groups and they were given different scores. This was a subjective assessment based on what was perceived to be their relative importance to habitat biodiversity within the county. (Appendix 4). Those in the top 'HB.A.P.' group were given 15 points whereas those in the 'L' group only one point. Again, these scores were arbitrarily chosen and there is no reason why a different set of scores could not be used as long as consistency is maintained throughout.

Additional weighted points were allocated, where appropriate, to those habitats falling within the top three groups to reflect their status (S.S.S.I./C.W.S), size, extent, proximity and condition (Appendix 5). The last four parameters were taken from the field survey sheet but were simplified for the purpose of the scoring system. The only other variation to the scoring system related to some HB.A.P. priority habitats which were smaller than 0.25 Ha. Because they were so small it was felt that their overall contribution to biodiversity within an L.D.U. did not merit a full 15 points and this was reduced to 6. In practice, this applied to very few habitats with species-rich ponds and hedges being the most usual ones.

It must be noted that it was very difficult to score the parameters of size, extent, proximity and condition for the majority of habitats recorded in the field with any degree of confidence. However, for recorded habitats that were designated sites it was possible to score these same parameters with a greater degree of confidence because the information for most of these sites is relatively accurate and up to date.

By scoring all the individual habitats in this way it was possible to derive an overall **bioscore** for each L.D.U. As expected, there was a wide range of bioscores across all the L.D.U.s and, to simplify the process, the scores were grouped into six **biobands**. (Appendix 6).

The biobands were colour-coded within the G.I.S. database and a **biomap** of the county was created. This map highlights the broad variation in bioscores/biobands across all L.D.U.s (Figure 3).

(iii)   Interpreting the Biomap

The biomap can be interpreted as a basic measure of the number and type of habitats recorded within each L.D.U. L.D.U.s with a large number of habitats, including priority habitats, automatically score more highly, and therefore end up in a higher bioband.

For example, many L.D.U.s in the Chilterns score highly because they support many habitats including UK B.A.P. habitats such as calcareous and acid grassland, beech-yew woodland and species rich hedgerows. By contrast, L.D.U.s which are largely dominated by intensive arable farming tend to have a more limited range of habitats and few, if any, priority habitats.

When interpreting the biomap a number of important considerations must be taken into account:

- There is a wide variation in the size of individual L.D.U.s and this can influence the bioscore. A large L.D.U. may include a greater number of habitats and be over-scored as a result. To date, initial attempts to overcome this size bias have been unsuccessful but it is an issue that still needs to be addressed. Fortunately, the general consensus, based on local knowledge, is that the biomap is a reasonable reflection of the variation in habitat biodiversity across the county.

- The bioscores are based on habitat and not species data. This may mean that certain L.D.U.s may be undervalued from a biodiversity point of view within the existing scoring system. Unfortunately, there is only a limited amount of comprehensive species data currently available in a form that can easily be incorporated into the G.I.S. database. This is a future priority when updating the project. However, it must be noted, the study operates primarily at the landscape scale and species information may not always be significant at this level.

- There may be significant variations in the habitats and species recorded at a more local level within an L.D.U. This needs to be taken into account, and may involve additional survey work when detailed decisions on the future protection of these features are being considered.

(iv) <u>**The Bio-Landscape Map**</u>

A key objective of the project was to investigate the possible relationship between landscape character and biodiversity. One way of doing this is to overlay the 24 landscape types with the 6 biobands to create a **Bio-Landscape** map. (Figure 4). This highlights the broad variation in bioscores/biobands both within and between different landscape types.

When considering the variation between different landscape types certain themes begin to emerge. Appendix 7 highlights some of this variation by highlighting the number of L.D.U.s that fall within particular biobands for each landscape type. For landscape types such as the **Wooded Estate Slopes and Valley Sides** and **Wooded Estate lands**, there is a bias towards those L.D.U.s with higher bioscores/biobands**.** By contrast, landscape types such as the **Pasture Hills** and **Terrace Farmlands** there is a bias towards those with lower bioscores/biobands. The main exception is the **River Meadowlands**, which is basically the corridor of the River Thames and its tributaries, as this has a very wide variation from low to very high bioscores/biobands. This is probably a reflection of a variation in land management throughout the landscape type.

This process identifies certain landscape types, such as the **Wooded Estatelands,** which support a wide range of habitats including priority habitats of county/national importance whereas others, such as the **Terrace Farmlands,** tend to have a narrower range of habitats of more local importance.

The bio-landscape map also illustrates any variation in bioscores/biobands that may occur <u>within</u> a landscape type. This may mean that the parts of a landscape type which score more highly still support a wider range of habitats including priority habitats, compared with other parts where they may have become lost or fragmented for some reason or other. Potentially, the higher scoring parts may be used as a template for restoring habitats that are both sustainable and appropriate to that landscape type. This would also help to restore and enhance the character of these areas resulting in stronger, more homogeneous landscape type.

If one is using the data to interpret variations in bioscores/biobands it is probably wiser to compare variations within, rather than between, different landscape types. There is little merit in making direct comparisons between a wooded landscape within the Chilterns and a flat arable landscape within the Vale of White Horse.

Figure 2: Landscape Types

Landscape Types
- LDU boundaries
- Wooded Hills
- Wooded Estatelands
- River Meadowlands
- Farmland Slopes & Valley Sides
- Estate Farmlands
- Clay Vale
- Rolling Farmland
- Pasture Hills
- Alluvial Lowlands
- Lowland Village Farmland
- Wooded Farmland
- Terrace Farmland
- Farmland Plateau
- Vale Farmland
- Farmland Hills
- Wooded Pasture Valleys & Slopes
- Wooded Estate Slopes & Valley Sides
- Rolling Claylands
- Wooded Downland
- Wooded Plateau
- Chalk Downland &Slopes
- Upstanding Village Farmlands
- Rolling Village Pastures
- Settled Ancient Pastures

Banbury

Chipping Norton

Bicester

Kidlington

Witney

Oxford

Thame

Abingdon

Faringdon

Didcot

Wallingford

Wantage

Henley-on-Thames

0   5   10
kilometers

12

Figure 3: Biomap

Biobands
- Low
- Low/Medium
- Medium
- Medium/High
- High
- Very High

LDU boundaries

Banbury

Chipping Norton

Bicester

Kidlington

Witney

Oxford

Thame

Abingdon

Faringdon

Didcot

Wallingford

Wantage

Henley-on-Thames

0 5 10
kilometers

Figure 4: The Bio-Landscape Map

Biobands
- LDU boundaries
- Medium
- Low/Medium
- Very High
- High
- Medium/High
- Low

Landscape Types
- LDU boundaries
- Wooded Hills
- Wooded Estatelands
- River Meadowlands
- Farmland Slopes & Valley Sides
- Estate Farmlands
- Clay Vale
- Rolling Farmland
- Pasture Hills
- Alluvial Lowlands
- Lowland Village Farmland
- Wooded Farmland
- Terrace Farmlands
- Farmland Plateau
- Vale Farmland
- Farmland Hills
- Wooded Pasture Valleys and Slopes
- Wooded Estate Slopes and Valley Sides
- Rolling Claylands
- Wooded Downland
- Wooded Plateau
- Chalk Downland and Slopes
- Upstanding Village Farmlands
- Rolling Village Pastures
- Settled Ancient Pastures

Banbury
Chipping Norton
Bicester
Kidlington
Witney
Oxford
Thame
Abingdon
Faringdon
Didcot
Wallingford
Wantage
Henley-on-Thames

0   5   10
kilometers
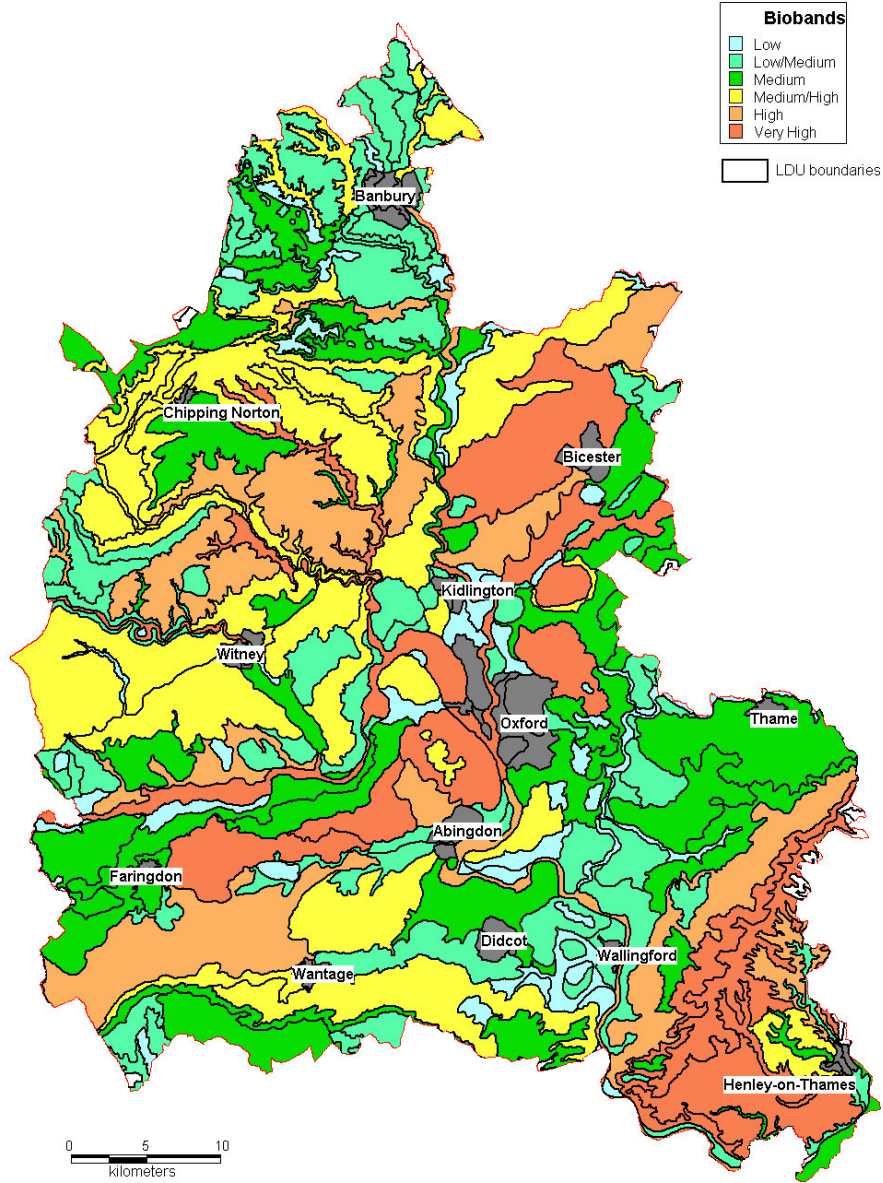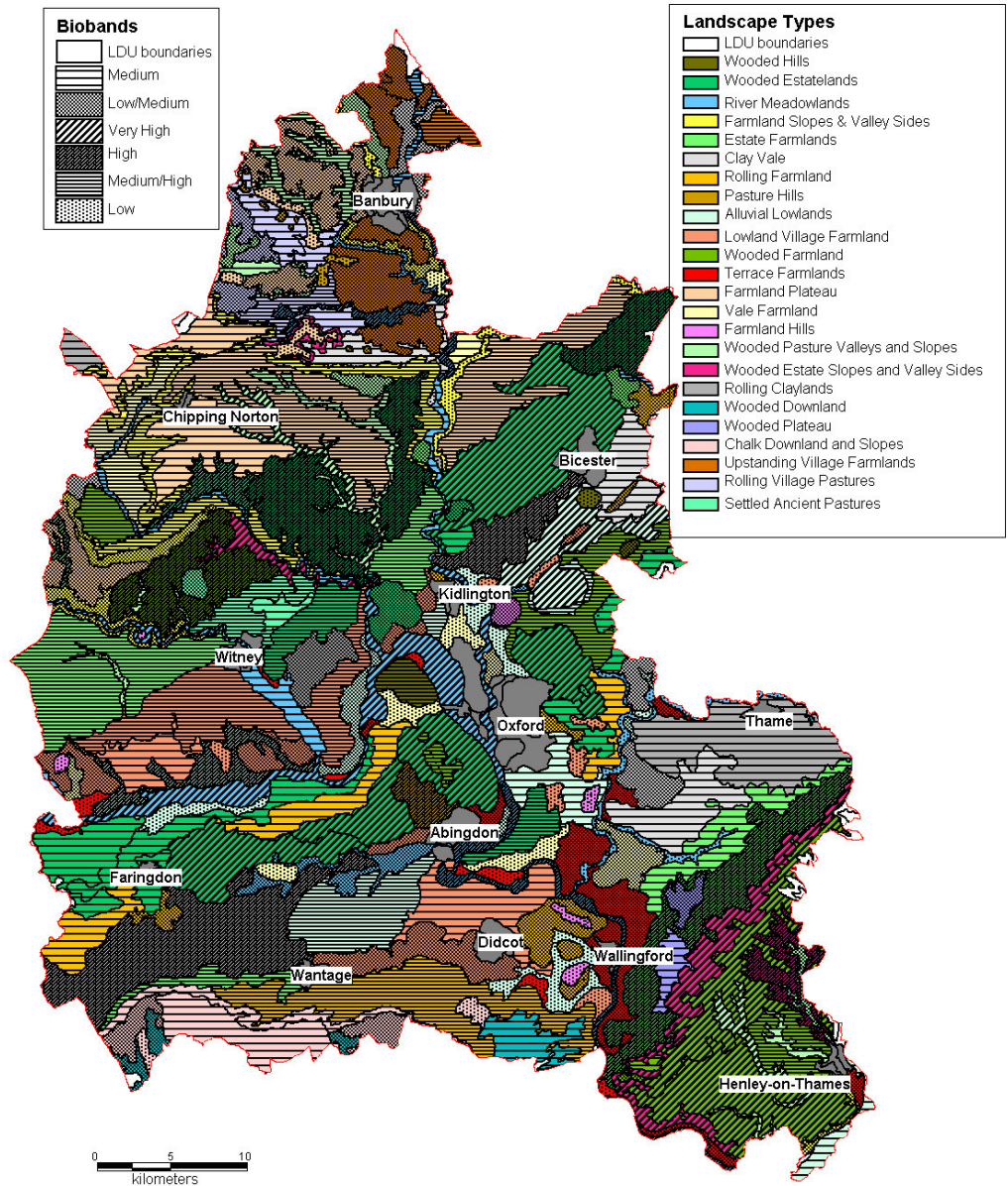
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(v)   The Priority Habitat Map

As a separate exercise, G.I.S. overlays have been produced for a number of the priority habitats within the county i.e. calcareous grassland. (Figure 5), neutral grassland (Figure 7), and acid grassland/ heath (Figure 7). These overlays not only highlight the occurrence of a priority habitat within a particular L.D.U. but also any variation in "quality" based on the same parameters and scores for size, extent, proximity and condition described previously. The L.D.U.s that score more highly tend to be those with large, extensive patches of a particular priority habitat which is generally in favourable condition and management. By contrast, those which have lower scores tend to have small, isolated pockets of priority habitat usually in unfavourable condition and management.

(vi)   Landscape Type Habitats

In Appendix 8 all the habitats recorded for each L.D.U. that fall within a particular landscape type have been tabulated. Each L.D.U. corresponds to an individual local character area within the same landscape type.

Column 1: L.C.A.
This column indicates the local character area number within the landscape type.

Column 2:   L.D.U.
This column indicates the corresponding landscape description unit within the landscape type.

Column 3: CODES
This is the code number taken from Appendix 3 and used on the field survey sheet for each habitat.

Column 4:   HABITATS
These are the habitats recorded within each local character area/L.D.U. They are split into two groups. The top group includes all those habitats classified as L to M in Appendix 4. The lower grouping includes all those that are within the MBAP to HBAP categories.

