

LANDSCAPE MAPPING



CORDIALE - Landscape Mapping Case Studies

Final

Prepared for the CORDIALE Partnership
By Land Use Consultants and Countryscape

November 2011



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1 LONG-LIST CASE STUDY PROJECTS

- 1.1 This Chapter provides short summaries of a range of projects from the UK and Europe that were identified at the beginning of the Landscape Mapping project. These were discussed (along with others suggested by the Cordiale partners) at a workshop in June 2011 prior to agreeing a shortlist. Please note that those projects that were shortlisted are included in Chapter 2.
- 1.2 The case studies begin with European projects, followed by those from the UK.

LUCAS VIEWER

Originator: EEA

Approach (summary):

The LUCAS viewer is a mapping tool managed by the European Environment Agency. It allows users to see land-cover information based on satellite images as well as thumbnail-size photographs taken in sampled locations across Europe. It illustrates Europe's landscape through satellite and ground-level pictures creating a land use interactive map with ground-level photographs.

Adding such in situ observations to satellite data leads to a more accurate and detailed presentation of Europe's landscape. This is particularly useful in understanding how Europe uses land and helps improve environmental assessments.

The photographs were collected by Eurostat as part of the LUCAS field surveys (land use/cover area frame statistical survey). LUCAS provides harmonised information on Europe's agricultural environment and has been recording in situ observations of land use and land cover, including photographs in four directions (north, east, south and west) and of the sample spot itself. The LUCAS viewer plots these photographs against the Corine land cover 2000 data.

Applications:

Understanding land use and improving environmental assessment, this is a baseline monitoring tool.

Contact / webpage:

<http://www.eea.europa.eu/themes/landuse/interactive/clc-lucas>

THE NORDLAM PROJECT