Column 5:   SCORES
These are the individual scores for each habitat based on the scoring system described in Appendix 5.

Column 6: BIOSCORE
This is the total score for all the habitats in the local character area.

Column 7:   BIOBAND
This is the bioband corresponding to the bioscore in column 6.

Figure 5: Priority habitat
Calcareous grassland

"Quality" bands
- LDU boundaries
- Low
- High
- Medium

Banbury

Chipping Norton

Bicester

Kidlington

Witney

Oxford

Thame

Abingdon

Faringdon

Didcot

Wallingford

Wantage

Henley-on-Thames

0   5   10
kilometers
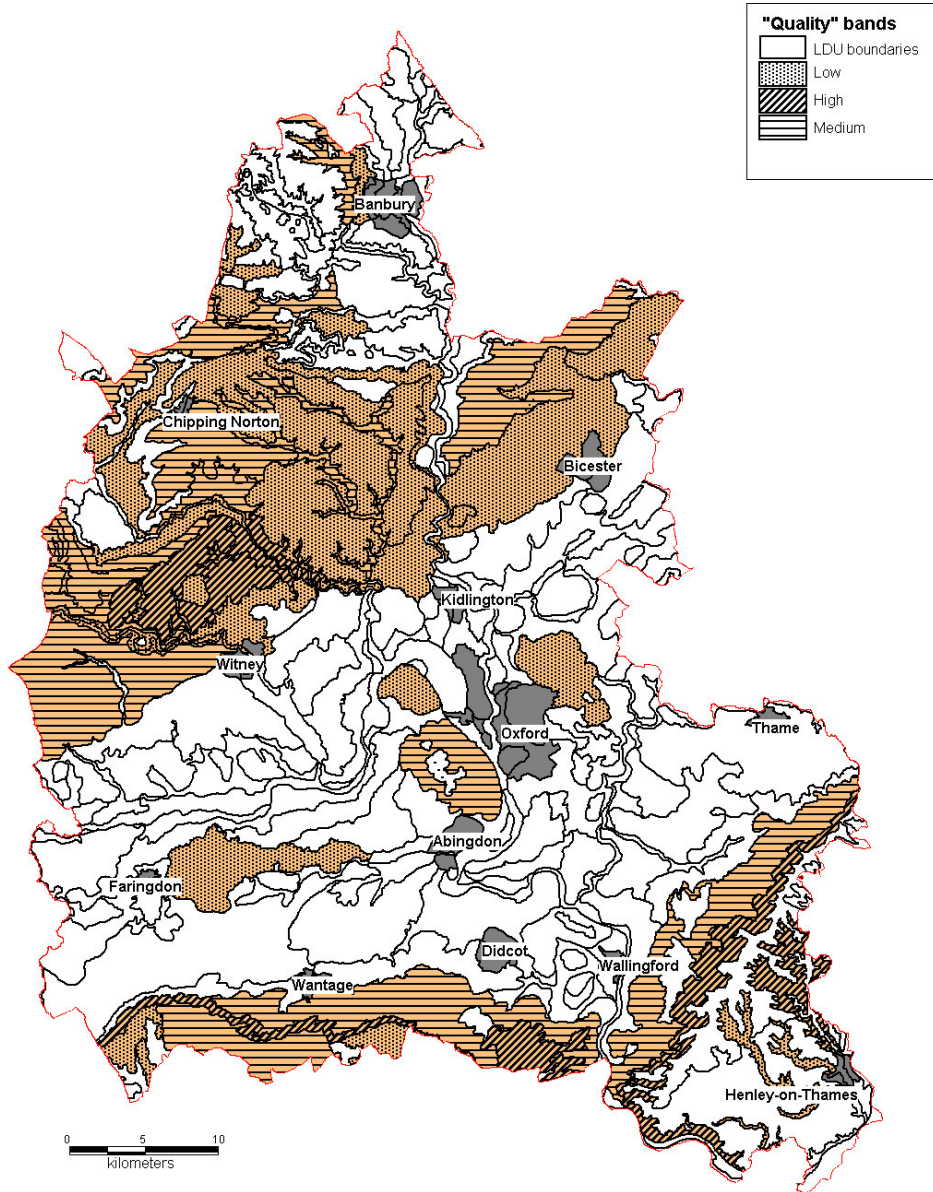
Figure 6: Priority habitat
Neutral grassland
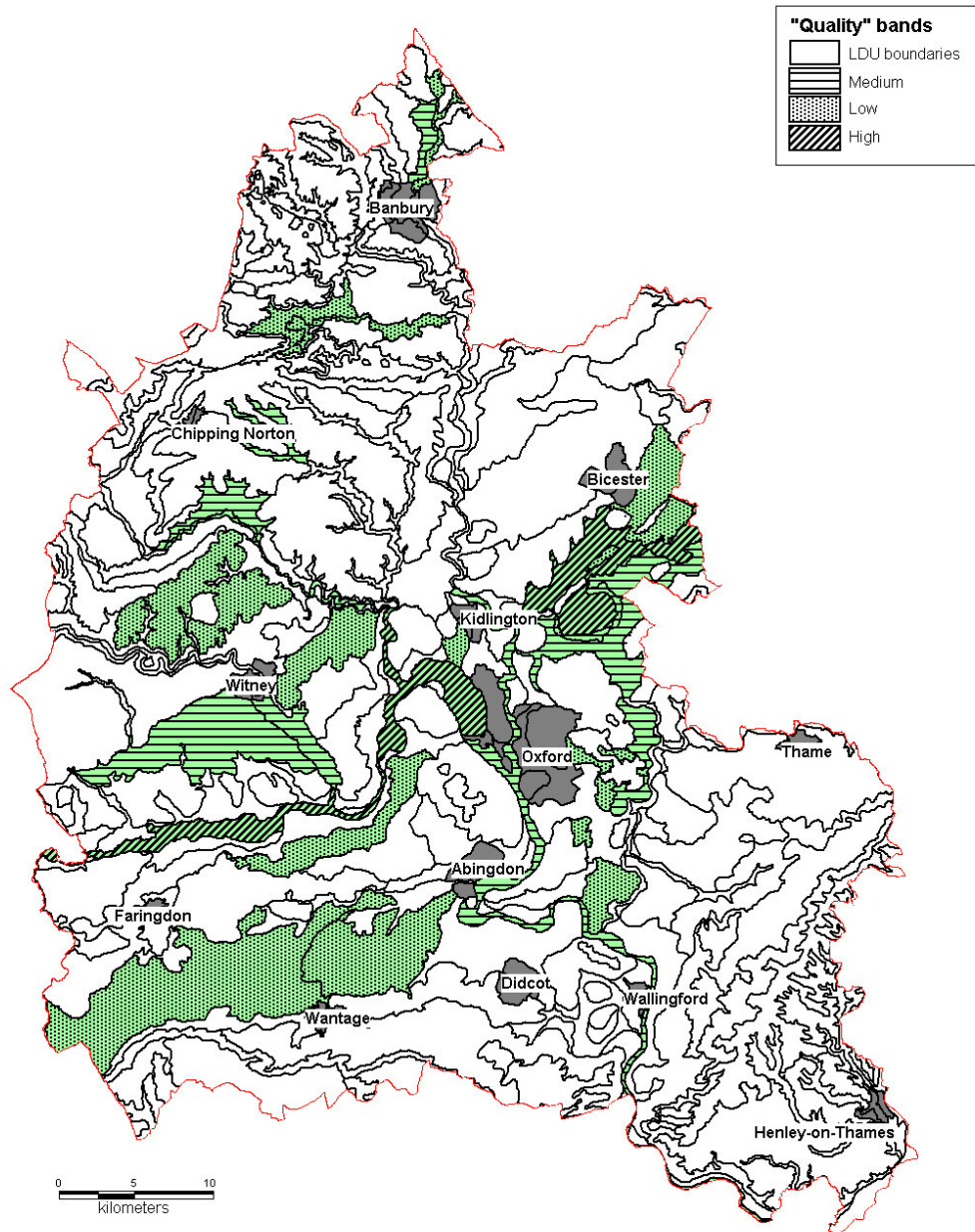
Figure 7: Priority habitat
Acid grassland/heath

"Quality" bands
- High
- Low
- Medium
- LDU boundaries

Banbury

Chipping Norton

Bicester

Kidlington

Witney

Oxford

Thame

Abingdon

Faringdon

Didcot

Wallingford

Wantage

Henley-on-Thames

0   5   10
kilometers
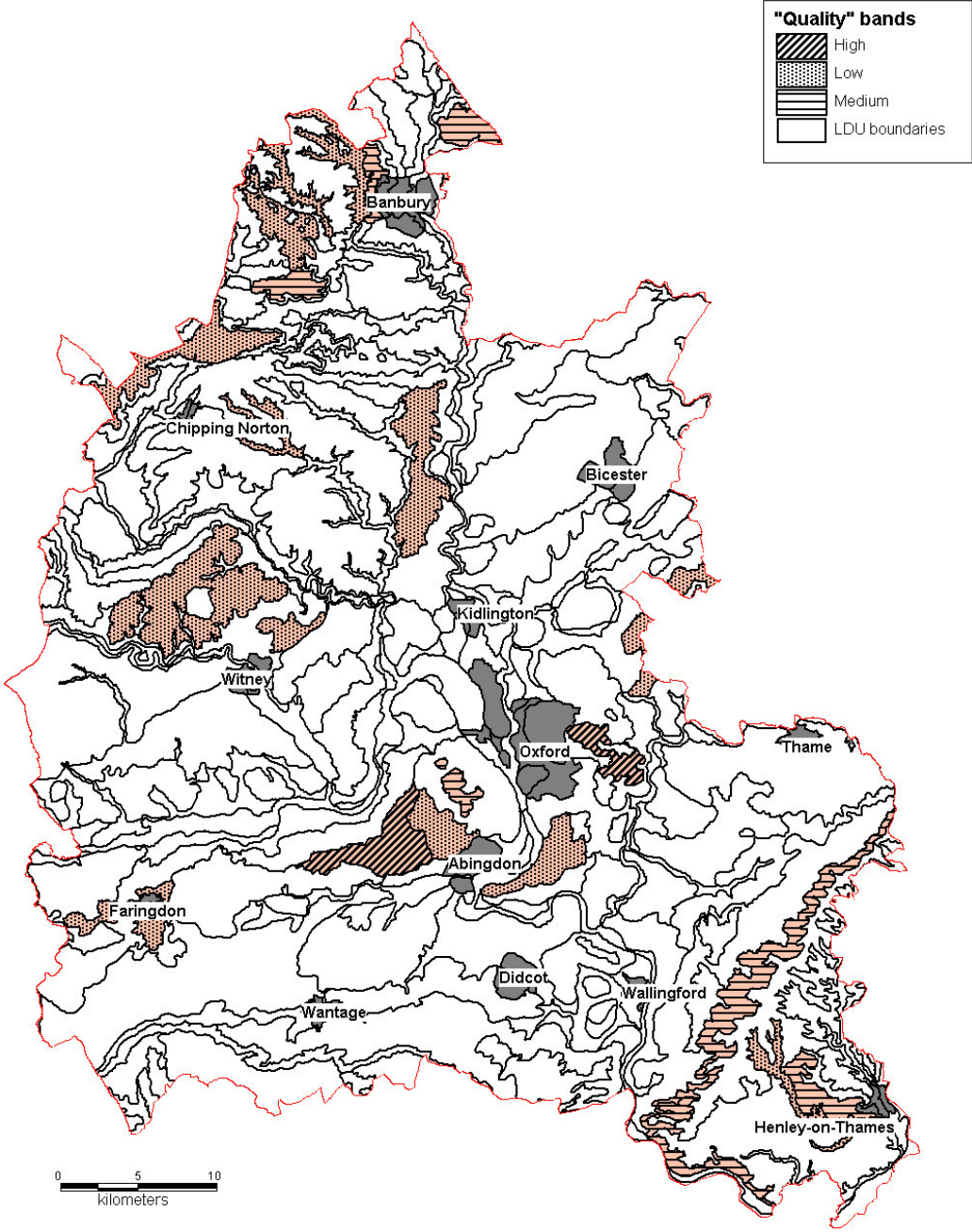
CHAPTER 2

THE LANDSCAPE TYPES

This section examines each of the landscape types in greater depth. The format adopted for each landscape type is:

(i)   Landscape type plan
(ii)   Landscape character assessment
(iii)   Biodiversity appraisal
(iv)   Landscape character assessment/biodiversity appraisal of local character areas.
(v)   Forces for change
(vi)   Broad landscape character/biodiversity strategy
(vii)   Detailed landscape character/biodiversity guidelines.

(i)   Landscape Type Plan

This plan highlights the location of an individual landscape type within the county and it is sub-divided into its specific local character areas named after the nearest obvious settlement. It also illustrates any variation in bioscores/biobands within the landscape type. If the landscape type includes a site supporting a designated habitat (S.S.S.I./C.W.S.) then this will be indicated as a colour-coded dot. This provides a basic overview of the type and distribution of certain habitats associated with a particular landscape type.   For reasons of confidentiality, it was decided that specific site boundaries would not be used.

If a priority habitat, such as calcareous grassland occurs within a landscape type then an additional priority habitat plan will also be included.   This highlights any variation in "quality" of a priority habitat within a landscape type and, where appropriate, identifies specific known sites supporting that habitat type.

(ii)   Landscape Character Assessment

This section is subdivided as follows:

- Name of landscape type.
- Regional Character Areas.
- Location of landscape type.
- Key characteristics.
- Landscape character overview.
- Geology and landform.
- Land use and vegetation.
- Cultural pattern.

(iii)   Biodiversity Appraisal

- Biodiversity appraisal overview.
- Key characteristics.
- General biodiversity appraisal.

(iv) **Landscape character Assessment/Biodiversity Appraisal for Local Character Areas**

Within each landscape type individual local character areas have been identified and named in relation to their nearest obvious settlement. To provide a local perspective a more detailed landscape character assessment and biodiversity appraisal is included for each local character area. The code bracketed after each local character area name is the corresponding L.D.U. code.

(iv) **Forces for Change**

This section describes the main forces which are influencing change in both landscape character and biodiversity for each landscape type. They may include agriculture, forestry or mineral extraction.

(v) **Broad landscape character/biodiversity strategy**

This identifies the recommended overall strategy for conserving/enhancing landscape character and biodiversity within the landscape type.

(vi) **Detailed landscape character/biodiversity guidelines**

This provides more detailed recommendations for conserving/enhancing landscape character/biodiversity.

17.   VALE FARMLAND

Figure 8: Vale Farmland

Legend:

Designated habitats
- Lowland mixed deciduous woodland
- Wet woodland

Biobands
- Low/Medium
- Low
- Medium
- Medium/High
- LDU boundaries

Map labels: Banbury, B, C, Chipping Norton, A, Bicester, Kidlington, F, G, Witney, E, Oxford, Thame, D, Abingdon, J, Faringdon, H, Didcot, Wallingford, Wantage, Henley-on-Thames

Scale: 0 — 5 — 10 kilometers
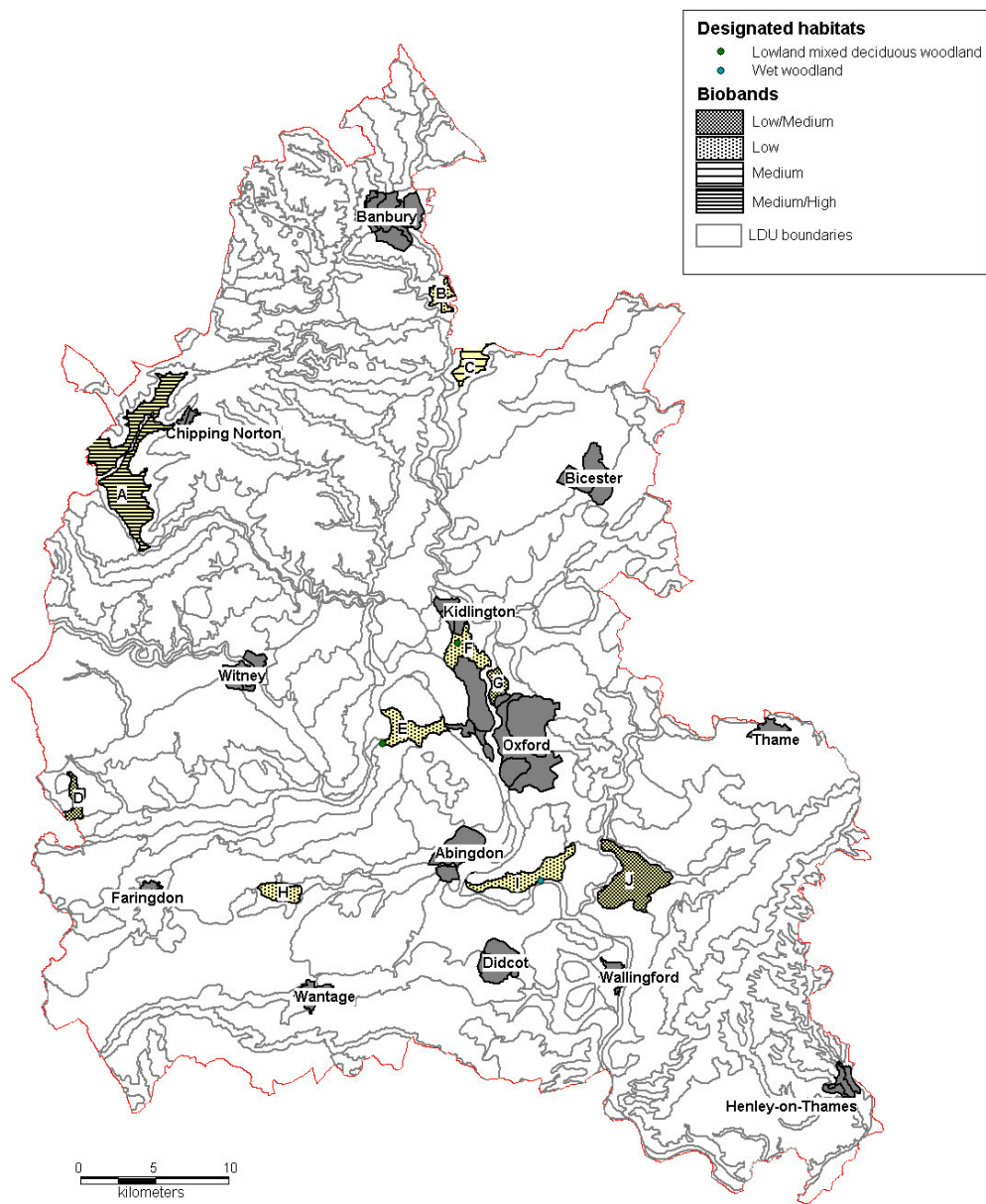
Figure 9: Vale Farmland
Priority habitat: Calcareous grassland

"Quality" bands
Low
LDU boundaries

Banbury

B

C

Chipping Norton

A

Bicester

Kidlington

F

G

Witney

E

Oxford

Thame

D

Abingdon

Faringdon

H

J

Didcot

Wallingford

Wantage

Henley-on-Thames

0   5   10
kilometers
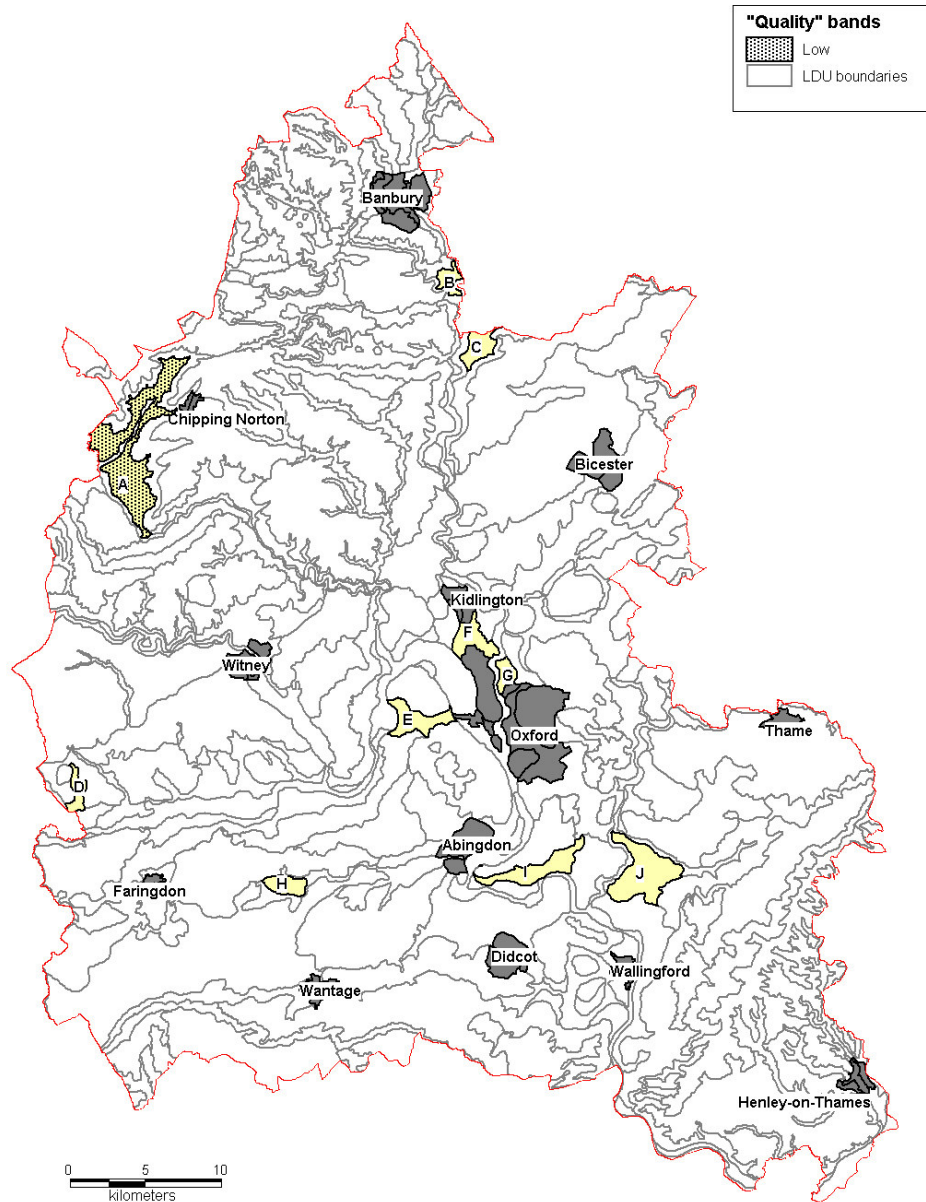
17. VALE FARMLAND

Regional Character Areas
Northamptonshire Uplands: Cotswolds: Upper Thames: Midvale Ridge: Vale of White Horse: Vale of Aylesbury.

Location
This is a widely distributed landscape type and it is largely associated with clay vale landscapes adjacent to river systems. To the south of the county it borders parts of the Rivers Thames, Cherwell, Thame and Ock. To the north it lies adjacent to the Rivers Evenlode and Cherwell.

Overview
This is a vale landscape defined by regular, arable fields enclosed by hawthorn hedges and hedgerow trees. A nucleated settlement pattern is also a characteristic element within this landscape type.

Key Characteristics
- A gently rolling landscape associated with clay soils.
- Medium to large regular arable fields and more localised smaller grass fields.
- A well-defined hedgerow pattern with characteristic hedgerow trees.
- Occasional ditches and minor streams bordered by crack willows and ash.
- A nucleated pattern of small, compact villages.

Geology
The areas around Clifton Hampden and Berrick Salome are dominated by Gault Clay and Upper Greensand, whilst the areas around Oxford and Langford Brook are dominated by Oxford Clay. Lower Lias clays are located around Kingham, with a mix of Lower, Middle and Upper Lias clays dominating the Ironstone areas around Adderbury.

Land use and vegetation
This landscape is dominated by intensive arable farming, although semi-improved grassland is locally common around villages and adjacent to watercourses. Woodland is not a prominent feature and is largely confined to a few discrete small plantations around Berrick Salome and Kingham. Linear belts of crack willow, poplar and ash border some ditches and streams throughout the landscape type. Watercourse trees are a notable feature around Langford Brook and along the roadside ditches near Berrick Salome.

Cultural pattern
The field pattern is characterised by medium to large-sized, regular arable fields, enclosed by a well-defined pattern of hawthorn and elm hedges. The latter tend to be taller where they border roads. Grass fields are generally smaller in size. Some roadside hedges are species-rich with dogwood, wild privet, field maple and willow. Hedgerow trees are a prominent and unifying feature within many roadside hedges and include species such as oak, ash and crack willow. They are particularly significant around Berrick Salome, Newington, and Marston. Combined with the watercourse trees they create an overall sense of enclosure and filter distant views.

The settlement pattern is characterised by nucleated, well-defined small villages and sparsely scattered farms. The vernacular character is prominent in the villages of Berrick Salome, Charney Basset and Kingham. However, the building materials vary depending on the locality. In the Vale of White Horse the main building materials are red bricks, or timber-framed houses with red bricks with either thatched roofs or clay tiles. Limestone and stone tiles are more characteristic of the Cotswolds, whereas the warm brownish ironstone and slate roofs are more typically associated with villages such as Adderbury within The Northamptonshire Uplands.

Biodiversity

Overview
An intensively farmed landscape dominated by arable fields enclosed by species-poor hedges and trees. There are few woodlands but trees bordering watercourses are a characteristic feature. There is only a limited range of priority habitats including calcareous and marshy grassland and species-rich hedgerows with trees.

Key Characteristics
- Predominantly low to low-medium bioscores/biobands.
- Locally important habitats include deciduous woodland, semi-improved grassland and tree-lined watercourses. There are few priority habitats except some calcareous and neutral marshy grassland, fen and species-rich hedgerows with trees.

General Biodiversity Appraisal
This widely dispersed landscape type occupies around 2.3% of the rural county. Overall, it supports a relatively wide range of locally important habitats including woodland, semi-improved grassland, species-poor hedges with trees and tree-lined watercourses. The only recorded priority habitats include some calcareous and neutral marshy grassland, fen and species-rich hedgerows with trees. There are also areas of species-poor wet grassland and wet woodland bordering some of the watercourses. As a result, the bioscores/biobands are generally low to low-medium although these rise to medium-high in local character area A around Kingham and Lyneham where the land slopes south towards the River Evenlode.

Local Character Areas (Figure 6)

A. Kingham (CW/27)

Landscape Character
The area is dominated by medium to large-sized arable fields, with localised grassland adjacent to some watercourses. Fields are enclosed by low hawthorn hedges with occasional field maple and hazel, and scattered hedgerow trees of ash, oak and field maple. The hedges are generally in good condition and the trees are particularly dense to the north of Salford. Around Salford there are also dominant belts of ash, hawthorn and white willow bordering ditches and streams. There are a number of coniferous and mixed plantations as well poplar plantations surrounding fishing lakes. These are notable features in an otherwise intensively managed arable landscape.

Biodiversity
Bioscore/Bioband: 103/MH
This area supports a wide range of locally important habitats including mixed woodlands and plantations, semi-improved grassland, species-poor hedges with trees, and tree-lined watercourses. There are also fishing lakes, areas of wet species-poor grassland and some wet woodland. Priority habitats include species-rich hedgerows and trees with patches of calcareous grassland associated with the embankments of the mainline railway.

B. Adderbury East (NU/14)

Landscape Character
This is a partly sub-urbanised landscape with a range of land uses including a business park, caravan park and golf-course. Elsewhere, medium-sized arable fields dominate, with semi-improved grassland being confined to the golf course and land bordering the Oxford Canal. There is a generally intact network of intensively maintained hawthorn hedges with ash, sycamore and dead elm particularly along roadsides. Along with the plantations these features have a unifying effect on this local landscape.

Biodiversity
Bioscore/Bioband: 16/L
Locally important habitats include deciduous plantations, semi-improved grassland and species-poor hedges with trees. There are no recorded priority habitats.

C. Souldern Grounds (NU/34)

Landscape Character
The area is characterised by medium-sized arable fields and occasional grassland. There is an intact hedgerow pattern with thinly scattered, mature trees of oak and ash that are a prominent feature in the landscape. Field boundaries are generally tall and thick, and those along such features as parish boundaries and certain roads are often species-rich.

Biodiversity
Bioscore/Bioband: 75/M
Locally important habitats include mixed plantations, semi-improved grassland, species-poor hedges with trees and tree-lined watercourses. Priority habitats include some surviving marshy grassland and species-rich hedgerows with trees.

D. Langford Brook (UT/9)

Landscape Character
The area is characterised largely by medium scale arable fields and smaller grassland fields adjacent to Langford Brook. This watercourse is bordered by a dense corridor of ash, crack willow and overgrown hawthorn/blackthorn scrub. There is an intact hedgerow pattern with thinly scattered trees of oak, ash and crack willow. Although field hedges are generally low, roadside hedges are frequently species-rich, tall and thick with a dense tree pattern that frames distant views.

Biodiversity

Bioscore/Bioband: 48/LM

Locally important habitats include deciduous woodland, semi-improved grassland, species-poor hedges with trees and watercourses bordered by ash, willow and scrub. The only recorded priority habitat is the species-rich hedgerows with trees along some roads.

E. Farmoor (CR/11)

Landscape Character

The area has both arable land and grassland and the fields vary in size. They are enclosed by intensively maintained, gappy hawthorn hedges. Tree cover is largely confined to scattered hedgerow trees of oak, sycamore and a few pollarded willows bordering ditches.

Biodiversity

Bioband/Bioscore: 25/L

Locally important habitats include deciduous plantations, semi-improved grassland, species-poor hedgerows with trees, and tree-lined watercourses. There are no recorded priority habitats.

F. Peartree Hill (UT/34)

Landscape Character

This area, between Oxford and Kidlington, is largely characterised by medium to large-sized arable fields and some pastureland. The hawthorn and elm hedges are generally in poor condition and often gappy and fragmented. The main structural landscape elements are the thinly-distributed hedgerow tees of oak, dead elm and ash, as well as some tree clumps surrounding farmhouses. Stratfield Brake is a significant block of semi-natural deciduous woodland to the south of Kidlington.

Biodiversity

Bioscore/Bioband: 24/L

It is the deciduous woodland, hedgerows and hedgerow trees which are the most important local habitats. Part of the Oxford Canal also adds to the interest. There are no recorded priority habitats.

G. Marston (UT/36)

Landscape Character

Generally speaking, this area is characterised by small, regular fields with mixed land uses. The semi-improved grassland is mainly associated with horse paddocks. To the east of the River Cherwell there is an area of unimproved species-rich flood meadow. There is a well-defined network of tall, gappy thorn and elm hedges with densely scattered oak, ash and field maple trees.

Biodiversity

Bioscore/Bioband: 35/LM

Apart from semi-improved grassland and species-poor hedges with trees, the only notable habitat is a small part of Marston Meadows S.S.S.I. which is a priority habitat of species-rich unimproved flood meadows bordering the River Cherwell

H. Charney Basset (CR/4)

Landscape Character
An intensively managed, open landscape with medium-sized arable fields. Hawthorn hedges are largely fragmented and replaced by fences in places. Tree cover is largely confined to poplars and pollarded willows bordering ditches.

Biodiversity
Bioband/Bioscore: 15/L
Apart from a few locally important habitats such as species-poor hedges and tree-lined watercourses there is little else of note.

I. Clifton Hampden (WH/14)

Landscape Character
This is a very intensively managed landscape characterised by large arable fields. The extensive grounds of Culham laboratory dominate the western part of the area. Hawthorn and dead elm hedges are often gappy and in poor condition but are more intact where they border roads. Scattered hedgerow trees and linear treebelts along ditches provide some structure to the landscape. There are a few small deciduous plantations scattered throughout.

Biodiversity
Bioscore/Bioband: 28/L
Locally important habitats include wet woodland, plantations, species-poor hedgerows with trees, and tree-lined watercourses. There are no recorded priority habitats.

J. Berrick Salome (VA/1)

Landscape Character
This is a relatively varied character area with a number of landscape elements. It is largely dominated by large arable fields, but there are also smaller grass fields around Berrick Salome and to the north of Newington. There is an intact, well-defined pattern of tall hawthorn and elm hedges including a dense mix of ash, dead elm and willow trees. Hedges bordering grass fields often have additional shrub species including dogwood and field maple. Dense belts of willows and poplars line many watercourses. There is also a number of small, deciduous plantations and a larger block of semi-natural deciduous woodland

Biodiversity
Bioscore/Bioband; 38/LM
Locally important habitats include the deciduous woodlands and plantations, semi-improved and species-poor wet grassland, species-poor hedges and tree-lined watercourses. There are no recorded priority habitats.

Forces for change

- Although the hedgerow network is generally intact it is becoming fragmented and over managed in areas dominated by arable farming. This is particularly apparent around the local character areas of Clifton Hampden, Peartree Hill, Farmoor and Charney Basset.

- Landscapes on the fringes of settlements, such as Banbury and Oxford, are particularly vulnerable to change. The area between Oxford and Kidlington is criss-crossed by roads with their associated junctions and services. There is also a significant impact from railways, hotels, golf courses, park and ride car parks. Even in relatively small settlements such as Adderbury there is a business park and a recently established golf course. Their localised impact has been mitigated to some extent by screen planting although not always with native tree and shrub species characteristic of the area.
- There is a low to moderate impact from modern residential development within villages.
- Culham laboratories have had a localised impact with their large complex of modern buildings and landscaped grounds. The dispersed nature of the buildings and ornamental planting has had an urbanising effect on the rural setting.

Landscape strategy

Conserve and enhance the well-defined pattern of hedgerows, hedgerow trees and tree-lined watercourses. Conserve nucleated settlement pattern and mitigate the impact of new built development.

Guidelines

Landscape Character
- Strengthen the field pattern by planting up gappy hedges using locally characteristic species such as hawthorn, and hedgerow trees such as oak and ash.
- Promote environmentally-sensitive maintenance of hedgerows, including coppicing and layering when necessary, to maintain a height and width appropriate to the landscape type.
- Enhance and strengthen the character of tree-lined watercourses by planting willows and ash, and where appropriate, pollarding willows.
- Promote small-scale planting of deciduous woodland blocks using locally characteristic species such as oak and ash.
- Conserve the surviving areas of permanent pasture and promote arable reversion to grassland particularly on land adjacent to watercourses.
- Minimise the visual impact of intrusive land uses at the fringes of towns and villages with small scale planting of tree and shrub species characteristic of the area. This will help to screen the development and integrate it more successfully with its surrounding countryside.
- Maintain the nucleated pattern of settlements and promote the use of building materials and scale of development that is appropriate to this landscape type. This ranges from the red brick and clay tiles of the Vale, the limestones and stone tiles of the Cotswolds, through to the ironstones and slate tiles of the Northamptonshire Uplands.

Biodiversity Strategy

Ensure that all surviving priority habitats are safeguarded, in favourable condition and management, and enhanced to meet the actions and targets identified within the relevant habitat and species action plans. Safeguard, maintain and enhance all locally important habitats in a way which is appropriate to the landscape character of the area. Promote

agri-environment schemes which will benefit biodiversity in general and protected species and farmland birds in particular.

- Priority habitats in this landscape type are relatively small and isolated. They include limestone grassland along the mainline railway embankments, some species-rich neutral grassland and fen, and species-rich hedgerows.
- Along the railway embankments establish a balance between species-rich limestone grassland and scrub. Prevent scrub encroachment in areas of species-rich grassland. Opportunities for expanding this habitat include the establishment and management of field margins/buffer strips adjacent to existing limestone grassland habitat using native wildflower species appropriate to the area
- The species-rich neutral grassland and fen site which falls partly within the local character area at Marston is an S.S.S.I. and the priority is to ensure that it is in suitable condition and management through formal agreement between the landowner and English Nature. Opportunities for successfully expanding this habitat type throughout the landscape type are limited.
- Species-rich hedgerows are distributed throughout different parts of the landscape type. Priority should be given to safeguarding, maintaining and expanding this resource particularly in those local character areas where they remain a significant feature, along parish boundaries, roads and tracks.
- Tree-lined watercourses are a feature throughout the landscape type, They should be safeguarded and enhanced by planting species such as ash and willows, pollarding willows where appropriate, and establishing buffer strips/field margins to potentially benefit small mammals, invertebrates and birds.
- Opportunities for the establishment of other locally important habitats, such as semi-improved grassland and small deciduous woodlands, should be promoted in a way to strengthen wildlife corridors and enhance the local landscape character.
- Promote the use of agri-environment schemes such as conservation headlands, over-wintered stubbles, and winter-sown crops to benefit farmland birds such as skylarks and yellowhammers.

Key Recommendations

- **Ensure that all remaining priority habitats are in favourable condition and management.**
- **Safeguard and enhance landscape character of the hedgerow network, small woodlands and tree-lined watercourses.**

20.   WOODED ESTATE SLOPES

and

VALLEY SIDES

Figure 10: Wooded Estate Slopes & Valley Sides

Designated habitats
- Lowland beech and yew woodland
- Lowland calcareous grassland
- Lowland mixed deciduous woodland

Biobands
- High
- Very High
- Medium

LDU boundaries

Banbury

A

Chipping Norton

Bicester

B

Kidlington

Witney

Oxford

Thame

Abingdon

Faringdon

Didcot

Wallingford

Wantage

C

D

Henley-on-Thames

0   5   10
kilometers
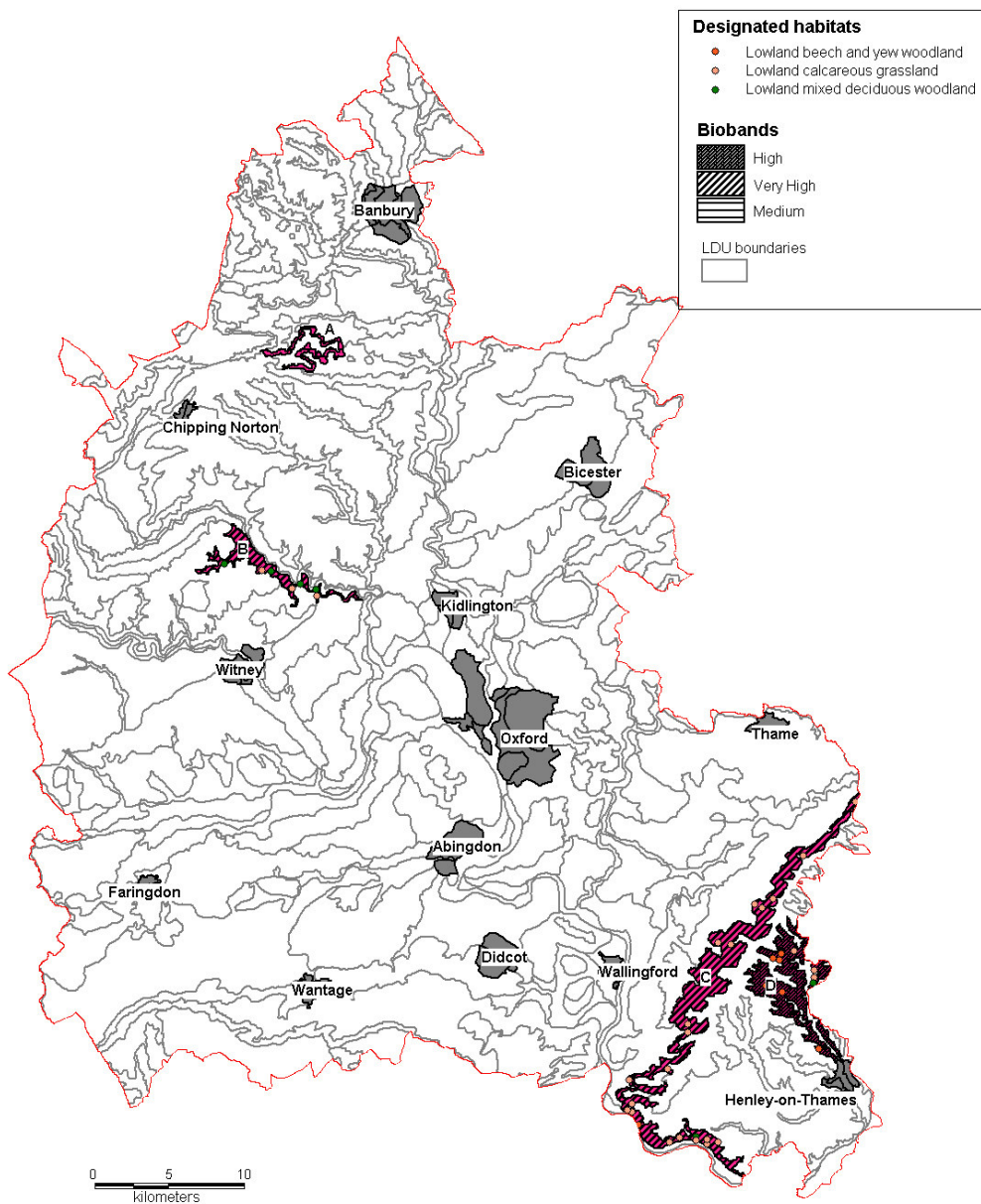
Figure 11: Wooded Estate Slopes & Valley Sides
Priority habitat: Calcareous grassland

Designated habitats
- Lowland calcareous grassland

Biobands
- Vey High
- LDU boundaries

Banbury

A

Chipping Norton

Bicester

B

Kidlington

Witney

Oxford

Thame

Abingdon

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kilometers
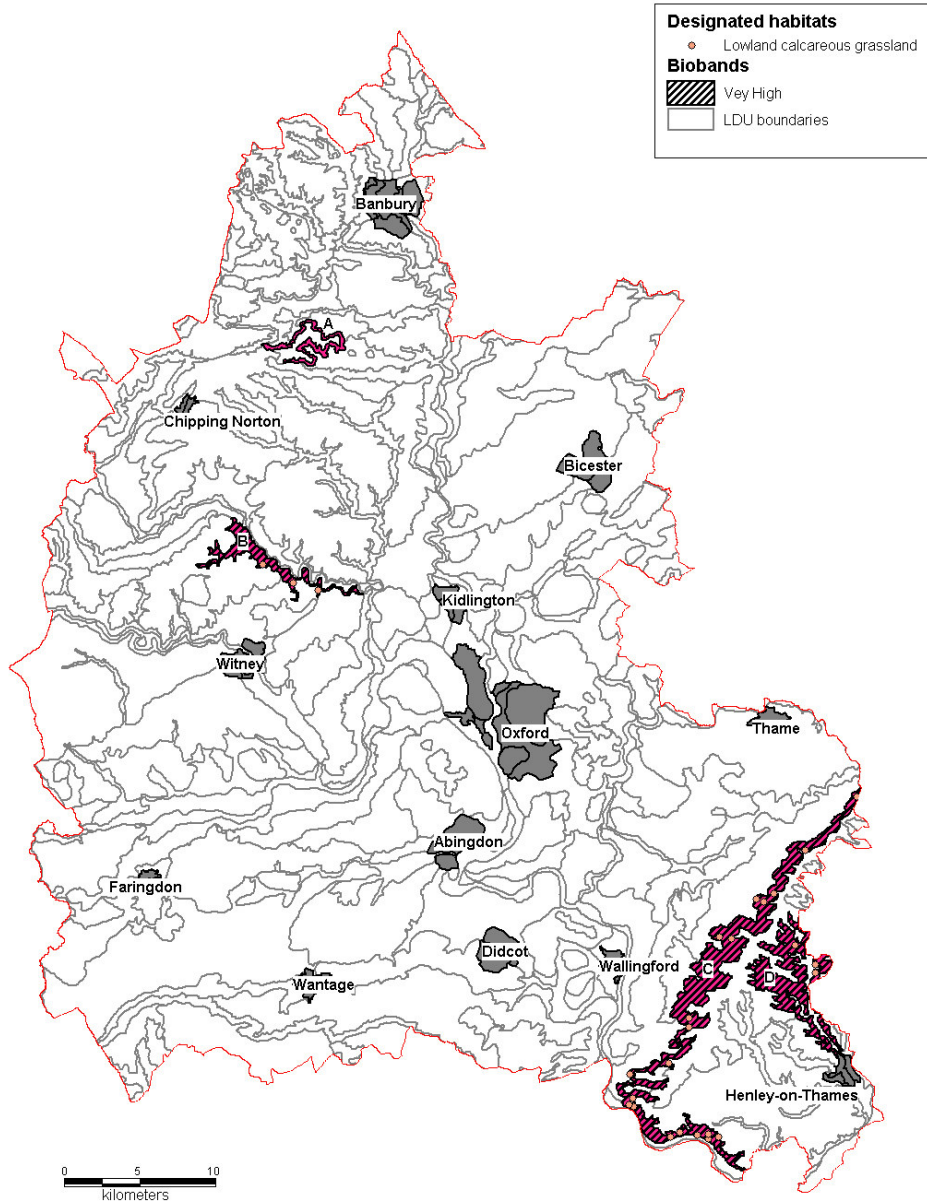
20.   WOODED ESTATE SLOPES AND VALLEY SIDES

Regional Character Areas
Northamptonshire Uplands: Cotswolds: Chilterns.

Location
This landscape type is associated with steep escarpments and slopes within the Chilterns. It also includes the area around Cornbury Park near Charlbury in the Cotswolds and steeper slopes bordering the River Swere to the west of Banbury.

Overview
This is a landscape characterised by steep escarpments and valley sides with a mosaic of extensive woodland and farmland.

Key Characteristics
• Prominent escarpments and steep valley sides.
• Blocks of ancient woodland and plantations.
• Large areas of unimproved grassland and scrub.
• Parklands and an overall estate character.
• Sparsely settled landscape.

Geology and landform
The geology of the Chilterns is the Upper Chalk and in the Cotswolds it is the Oolitic Limestone.

In the Chilterns landform is a significant visual element and it is characterised by the steep escarpment extending from Chinnor in the north to Mapledurham in the south as well as the valley sides at Stonor. The escarpment is a highly prominent landscape feature and forms an impressive wooded backdrop when viewed from the flatter vale to the north. It is particularly dramatic at its northeastern end near Chinnor and to the southeast of Goring, rising in places to over 250m. In the Cotswolds, the landform is characterised by the valley sides of the River Evenlode as well as the steep scarp further north around Swerford and Wiggington.

The escarpments and valley sides are heavily folded and dissected by narrow, minor valleys that create enclosed and intimate landscapes.

Land use and vegetation

Woodland is a dominant feature and, combined with the distinctive landform, provides a strong sense of unity and cohesion. It is generally an enclosed landscape of interlocking blocks of ancient and semi-natural broadleaved woodland. On the Chilterns escarpment, there is the characteristic ancient semi-natural woodland of beech, ash and yew. To the west of Charlbury there are the remnants of the Royal Forest of Wychwood with its large blocks of ancient, semi-natural woodland dominated by oak and ash. In this area there are also a number of mixed and deciduous plantations that contribute to the overall sense of enclosure.

The steeper slopes and valley sides still support substantial areas of unimproved calacareous grassland and scrub. The scrub consists mainly of hawthorn and blackthorn but some juniper can be found in association with

calcareous grassland on the Chilterns escarpment. This mosaic of grassland and scrub is very prominent on the slopes around Cornbury Park and parts of the Chilterns escarpment.   On the lower, gentler slopes arable farming dominates and results in a much more open landscape particularly to the west of Nuffield in the Chilterns. Parklands and their associated estates, are also characteristic of this landscape type exemplified by Stonor, Swyncombe and Coombe Parks in the Chilterns and Cornbury Park in the Cotswolds.

Cultural pattern

Most fields are small to medium-sized and irregular in shape. They may have been created through 'assarting' or clearance of the original woodland. Hedges are not prominent except in parts of the Chilterns where they interlink with the woodlands.   The fields are sometimes enclosed by lines of tall mature trees or woodland belts but, in most cases, it is a combination of woodland, scrub and tall hedges which enclose the land. Species-rich hedgerows border some of the roads on the Chilterns escarpment and may be found in association with some of the woodland along the valley sides of the River Evenlode. Hedgerow trees, of oak, ash and beech, are a prominent feature on the valley sides at Stonor with mainly oak and ash on the scarp at Swerford. The tall hedges and interlocking woods frame and contain distant views.

It is a sparsely settled landscape consisting mainly of scattered farms located at woodland edges, tucked away in minor valleys and at the foot of the Chilterns escarpment. There is a range of traditional building materials and styles including old timber-framed houses and more recent brick, brick and flint with clay tiles in the Chilterns through to stone houses with stone tiles in the Cotswolds. Country mansions, within the setting of their own parklands, are a significant feature at Stonor, Cornbury and Swyncombe. Sunken roads and lanes, bordered by species-rich hedges, are characteristic of the Chilterns escarpment and valley sides at Stonor.

Biodiversity

Overview

This landscape type supports a wide range of habitat types including priority habitats of national and international importance.

Key Characteristics

• Bioscores/biobands range from medium to very high.
• Priority habitats include ancient beech-yew woodland, calcareous grassland and juniper scrub, acid grassland and heath.

General Appraisal

This is a relatively small landscape type occupying around 2.2% of the rural county.

It supports a range of locally important habitats including beech woodland, mixed and deciduous plantations, semi-improved grassland and scrub. However, it is particularly notable for its priority habitats along the Chilterns escarpment including ancient beech-yew woodland, species-rich hedgerows, calcareous grassland with juniper scrub, and acid grassland and heath. Around Cornbury Park there are also substantial blocks of ancient semi-natural woodland, veteran trees, species-rich ponds and watercourses

Local Character Areas (Figure 8)

A. Swerford (NU/3)

Landscape Character
The steep slopes around Swerford are dominated by small grass fields and small woods. The woodland is mainly mixed and deciduous plantations of oak, ash, and beech. There is one block of ancient semi-natural oak and ash woodland. On the steeper slopes there are isolated areas of semi-improved grassland interspersed with gorse scrub. The fields are enclosed by woodland, dense rows of trees and tall hawthorn hedges which are generally in good condition.

Biodiversity
Bioscore/Bioband: 77/M
As in other parts of the landscape type there is a similar range of locally important habitats including plantations, semi-improved grassland, scrub and species-poor hedgerows with trees. Apart from a block of ancient semi-natural woodland the only other notable habitats recorded include parkland at Swerford, patches of gorse scrub growing on some of the steeper slopes, and some species-poor wet grassland.

B. Cornbury Park (CW/17)

Landscape Character
This part of Cornbury Park slopes down towards the River Evenlode and is largely characterised by its ancient oak and ash woodland interspersed with farmland dominated by semi-improved grassland.

There is some unimproved limestone grassland and scrub on the steeper slopes and valley sides. Fields are generally small and enclosed by hedgerows of hawthorn, field maple, elm and scattered mature ash trees. There are occasional species-rich hedges, often close to woodland, with hazel, field maple, wild privet and dogwood. Overall, the field boundaries are in good condition.

Biodiversity
Bioscore/Bioband: 158/VH
This area has a number of locally important habitats including deciduous and mixed plantations, semi-improved grassland and scrub. It also covers a significant part of Cornbury Park, including Wychwood the largest single block of ancient semi-natural woodland in the county, parkland with its veteran trees, calcareous grassland, species-rich hedgerows with trees, and species-rich ponds and watercourses.

C. Chilterns escarpment (CH/4)

Landscape Character
The Chilterns escarpment is dominated by extensive blocks of ancient beech and beech-yew woodland particularly at its northern and southern ends. There are also occasional blocks of ancient oak woodland adjacent to more recently planted woods and beech plantations. Along parts of the escarpment there are significant areas of unimproved chalk grassland interspersed with hawthorn, blackthorn and gorse scrub. Sunken lanes are a characteristic feature and the hedgerows often support species such as spindle, dogwood,

wild privet, hazel and field maple. Generally speaking, the hedges tend to be tall and in good condition particularly where they border roads and green lanes. By contrast, to the west of Nuffield where arable farming dominates, there are few surviving field boundaries.

At its north-eastern end, near Aston Rowant, the M40 cuts through the escarpment resulting in steep-sided chalk faces.

Biodiversity
Bioscores/Biobands: 278/VH
Locally important habitats include secondary beech woodland and plantations, semi-improved grassland, scrub and species-poor hedges with trees. However, it is particularly notable for the range of priority habitats found along the length of the escarpment. At the north-eastern end there is Aston Rowant National Nature Reserve and Special Area of Conservation with its extensive areas of ancient beech-yew woodland, calcareous grassland and juniper scrub. The chalk faces exposed by the route of the M40 are also of geological interest. At the opposite end of the escarpment, south of Streatley, there is the Hartslock nature reserve and Special Area of Conservation which has a similar range of priority habitats, At Shirburn Hill there is also some surviving patches of chalk heath. Throughout the rest of the escarpment there is an extensive interlocking network of ancient, semi-natural woodland and species-rich hedgerows.

D. Stonor Valley sides (CH/16).

Landscape Character
The steep valley sides around Pishill and Stonor Park are characterised by large blocks of ancient beech woodland and smaller mixed and coniferous plantations. Fields are enclosed by wide woodland belts and tall hedges with mature trees of oak and ash. The species-rich hedges which border the sunken lanes and tracks are particularly dense and thick. They include species such as beech, yew, holly, spindle and dogwood. Most hedges are in good condition but have either been removed or become gappy in areas dominated by arable farming. Stonor House and its associated parkland is a very distinctive feature.

Biodiversity
Bioscore/Bioband: 137/H
The valleys around Stonor and Pishill support a range of locally important habitats including plantations, semi-improved grassland and scrub. Priority habitats include ancient beech woodland and calcareous grassland at places like Bix. Stonor Park also has areas of calcareous grassland.

Forces for change

- Within the Chilterns, a significant issue is sustaining the quality of its landscape and biodiversity resource. Woods are often in unfavourable condition and management and, because of changes in agriculture it is often very difficult to sustain grazing on areas of unimproved chalk grassland.
- At Cornbury Park there are similar concerns relating to the long-term management of ancient semi-natural woodland and limestone grassland. Long-term sustainability of veteran trees within the parkland remains a challenge.

- Overall, hedgerows appear to be in reasonably good condition with the possible exception being the more intensively managed arable areas to the west of Nuffield
- This is a sparsely settled landscape with low impact from built development. The challenge is to ensure that the quality of the development remains in keeping with the scale and local distinctiveness of the landscape type. Changes to farm buildings, such as barn conversions, may potentially have a localised impact on landscape and biodiversity.
- The threat from future mineral extraction is low although the restoration and long-term management of a cement works and associated chalk quarry at the foot of the escarpment near Chinnor is yet to be resolved.
- The M40 motorway cutting through the chalk escarpment near Lewknor strongly impacts on the landscape.
- Part of the landscape type falls within the Chilterns Area of Outstanding Natural Beauty. A management plan for the A.O.N.B is currently being reviewed and should have a positive influence on the future landscape character and biodiversity of the area.

Strategy

Landscape Character
Safeguard, maintain and enhance the quality of the landscape type through promotion of sustainable woodland management and agricultural practices.

Guidelines

- Promote the sustainable management of existing woodland to safeguard its long-term survival. Within the Chilterns this should be in line with the Chilterns A.O.N.B Woodland Policy Statement (1992).
- Safeguard, maintain and enhance the quality of unimproved chalk and limestone grassland through the promotion of sustainable grazing projects. Identify opportunities for calcareous grassland restoration by linking and extending the existing resource, particularly along the Chilterns escarpment.
- Strengthen the hedgerow pattern where it is weak by planting up gaps using tree and shrub species appropriate to the type of hedge and its locality. Promote the planting of tree-lines and broadleaved woodland belts to link existing woodland and reinforce the characteristic mosaic of woodland and farmland.
- Maintain local distinctiveness by controlling the quality of built development taking into account its scale, setting and use of local building materials. Where appropriate this should conform to design guidelines prepared by Local Authorities and the Chilterns A.O.N.B. Management Board.
- Safeguard, maintain and enhance and the characteristic landscape features of existing parklands including veteran trees, avenues of trees, lakes, woods and stone or brick walls.

Biodiversity

Strategy
Ensure that all surviving priority habitats are safeguarded, in favourable condition and management, and enhanced to meet the actions and targets identified within the relevant habitat and species action plans.

• Much of this landscape type supports a wide range of priority habitats and the emphasis should be on conserving and, where appropriate, extending this resource.

• A significant proportion of the ancient semi-natural woodland within the Chilterns and Cotswolds has been designated as Sites of Special Scientific Interest, National Nature Reserve or Special Area of Conservation. The priority must be to ensure that all these sites are in favourable condition and management by formal agreement, where appropriate, between the landowner and English Nature.

• Similarly, much of the unimproved calcareous grassland within the landscape type has a statutory or non-statutory wildlife designation. The priority must be to ensure that all these sites are in favourable condition and management. With S.S.S.I.s this can be achieved, where appropriate, through formal agreement between the landowner and English Nature. For county wildlife sites this can be promoted with advice from organisations such as the Farming and Wildlife Advisory Group and the appropriate targeting of agri-environment schemes. Opportunities for extending and linking this resource should also be promoted by targeting agri-environment schemes particularly along parts of the Chilterns escarpment.

• There is only a limited amount of acid grassland and heath within the landscape type. This is primarily associated with Shirburn Hill S.S.S.I. and the priority is to ensure that it remains in suitable condition and management through formal agreement between the landowner and English Nature. Opportunities for extending this resource are limited.

• Species-rich hedges are a significant feature throughout the landscape type. They should be safeguarded, where appropriate, with the use of the Hedgerow Regulations administered by Local Authorities and enhanced by sympathetic management and replanting, if necessary, using native tree and shrub species characteristic of the area.

• Parklands, and their associated habitats of woodlands, trees, lakes and grassland, make a significant contribution to the biodiversity resource of the landscape type. Some parklands support veteran trees and a priority must be to ensure that there is a sustainable, long-term programme for safeguarding and perpetuating this resource.

Key Recommendations

A significant proportion of this landscape type is of prime landscape and biodiversity importance. The emphasis must be placed on conservation and, where appropriate, expansion of this resource. Opportunities for restoration and expansion of calcareous grassland, particularly along parts of the Chilterns escarpment, is strongly recommended to benefit both landscape character and biodiversity.

CHAPTER 3

POTENTIAL USES AND BENEFITS
of the
STUDY

INTRODUCTION

From the outset, one of the key objectives of the study was to establish a framework for providing strategic guidance to a wide range of user groups with an interest in landscape character and biodiversity.

In September 2003, the County Council presented the study to a number of different user groups and sought their opinion on the following points:

- Potential uses and benefits of the study.

- Potential access to the system.

- Potential issues relating to the future use of the system.

A summary of the key points arising from these presentations is provided below.

1. **POTENTIAL USES and BENEFITS of the STUDY**

    (i) PLANNING

    There is the potential to inform the planning system at both the strategic and development control levels. (See Appendix 9 – Strategic Planning Case Study – Didcot West).

    (a) Development Plans

    The study could be used as a valuable tool for assessing the broad variation in landscape character and biodiversity throughout the county, both within and between different landscape types. Used judiciously, this information could be used to help locate development where it will have the least impact on landscape character and biodiversity. This should not be misinterpreted as always directing development into landscape types which appear to have the fewest landscape and biodiversity constraints. There is no reason why development should not be accommodated within any landscape type. However, it may well be that the eventual scale and location of the development is strongly influenced by landscape and biodiversity constraints and the project provides a valuable tool for flagging these up at an early stage.

(b)   Development Control

Within each landscape type there may well be significant variations in landscape character and biodiversity at a local level. This is reflected to some extent through the descriptions provided for each local character area within each landscape type. However, when more specific locations for development are being considered, it may be necessary to undertake more detailed landscape/biodiversity surveys to record information which is currently unavailable at the strategic scale. For example, more detail on protected species or the condition of landscape features, such as woodlands and hedgerows, may significantly influence where development is eventually located.

When a decision has been made on the exact location for development then this valuable local information can be used to identify key features which may need to be protected and retained. These locally important features can provide a basic framework for rebuilding the landscape as part of an agreed restoration plan or Green Space Strategy. The study also provides an overall context for deciding on the landscape character and habitats that are entirely appropriate to any given location. This should help to address the problem of new development integrating badly with its countryside setting.

(c)   Planning Obligations

Assuming that a satisfactory landscaping plan has been agreed it is equally important that provision is made for the long-term maintenance of landscape features and habitats. This can be achieved through the negotiation of S.106 agreements as part of any planning permission that is granted. Ideally, this should result in a sustainable environment which significantly enhances the landscape character and biodiversity of that area.

(ii)   AGRI-ENVIRONMENT SCHEMES

(See Appendix 10 – Targeting of agri-environment support case study. Priority habitats – calcareous grassland).

At present, there are two agri-environment schemes operating within the county. They are the Upper Thames and its Tributaries Environmentally Sensitive Area and Countryside Stewardship Schemes. It is likely they will both be incorporated into a new scheme which is currently being piloted by DEFRA. This is likely to take place in the summer of 2004.

All landowners should be encouraged to safeguard, maintain and enhance key landscape features and habitats on their land. The preparation of whole farm plans and the use of agri-environment funding may facilitate this process.

The study may help to provide strategic guidance on landscape character and biodiversity appropriate to each landscape type and this could be utilised by organisations such as DEFRA and FWAG when advising landowners.

Although the new entry-level agri-environment scheme, currently being piloted by DEFRA, will not be in operation until summer 2004 the project has had access to a draft copy of the guidance booklet. Where appropriate, every attempt has been made to match this guidance with the strategies and guidelines identified for each landscape type.

(iii) FACILITATING THE BIODIVERSITY ACTION PLANNING PROCESS

Through the use of the priority habitat maps described in 1 (v), the project can assist the B.A.P. process in two possible ways.

- Identifying landscape types which can potentially sustain specific priority habitats.

- Highlighting landscape types which provide the best opportunities for the restoration and long-term sustainability of specific priority habitats.

Clearly, all landowners should be encouraged to manage and enhance any priority habitats on their land. However, when considering the restoration and expansion of these priority habitats, it is arguably more cost-effective to target additional funds into landscape types which currently support substantial blocks of well-managed priority habitat. These can be linked and expanded to provide more sustainable land-management units which also facilitate the process of natural re-colonisation.

(iv) LOCAL COMMUNITY INVOLVEMENT

The Oxfordshire Nature Conservation Forum has encouraged many parishes and communities to become involved in local conservation projects. They have been encouraged to carry out surveys and prepare Parish Conservation Plans which highlight the important landscapes and habitats in their area.

The project will be able to provide a context for these plans by linking them to their appropriate landscape type(s). This perspective on landscape character and biodiversity could influence thinking on local pride and distinctiveness and potentially lead to action on the ground. This, in turn, could feed into the Community Strategies currently being developed by Local Authorities within the County.

(v) DATA INTEGRATION

One of the main strengths of the system is the ability to develop and expand a multi-functional G.I.S. database which integrates many different datasets. This may include a historic landscape assessment of the county as well as more detailed species information. There is also the potential for monitoring/updating change at different tiers and, as a result, have the capability of feeding into local and national strategies.

2.   POTENTIAL ACCESS to the SYSTEM

The aim is to make the study widely available to as many user groups as possible. A number of ideas were discussed at the stakeholder presentations and these are described below.

(i)   Reports/Publications

It was accepted that reports, however useful, do have their limitations and can be difficult to update. However, they were regarded as an essential back-up to other systems and a limited number should be published and made available as necessary.

The preparation of leaflets to promote the new project, particularly if it is included in the O.C.C. website, was regarded as a useful exercise. These could be distributed through libraries and other suitable outlets.

(ii)   CD-ROMS

Again, CD-ROMS were regarded as a useful tool but with only a limited distribution.

(iii)   Geographical Information System

This is an extremely powerful tool which allows the data to be viewed and analysed in different ways. It is a flexible map-based system that can make the transfer and updating of information relatively easy. Oxfordshire County Council operates a MAPINFO G.I.S. and one of the study outcomes is to establish a database within this system. Potentially, the data or map layers will be available to other institutions which operate similar Geographical Information Systems. MAPINFO and ARCVIEW appear to be the most commonly used systems and these are generally used by Local Authorities, Universities etc.

(iv)   Website

The use of the world wide web was seen as the most important method for making the system potentially available to a wide range of user groups. "Free" access, particularly to local communities, was seen to be important.

The proposal currently under discussion is to incorporate the results of the study into the Oxfordshire County Council website.

3.   POTENTIAL ISSUES RELATING to the FUTURE USE of the SYSTEM

The general comment arising out of the presentations was that the study had many strengths and should continue to be developed and improved. However, as one might expect with a new pilot study, a number of issues were raised and some of these are highlighted below.

(i)   Maintaining/updating the system

The need to maintain the project beyond the pilot stage was seen to be of paramount importance. The project will be finishing around spring

2004 and clearly maintaining it beyond that date has resource implications. At the very least it is anticipated that the biodiversity data on priority habitats and species will be regularly monitored and updated through the work of the new Thames Valley Environmental Records Centre and other recording organisations.

(ii) Misinterpretion of the Biomap

There is concern that planners and developers may take a simplistic view of the biomap and possibly interpret areas with low bioscores as the best places to concentrate development. A bioscore is a basic measure of the number and type of habitats present within an individual landscape description unit. It can only provide an overview of biodiversity at the broad landscape scale. Invariably, there is significant variation in biodiversity interest, both within and between different landscape types, and more detailed surveys may be required to highlight these differences at the local scale. The biomap should not be considered in isolation. It has to be seen within the context of its landscape type and its associated landscape character.

(iii) Agri-environment funds should not just be focused on priority habitats

The proposal to target agri-environment funds to benefit priority habitats was welcomed but this should not be necessarily at the expense of locally important landscape features and habitats within the wider countryside.

(iv) Incorporating additional datasets

It was generally agreed that the system could be made more robust by adding new datasets such as historical landscape or species information.

(v) Limitations of recording habitat data in the field

Recording habitat information at the landscape scale inevitably means that local details will be missed. Similarly, it was often difficult to record other field parameters such as habitat size, extent, proximity and condition. The use of digitised aerial photography may provide more accurate information that could be recorded in advance of any field work.

(vi) Landscape Description Unit size and bioscores

Each bioscore was based partly on the number of habitats recorded within an individual landscape description unit. Logically, this means that the size of a unit can influence the eventual bioscore. Potentially, the larger the unit the higher the bioscore and vice versa. The results suggest that there was a size bias in some large landscape units and, as a result, their bioscores were thought to be too high. However, the general perception was that the biomap appeared to be a reasonable reflection of the variation in habitat biodiversity across the county. The biomap should only be used to provide guidance at the broad landscape

scale and backed up with more detailed surveys at the local scale if necessary.

(vi) How does the O.W.L.S. landscape character assessment fit with other L.C.A.s within the County?

There are already many local L.C.A.s operating within the county. The majority of District Councils and bodies responsible for Areas of Outstanding Natural Beauty have commissioned their own assessments over the past 5-6 years. As most of these assessments are based on slightly different methodologies which do not make use of the L.D.U. framework it is inevitable that there will be some discrepancies compared with the county-wide Oxfordshire study.

The other main differences between O.W.L.S. and other comparable assessments is that it is linked to a G.I.S. database and also incorporates biodiversity data at the landscape scale.

It is not intended to duplicate the detail already available in all the other landscape assessments. Hopefully, it should complement them and provide a broad overview of the whole county and, for the first time, establish a link between landscape character and biodiversity.

(vii) The system should be used as a tool for influencing change in the countryside and not just another planning constraint

Change in the countryside is inevitable. The main purpose of the project is to help manage this change in a way which will hopefully safeguard and enhance the landscape and biodiversity resource within the county.

SUMMARY

The Oxfordshire Wildlife and Landscape Study was originally designed as a pilot study to investigate the relationship between landscape character and biodiversity. It was also the aim to establish a G.I.S. database which could be used in a practical way to influence and guide countryside change within the county. It is being piloted and tested within Oxfordshire but the national agencies sponsoring the study may also wish to promote its use at regional and national levels. Through the use of Geographical Information Systems there is the potential for developing a very powerful tool that can operate at any chosen scale.

Within Oxfordshire the objective is to reach as many user groups as possible. The current proposal is to establish parts of the study on Oxfordshire County Council's website and encourage feedback so that the system can be strengthened and improved over time.

CONCLUSIONS

The results of this three year pilot study were never intended to be final or conclusive. Its main purpose was to highlight the potential relationship between landscape character and biodiversity, and simultaneously provide a basic framework for safeguarding, maintaining and enhancing this resource within the county. In order to make the study more robust and effective over time it needs to be rigorously tested by a wide range of stakeholders.

CHAPTER 4

OXFORDSHIRE WILDLIFE AND LANDSCAPE STUDY

ISSUES AND RECOMMENDATIONS

1. **GENERAL ISSUES**

    • The study has provided a very useful framework for strategic guidance on landscape/biodiversity issues for a potentially wide number of different stakeholders. However, it is still a pilot study and more work is required to make the system more robust and user-friendly.

    • As things stand, the system for recording information in the field is complicated, time-consuming, and not all that accurate. If the project is to be promoted more widely then it needs to be simpler, quicker and less expensive to undertake.

2. **LANDSCAPE CHARACTER METHODOLOGY**

    ISSUES

    • At present, there appears to be a number of different approaches to landscape character assessment. Unfortunately, not all these are compatible and this makes interpretation across different administrative boundaries very difficult. For example, in Oxfordshire, nearly all the District Councils have their own assessment and both the Cotswolds and North Wessex Downs A.O.N.B.s have theirs. The only one which is directly compatible with the OWLS project is the Cotswolds assessment. This is not only a waste of resources but it makes integration within and between counties almost impossible. The merit of the assessment used for OWLS is that it is part of a national typology based on national datasets, albeit at a fairly broad scale level 1, which potentially allows for an integrated system over the whole country.

    • However, one of the main drawbacks about using this particular assessment is that recording in the field is very time consuming and expensive for various reasons. It should be possible to complete part of the recording sheet for each landscape description unit from aerial photographs if they are available. Also, if other counties are similar to Oxfordshire, there are large expanses of countryside which are very similar and it may not be necessary to visit every corner of every landscape unit to get the required information. All the recording was undertaken within land cover parcels which are smaller sub-divisions of each landscape description unit. A lot of repetitive information was collected at this level before being summarised for the relevant landscape description unit. There may be some merit in sampling selected areas within each landscape description unit in a lot more detail, rather than recording general information for all the land cover parcels, to get a much more accurate record of condition etc.

Recommendations

- **National Agencies to promote a single approach to landscape character assessment preferably one that can be easily integrated across the country.**

- **If the assessment used for the OWLS project is chosen then the Agencies should encourage, and possibly resource, the refinement of the system to the more detailed level 2.**

- **Make better use of aerial photographs to complete record sheets, still visit each landscape description unit to get a broad overview of area, and be more selective about detailed surveys in the field.**

BIODIVERSITY APPRAISAL

GENERAL METHODOLOGY

- The methodology used for recording and scoring biodiversity at the landscape scale was largely developed as part of the study although it was partly based on previous work undertaken by Reading University for English Nature. This involved recording different habitat parameters, such as type and condition, in the field for each landscape unit. This information was supplemented by existing habitat data on all the known designated wildlife sites in the county. Unfortunately, because of recording at the broad landscape scale, it was very difficult to accurately record some of these parameters, particularly size and proximity. Again, much of this information could have been recorded more accurately from aerial photos. It was also very difficult, for a number of reasons, to record the condition of many habitats in the field even if there was an agreed way of measuring this parameter. There may be some merit in surveying sample areas in more detail, in the same way that was suggested for the landscape assessment, to get a more reliable indication of condition etc. In Oxfordshire, we were fortunate to have reasonably accurate and up-to-date information for most of the wildlife sites which we could use for the study.

- The habitats recorded were largely derived from the National Vegetation Classification System. There was a reasonably large number of these and, for relatively inexperienced surveyors, it was sometimes difficult to easily distinguish between some habitat types. For example, in Oxfordshire there is neutral grassland, marshy grassland and flood meadows and the differences between these in the field isn't always obvious and for the purpose of the scoring system unnecessary. Ideally, it would be much easier and quicker to record fewer and more clearly defined habitats in the field if this could be achieved without loss of quality.

Recommendations

- **Make better use of aerial photos for recoding certain habitat parameters at the landscape scale.**

- **Design a simpler and more user-friendly habitat classification system.**

SCORING SYSTEM

ISSUES

- A simple arithmetic system for scoring habitat type, size, proximity and condition was devised. It worked fairly well for the designated wildlife sites but, for the reasons outlined above, couldn't be applied with any confidence to many of the other habitats recorded in the field.

- When calculating scores for each landscape unit the number of different habitats was taken into account. In practice, this meant that the larger the unit the more habitats were recorded and, in some cases, this led to an inevitable size bias resulting in some units ending up with higher bioscores than expected. However, it may be possible to partly overcome this problem by sub-dividing some of the larger units into smaller, more homogenous ones as part of the field assessment process.

- Although it was relatively easy to overlay each landscape unit with the known designated wildlife sites it was still sometimes difficult to accurately assess the number of sites that fall within the unit and therefore contribute to the overall score. It may be quicker and more accurate to use a G.I.S database which can do this calculation rather than rely on a subjective visual assessment.

Recommendations

- **Make better use of aerial photos and more detailed field assessment of sample areas to obtain more accurate record of habitat parameters.**

- **Overcome scoring size bias between different landscape units.**

- **Make full use of existing information on designated wildlife sites and develop more accurate method of relating them to specific landscape types.**

RECORDING/MONITORING

- If the system is to have any long-term value then some effective method needs to be devised for reviewing and monitoring change in the countryside. With the recent establishment of the Records Centre in Oxfordshire recording and monitoring change of priority habitats is going to be much easier in the future. However, recording change in the wider countryside is more problematical particularly if the same methods used for the study are employed. It may be necessary to re-design the recording sheets and use a combination of regular recording in chosen sample areas and agri-environment data obtained from DEFRA, to build up an accurate and reliable picture of change. Without such an approach it will be very difficult to determine what

changes are taking place in the countryside and whether public money is being spent effectively to influence this change.

- If the recording system is going to be re-designed and improved then there is a strong argument for combining the landscape assessment and habitat recording sheets as much as possible. There was some overlap between the two sheets used in the study and this was both time consuming and inefficient.

- The landscape assessment sheet currently includes information on the built environment, historical features as well as sections on landscapes and habitats. It is asking a great deal of any one single recorder to cover this breadth of expertise. As a result, there is always the danger of recording a lot of information which isn't necessarily of the highest quality. There may some merit in separating some of this information out and focusing on one area of expertise and securing better quality data as a result. For the purpose of the OWLS project, which was looking at the relationship between landscape character of the wider countryside and biodiversity, it may have been better to train someone to a higher level of expertise in these areas rather than expect them to comment on vernacular architecture and other factors which did not contribute significantly to the final outcome. This is not to underplay the importance of these other factors in landscape assessment but there may be some value if they were treated separately and the work undertaken by individuals with specialist training to do the subjects full justice. If they were treated as separate 'modules' then Local Authorities could decide on priorities particularly if resources are limited. They could choose to undertake any one of three landscape/biodiversity, historic landscape assessment or built environment modules within a year, for example, or do all three over 3 years or any other combination over a chosen timescale. As long as the basic G.I.S. framework for recording, storing and analysing data is in place there is no reason why a more flexible approach should not be adopted.

Recommendations

- **Re-design and simplify landscape/habitat recording sheets to avoid duplication and facilitate future monitoring/review of the resource.**

- **Consider merits of separating out landscape/biodiversity, historic landscape and built environment aspects of recording sheets into three separate modules to improve quality of results and spread costs of undertaking assessments if necessary.**

- **Consider merits of extending role of Records Centres to take on independent monitoring/review of countryside change within their respective areas.**

APPENDIX 1

LANDSCAPE CHARACTER

SURVEY SHEET

APPENDIX 2

HABITAT FIELD
SURVEY SHEET

APPE

APPENDIX 3

OXFORDSHIRE HABITATS

HABITAT CODE	HABITAT TYPE	ABBREVIATIONS
	BROAD LEAVED, MIXED AND YEW WOODLAND **Lowland beech (UKB.A.P.)**	**WOODLAND**
1.1.H.B.A.P.	Beech ancient	(be/anc)
1.2.M.B.A.P.	Beech secondary	(be/sec)
1.3.L.B.A.P.	Beech plantation	(be/pla)
1.4.H	Yew/beech ancient	(yew/be/anc)
1.5.H	Yew/beech secondary	(yew/be/sec)
	Wet woodlands (UKB.A.P.)	
1.6.H.B.A.P.	Wet woodland ancient	(wet/anc)
1.7.M.B.A.P.	Wet woodland secondary	(wet/sec)
1.8.L	Wet woodland plantation	(wet/pla)
1.9.H	Other deciduous ancient woodland	(de/anc)
1.10.M	Other deciduous secondary woodland	(de/sec)
1.11.L	Other deciduous plantation	(de/pla)
1.12.M	Mixed ancient woodland	(mi/anc)
1.13.M	Mixed secondary woodland	(mi/sec)
1.14.L	Mixed plantation	(mi/pla)
	Lowland wood pasture and parkland (UKB.A.P.)	**PARKLAND**
1.15.H.B.A.P.	Parkland with scattered trees (veteran)	(ve)
1.16.M.B.A.P.	Parkland with scattered trees (mature)	(ma)
1.17.M	Mixed scrub – dense/continuous	(den/con)
1.18.M	Mixed scrub – scattered	(sca)
	CONIFEROUS WOODLAND	
2.1.M	Conifer secondary woodland	(co/sec)
2.2.L	Conifer plantation	(co/pla)
	BOUNDARY AND LINEAR FEATURES **Ancient and/or species rich hedgerows (UKB.A.P.)**	**HEDGES**
3.1.H/B.A.P.	Ancient/species rich hedges	(sp-ri)
3.5.H.B.A.P.	Hedges – with trees – species rich (old/younG.I.S.h)	(sp-ri/tr)
3.3.L	Species poor hedges	(sp-po)
3.6.M	Hedges – with trees – species poor (old/younG.I.S.h)	(sp-po/tr)
	ARABLE AND HORTICULTURE	**ARABLE**
4.1.M	Arable fields (sandy/shallow calcareous soil)	(sa/ca)
4.2.M	Arable field with unsprayed margins	(marg)
4.3.L	Arable field (heavy/clay soils)	(cl)
4.4.L	Set aside	
	Cereal field margins (6m width) (UKB.A.P.)	
4.5.M.B.A.P.	Cereal field margins (6m width)	(marg/6m)
	IMPROVED GRASSLAND **Coastal and floodplain grazing marsh (UKB.A.P.)**	**GRASSLAND**
5.1.M.B.A.P.	Species poor wet grassland	(wet/sp-po)
5.2.L	Improved grassland	(imp)
5.3.L	Grass leys	(ley)
5.4.L	Cultivated land (amenity grassland)	(am)
5.5.M	Semi-improved grassland	(se-imp)

HABITAT CODE	HABITAT TYPE	ABBREVIATIONS
	NEUTRAL GRASSLAND **Lowland meadows (UKB.A.P.)**	
6.1.H.B.A.P.	Flood meadows	(flo-mead)
6.2.H.B.A.P.	Marsh/marshy grassland	(mars)
6.3.H.B.A.P.	Drier meadows	(dry-mead)
6.4.H.B.A.P.	Other neutral grassland	(neu)
	CALCAREOUS GRASSLAND **Lowland calcareous grassland (UKB.A.P.)**	
7.1.H.B.A.P.	Species-rich calcareous grassland	(ca/sp-ri)
7.2.H.B.A.P.	Juniper scrub	(jun)
	ACID GRASSLAND **Lowland dry acid grassland (UKB.A.P.)**	
8.1.H.B.A.P.	Acid grassland	(ac)
	BRACKEN	
9.1.L	Bracken	
	DWARF SCRUB HEATH **Lowland heathland (UKB.A.P.)**	**HEATHLAND**
10.1.H.B.A.P.	Lowland dry heath (with acid grassland)	(low/dry)
10.2.H.B.A.P.	Wet heath/acid mire	(low/wet)
10.3M.B.A.P.	Gorse scrubland (acid grassland)	(go)
	FEN, MARSH AND SWAMP **Reedbeds (UKB.A.P.)**	**FEN**
11.1.H.B.A.P.	Reed swamp	-
11.2.M	Innundation swamp (riverside etc)	(ci)
	Fens (UKB.A.P.)	
11.3.H.B.A.P.	Calcareous fen/flush	(ca)
11.4.H.B.A.P.	Fen meadow/mire	(mead/mir)
	BOGS	**BOGS**
12.H	Bogs	-
	STANDING OPEN WATER AND CANALS **Mesotrophic standing waters (UKB.A.P.)**	**PONDS/LAKES:** **CANALS/DITCHES**
13.1.H.B.A.P.	Ponds and lakes (species rich)	(sp-ri)
13.2.M.B.A.P.	Ponds and lakes (species poor)	(sp-po)
13.3.H.B.A.P.	Linear standing water features (species rich)	(sp-ri)
13.4.L.B.A.P.	Linear standing water features (species poor)	(sp-po)
	Eutrophic standing waters (UKB.A.P.)	**RIVERS/STREAMS**
13.5.L.B.A.P.	Ponds and lakes (species polluted/highly eutrophic)	(eut)
	RIVERS AND STREAMS	
14.1.H	Linear running water features (species rich)	(sp-ri)
14.2.L	Linear running water features (species poor)	(sp-po)
14.3.M	Watercourse trees	(wa)
	INLAND ROCK	
16.1.M	Soft cliff	(soft)
16.2.L	Hard cliff	(hard)
	BUILT UP AREAS AND GARDENS	
17.1.L	Built-on/surfaced land	-
	OTHER	
18.1.L	Bare quarry	-
18.2.M	Tall herb/ruderal (species rich)	(sp-ri)
18.3.L	Wall	-
18.4L	Herb/ruderal (species poor)	(sp-po)

APPENDIX 4

OXFORDSHIRE HABITAT GROUP SCORES

HABITAT CLASSIFICATION SCORING SYSTEM

HABITAT CODE	HABITAT TYPE
	H.BAP HABITATS (15)
1.1H.BAP	Beech ancient
1.6H.BAP	Wet woodland ancient
1.15H.BAP	Parkland with scattered trees (veteran)
3.1H.BAP	Ancient/species-rich hedges and trees
6.1H.BAP	Flood meadows
6.2H.BAP	Marsh/marshy grassland
6.3H.BAP	Drier meadows
6.4H.BAP	Other neutral grassland
7.1H.BAP	Species-rich calcareous grassland
7.2HBAP	Juniper scrub
8.1H.BAP	Acid grassland
10.1H.BAP	Lowland dry heath
10.2H.BAP	Wet heath/acid mire
11.1H.BAP	Reed swamp
11.3H.BAP	Calcareous fen/flush
11.4H.BAP	Fen meadow/mire
13.1H.BAP	Species-rich ponds/lakes
13.3H.BAP	Species-rich canals/ditches
	H HABITATS (12)
1.4H	Yew/beech ancient woodland
1.9H	Other deciduous ancient woodland
12H	Bogs
14.1H	Species-rich rivers/streams
	M.BAP HABITATS (9)
1.2M.BAP	Beech secondary woodland
1.7M.BAP	Wet woodland secondary
1.16M.BAP	Parkland with scattered trees (mature)
5.1M.BAP	Species-poor wet grassland
13.2M.BAP	Species-poor ponds/lakes
4.5M.BAP	Cereal field margins
	M HABITATS (6)
1.10M	Other deciduous secondary woodland
1.13M	Mixed secondary woodland
1.17M	Mixed scrub – dense/continuous
1.18M	Mixed scrub – scattered
2.1M	Conifer secondary woodland
3.6M	Species-poor hedges/trees
4.1M	Arable fields (sandy/shallow calcareous soil)
4.2M	Arable (unsprayed margins)
5.5M	Semi-improved grassland

HABITAT CODE	HABITAT TYPE
	M HABITATS contd
11.2M	Inundation swamp (riverside)
14.3M	Watercourse trees
16.1M	Soft cliff
18.2M	Tall herb/ruderal (species-rich)
	L.BAP HABITATS (3)
1.3L.BAP	Beech plantation
13.4L.BAP	Canals/ditches (species-poor)
13.5L.BAP	Ponds/lakes (eutrophic)
	L.HABITATS (1)
1.8L	Wet woodland plantation
1.11L	Other deciduous plantation
1.14L	Mixed plantation
2.2L	Conifer plantation
3.3L	Species-poor hedges
4.3L	Arable field (heavy/clay soils)
4.4L	Set aside
5.3L	Improved grassland
5.3L	Grass leys
5.4L	Amenity grassland
9.1L	Bracken
14.2L	Species-poor rivers/streams
17.1L	Bare quarry
18.2L	Herb/ruderal (species-poor)
18.3L	Wall

APPENDIX 5

BIOSCORE SCORING SYSTEM

1. **ALL HABITATS**

```
HB.A.P. HABITATS        15
H         "             12
MB.A.P.   "              9
M         "              6
LB.A.P.   "              3
L         "              1
```

2. **HABITAT WEIGHTINGS FOR HB.A.P./H/MB.A.P. HABITATS**

   (a) AREA HABITATS

		HB.A.P.	H	MB.A.P.
(i) Size	> 10 Ha 2 Ha – 10 Ha < 2 Ha	2 1 0	2 1 0	2 1 0
(ii) Extent	widespread (> 40%) localised (10-40%) occasional (< 10%)	2 1 0	2 1 0	2 1 0
(iii) Proximity	adjacent near (< 50 m) distant (> 50 m)	2 1 0	2 1 0	2 1 0
(iv) Condition	favourable unfavourable	2 0	2 0	2 0

   (b) LINEAR HABITATS

		HB.A.P.	H	MB.A.P.
(i) Width	> 5 m 1-5 m < 1 m	2 1 0	2 1 0	2 1 0
(ii) Extent	widespread (> 40%) localised (10-40%) occasional (< 10%)	2 1 0	2 1 0	2 1 0
(iii) Height	> 5m 1-5 m < 1m	2 1 0	2 1 0	2 1 0
(iv) Condition	favourable unfavourable	2 0	2 0	2 0

(c) <u>**DESIGNATED HABITATS**</u>

S.A.C.'s   +3
S.S.S.I.   +2
CWS/ancient wood   +1

APPENDIX 6

BIOSCORES/BIOBANDS

Bioscore	Bioband
0-29	L
30-59	LM
60-89	M
90-119	MH
120-149	H
> 150	VH

NUMBER OF LANDSCAPE DESCRIPTION UNITS/BIOBAND
for each LANDSCAPE TYPE

LANDSCAPE TYPE	BIOBANDS					
	LOW	LOW-MED	MED	MED-HIGH	HIGH	VERY HIGH
1. Alluvial Lowlands	5	5	3	2	2	
2. Chalk Downland and Slopes	2	2	2			
3. Clay Vale	1	6	3			
4. Estates Farmlands		2	3	3	1	
5. Farmland Hills	5	1				
6. Farmland Plateau	3	5	2	2		
7. Farmland Slopes and Valley Sides	3	7		5		
8. Lowland Village Farmland	5	9	1	2		
9. Pasture Hills	1	3				
10. River Meadowland	3	4	4	4	3	3
11. Rolling Clayland	1	1	2			
12. Rolling Farmland		7	3	1	1	
13. Rolling Village Pastures		2	3	1		
14. Settled Ancient Pastures		1	1	1	1	1
15. Terrace Farmland	7	9	1			
16. Upstanding Village Farmland		5		1		
17. Vale Farmland	5	3	1	1		
18. Wooded Downland		2	1			
19. Wooded Estate Land	1	2	6	2	3	5
20. Wooded Estate Slopes and Valley Sides			1		1	2
21. Wooded Farmland		1	1	6	1	2
22. Wooded Hills	1	1		1		
23. Wooded Plateau		1	1			
24. Wooded Pasture Valleys	1	6	7	2	1	3

APPENDIX 8

HABITATS in each
LOCAL CHARACTER AREA/
LANDSCAPE DESCRIPTION UNIT

for each

LANDSCAPE TYPE

17. VALE FARMLAND

LCA	L.D.U.	CODES	HABITATS	SCORES	BIO-SCORE	BIO-BAND
17A	CW 27	1.13M	WOODLAND (mi/sec)	6		
		1.17M	SCRUB (den/con)	6		
		3.6M	HEDGES (sp-po/tr)	6		
		5.5M	GRASSLAND (se-imp)	6		
		14.3M	TREES (wa)	6		
		13.4LB.A.P.	CANALS/DITCHES (sp-po)	3		
		1.11L	WOODLAND (de/pla)	1		
		1.14L	WOODLAND (mi/pla)	1		
		2.2L	WOODLAND (co-pla)	1		
		4.3L	ARABLE (cl)	1		
		5.4L	GRASSLAND (am)	1		
		14.2L	RIVERS/STREAMS (sp-po)	1	39	
		3.5HB.A.P.	HEDGES (sp-ri/tr)	19		
		7.1HB.A.P.	GRASSLAND (ca/sp-ri)	16		
		1.7MB.A.P.	WOODLAND (wet/sec)	10		
		5.1MB.A.P.	GRASSLAND (wet/sp-po)	9		
		13.2MB.A.P.	PONDS/LAKES (sp-po)	10	64	
					103	MH
17B	NU 14	3.6M	HEDGES (sp-po/tr)	6		
		5.5M	GRASSLAND (se-imp)	6		
		1.11L	WOODLAND (de/pla)	1		
		4.3L	ARABLE (cl)	1		
		5.4L	GRASSLAND (am)	1		
		18.4L	RUDERAL (sp-po)	1	**16**	L
17C	NU34	1.17M	SCRUB (den/con)	6		
		3.6M	HEDGES (sp-po/tr)	6		
		5.5M	GRASSLAND (se-imp)	6		
		11.2M	INUNDATION SWAMP (ri)	6		
		14.3M	TREES (wa)	6		
		1.14L	WOODLAND (mi/pla)	1		
		4.3L	ARABLE (cl)	1		
		13.4LB.A.P.	CANALS/DITCHES (sp-po)	3		
		14.2L	RIVERS/STREAMS (sp-po)	1	36	
		3.5HB.A.P.	HEDGES (sp-ri/tr)	20		
		6.2HB.A.P.	GRASSLAND (mars)	19	39	
					75	M

LCA	LDU	CODES	HABITATS	SCORES	BIO-SCORE	BIO-BAND
17D	UT 9	1.10M 3.6M 5.5M 14.3M 13.4LB.A.P . 4.3L 12.2L 3.5HB.A.P.	WOODLAND (de/sec) HEDGES (sp-po/tr) GRASSLAND (se-imp) TREES (wa) CANALS/DITCHES (sp-po) ARABLE (cl) RIVERS/STREAMS (sp-po) HEDGES (sp-ri/tr)	6 6 6 6 3 1 1 19	 29 19	
					48	LM
17E	CR 11	3.6M 5.5M 14.3M 13.4LB.A.P . 1.11L 3.3L 4.3L 5.2L	HEDGES (sp-po/tr) GRASSLAND (se-imp) TREES (wa) CANALS/DITCHES (sp-po) WOODLAND (de/pla) HEDGES (sp-po) ARABLE (cl) GRASSLAND (imp)	6 6 6 3 1 1 1 1	 **25**	 L
17F	UT 34	1.10M 3.6M 18.2M 13.4LB.A.P . 4.3L 5.2L 5.4L	WOODLAND (de/sec) HEDGES (sp-po/tr) RUDERAL (sp-ri) CANALS/DITCHES (sp-po) ARABLE (cl) GRASSLAND (imp) GRASSLAND (am)	6 6 6 3 1 1 1	 **24**	 L
17G	UT 36	3.6M 5.5M 4.3L 6.1HB.A.P.	HEDGES (sp-po/tr) GRASSLAND (se-imp) ARABLE (cl) MEADOW (flo)	6 6 1 22	 13 22	
					35	LM
17H	CR4	4.1M 14.3M 3.3L 4.4L 14.2L	ARABLE (sa/ca) TREES (wa) HEDGES (sp-po) SET ASIDE RIVERS/STREAMS (sp-po)	6 6 1 1 1	 **15**	 L

LCA	LDU	CODES	HABITATS	SCORES	BIO-SCORE	BIO-BAND
17I	WH 14	3.6M	HEDGES (sp-po/tr)	6		
		14.3M	TREES (wa)	6		
		1.11L	WOODLAND (de/pla)	1		
		3.3L	HEDGES (sp-po)	1		
		4.3L	ARABLE (cl)	1		
		14.2L	RIVERS/STREAMS (sp-po)	1		
		17.1L	URBAN/GARDENS	1		
		18.4L	RUDERAL (sp-po)	1	19	
		1.7MB.A.P.	WOODLAND (wet/sec)	9	9	
					28	L
17J	VA 1	1.10M	WOODLAND (de/sec)	6		
		3.6M	HEDGES (sp-po/tr)	6		
		5.5M	GRASSLAND (se-imp)	6		
		14.3M	TREES (wa)	6		
		13.4LB.A.P.	CANALS/DITCHES (sp-po)	3		
		1.11L	WOODLAND (de/pla)	1		
		4.3L	ARABLE (cl)	1		
		5.2L	GRASSLAND (imp)	1	29	
		5.1MB.A.P.	GRASSLAND (wet/sp-po)	9	9	
					38	LM

20. WOODED ESTATE SLOPES and VALLEY SIDES

LCA	L.D.U.	CODES	HABITATS	SCORES	BIO-SCORE	BIO-BAND
20A	NU 3	3.6M 4.1M 5.5M 13.4LB.A.P. 1.11L 1.14L 2.2L	HEDGES (sp-po/tr) ARABLE (sa/ca) GRASSLAND (se-imp) CANALS/DITCHES (sp-po) WOODLAND (de/pla) WOODLAND (mi/pla) WOODLAND (co/pla)	6 6 6 3 1 1 1	24	
		1.9H 1.16MB.A.P. 5.1MB.A.P. 10.3MB.A.P.	WOODLAND (de/anc) PARKLAND (ma) GRASSLAND (wet/sp-po) SCRUB (go)	16 14 12 11	53	
					77	M
20B	CW 17	1.17M 3.6M 4.1M 5.5M 1.14L 2.2L 14.2L 18.3L	SCRUB (den/con) HEDGES (sp-po/tr) ARABLE (sa/ca) GRASSLAND (se-imp) WOODLAND (mi/pla) WOODLAND (co/pla) RIVERS/STREAMS (sp-po) WALL	6 6 6 6 1 1 1 1	28	
		1.15HB.A.P. 3.5HB.A.P. 7.1HB.A.P. 13.1HB.A.P. 1.9H 14.1H	PARKLAND HEDGES (sp-ri/tr) GRASSLAND (ca/sp-ri) PONDS/LAKES (WOODLAND (de/anc) RIVERS/STREAMS (sp-ri)	22 18 27 20 26 17	130	
					158	VH

LCA	LDU	CODES	HABITATS	SCORES	BIO-SCORE	BIO-BAND
20C	CH 4	1.10M	WOODLAND (de/sec)	6		
		1.18M	SCRUB (sca)	6		
		3.6M	HEDGES (sp-po/tr)	6		
		4.1M	ARABLE (sa/ca)	6		
		18.2M	RUDERAL (sp-ri)	6		
		5.5M	GRASSLAND (se-imp)	6		
		1.3LB.A.P.	WOODLAND (be/pla)	3		
		1.14L	WOODLAND (mi/pla)	1		
		3.3L	HEDGES (sp-po)	1		
		5.2L	GRASSLAND (imp)	1	42	
		1.1HB.A.P.	WOODLAND (be/anc)	24		
		3.1HB.A.P.	HEDGES (sp-ri)	19		
		3.5HB.A.P.	HEDGES (sp-ri/tr)	6*		
		7.1HB.A.P.	GRASSLAND (ca/sp-ri)	47		
		7.2HB.A.P.	SCRUB (ju)	20		
		8.1HB.A.P.	GRASSLAND (ac)	20		
		10.1HB.A.P.	HEATHLAND (low/dry)	10		
		1.4H	WOODLAND (yew/be/anc)	21		
		1.5H	WOODLAND (yew/be/sec)	14		
		1.9H	WOODLAND (de/anc)	42		
		1.16MB.A.P.	PARKLAND (ma)	13	236	
					278	VH
	CH 16	1.17M	SCRUB (den/con)	6		
		1.18M	SCRUB (sca)	6		
		4.1M	ARABLE (sa/ca)	6		
		5.5M	GRASSLAND (se-imp)	6		
		1.11L	WOODLAND (de/pla)	1		
		1.14L	WOODLAND (mi/pla)	1		
		2.2L	WOODLAND (co/pla)	1		
		5.2L	GRASSLAND (imp)	1	28	
		1.1HB.A.P.	WOODLAND (be/anc)	41		
		7.1HB.A.P.	GRASSLAND (ca/sp-ri)	25		
		1.4H	WOODLAND (yew/be/anc)	15		
		1.16MB.A.P	PARKLAND (ma)	14		
		1.2MB.A.P.	WOODLAND (be/sec)	14	109	
					137	H

APPENDIX 9

STRATEGIC PLANNING
CASE STUDY
DIDCOT WEST

Although the proposal for a major area of residential development at the western side of Didcot is well advanced it has recently been used as a case study to test the principles underpinning the OWLS project from a planning point of view.

There have been meetings between planners, ecologists, and landscape architects from both the County and District Councils as well as consultants representing the developers.

Discussions are still taking place and, although planning permission has not yet been granted, they have been both positive and constructive.

From a strategic planning perspective, the OWLS **biolandscape** map (see below) was used to assess the potential impact on landscape and biodiversity of locating development to the west of Didcot. The landscape type affected is named **Lowland Village Farmland** and it is a typical 18th C enclosure landscape of rectangular fields where arable farming now dominates and the quality of the surrounding landscape features and habitats varies. They specific local character areas affected by the proposal have low-medium to medium bioscores/biobands indicating that the range of locally important habitats, which includes species-poor hedges and semi-improved grassland, is fairly limited and that there are no recorded priority habitats.

The general description for this local character area is:-

"**O. Sutton Courtenay (WH/20)**

Landscape Character
The area is characterised by medium to large-sized arable and grass fields. To the east of the village and north of Didcot Power Station the landscape is dominated by an extensive area of mineral extraction and landfill sites which are in varying stages of restoration. Fields are generally enclosed by a prominent network of tall, thick hawthorn and blackthorn hedges with a dense pattern of ash, willow, poplar, dead elm and oak trees particularly bordering roads and country lanes. Roadside hedges are generally intact but many internal field hedges are fragmented and gappy particularly where they enclose arable land. There is also a significant number of tree-lined ditches with species such as crack willow, ash, polar and dead elm. Small deciduous plantations and trees within villages are also characteristic.
Biodiversity.

Bioscore/bioband: 63/M
There is a range of locally important habitats including plantations, semi-improved grassland, species-poor hedges with trees, scrub and tree-lined watercourses. There are a few species-rich hedges with trees."

From a strategic point of view, there would appear to be few landscape and biodiversity constraints to locating development here. This assumption would have to

be subject to more detailed surveys to determine the actual status and condition of the local landscape features and habitats found within this specific area and how they relate to the local character area as a whole.

Fortunately, the consultants working for the developers had already completed such a survey and this provided an opportunity to check whether the judgements being at a strategic level were valid when compared with results recorded at a more detailed local level. There was nothing identified at this detailed level which contradicted the original assessment at the strategic level. The local surveys did reveal the condition and extent of the surviving habitats and landscape features within the proposed development area and this information was subsequently used to establish a landscape and biodiversity framework into which the development could be placed.

The previous attempt by the consultants to prepare a landscaping plan for the site followed the usual standard approach of designing the development layout first and then adding the landscaping afterwards using a range of tree and shrub species largely inappropriate to the area and which did nothing to help integrate the development with the surrounding countryside. In effect, they largely ignored the results of their own surveys. The consultants have since been much more receptive to the idea of safeguarding, maintaining and enhancing a landscape/biodiversity framework based on the landscapes and habitats appropriate to the area. They were persuaded, to a great extent, by the advice stemming from the results and guidance provided by the OWLS project.

There is still a lot of work to be completed before permission can be granted but it is hoped that the input from OWLS will help to safeguard and enhance the quality of locally important landscape features and habitats particularly compared with the previous situation where arable farming was dominant and the quality of the associated landscape character was in decline.
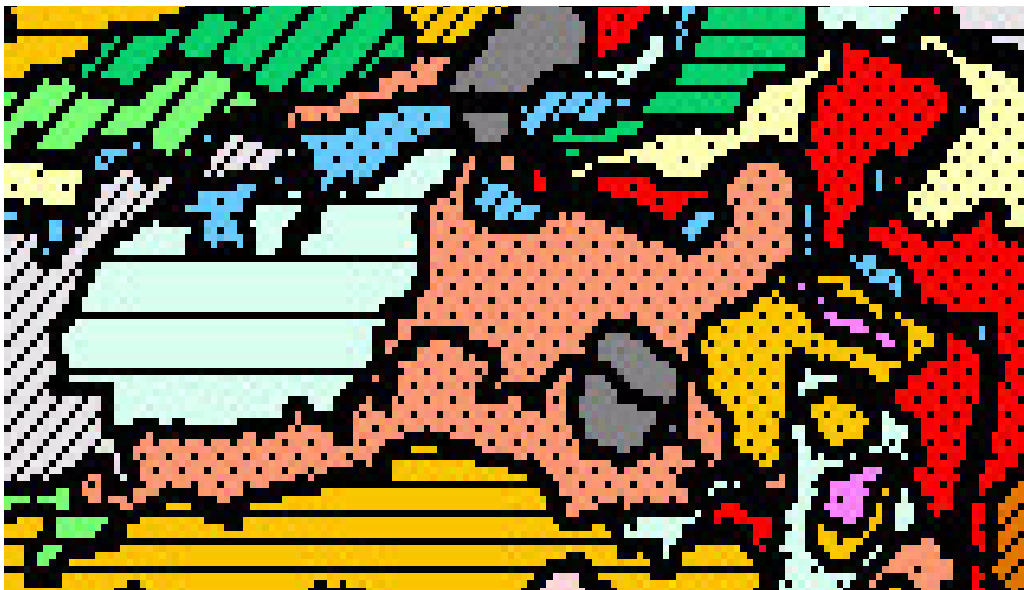

BIOSCAPE MAP - DIDCOT

APPENDIX 10

TARGETTING OF AGRI-ENVIRONMENT SUPPORT
CASE STUDY
PRIORITY HABITATS
CALCAREOUS GRASSLAND

In Oxfordshire, much of the surviving priority habitats identified within the U.K. B.A.P. Action Plan and the Oxfordshire B.A.P. are associated with the known statutory and non-statutory wildlife sites. Although they remain vulnerable it is hoped that they are largely protected from further serious loss or damage. However, there is a continuing decline in the quality of many of these sites through either lack of, or inappropriate management. If National and County B.A.P.s are going to succeed it is essential that this basic resource is in favourable condition and management.

However, with a potential increase in agri-environment funds it is also an ideal time to be thinking seriously about the possible expansion of the biodiversity resource to meet national and local targets. It is highly likely that future funds will still be limited and that they will have to be prioritised and targeted to secure best value for money. As part of the OWLS project it has been possible to highlight, at a landscape scale, the location and distribution of particular priority habitats throughout the county. The example chosen here is lowland calcareous grassland. (see map below)
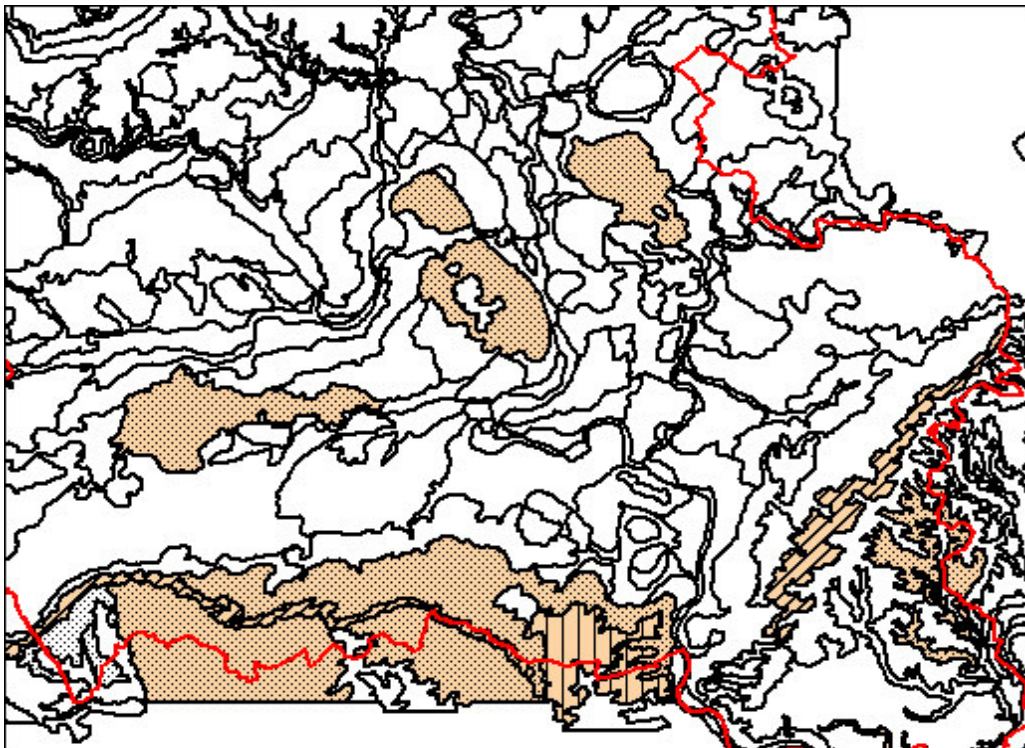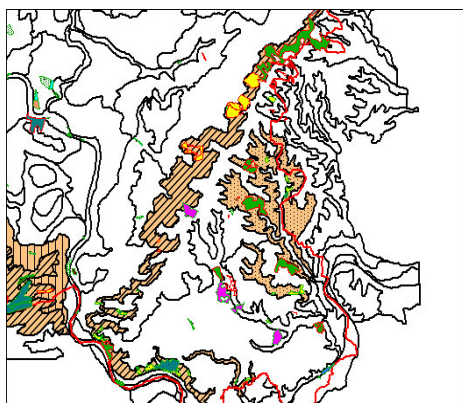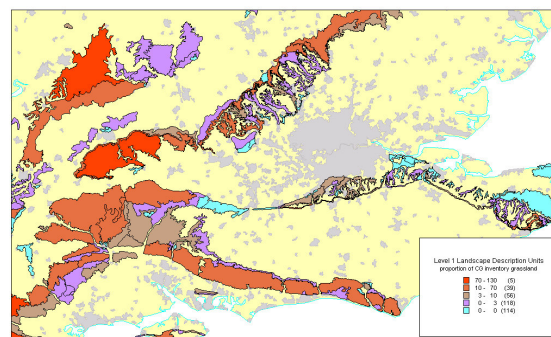

LOWLAND CALCAREOUS GRASSLAND

This shows the landscape units in the southern half of the county which support this particular type of habitat. It includes parts of the Chilterns, North Wessex Downs and the Midvale, or Corallian limestone, Ridge. The map has also been subdivided into units representing three separate 'quality' bands. The dotted areas have the lowest scores, the vertical areas are in the middle, and the diagonal bands are the highest. They were scored according to parameters such as habitat size, extent, proximity and condition. This meant that those units which had large areas of calcareous grassland (>10Ha) covering a significant part of the landscape unit (> 40%), were relatively close to each other and in favourable condition scored more highly. In contrast, those units with small, isolated patches of calcareous grassland in poor condition scored a lot less.

If the expansion of calcareous grassland is being promoted through agri-environment schemes then, potentially, all interested landowners within these landscape units could be encouraged to participate. If resources are limited then there may be little merit in establishing a new patch of calcareous grassland if it is going to be small and relatively isolated. This would make the chances of possible re-colonisation fairly remote and the chances of it being managed sympathetically more problematical. However, if a new patch was established next to an existing species-rich area which was in favourable condition and management then the chances of re-colonisation and sympathetic management would be greatly enhanced.

The left-hand map below highlights the Chilterns escarpment running approximately from north to south and with diagonal hatching. It is high scoring quality band and the map also indicates the distribution and location of individual calcareous grassland sites in yellow. For the reasons mentioned above, there may be strong arguments for directly targeting the landowners with land adjacent to these sites to try and persuade them to establish new areas of calcareous grassland. This would make a significant contribution to the expansion of this particular habitat type in a location where it stands the greatest chance of success, even if it means paying an additional premium to get landowners interested.

CHILTERNS ESCARPMENT

LOWLAND CALCAREOUS GRASSLAND SOUTH-EAST REGION

If such an approach could then be extended to other counties within the region which support this type of habitat (see right-hand map) then this could make the strategic targeting of agri-environment money even more effective. Rolled out over the whole country the same approach could be adapted to whatever priority habitat or administrative area required.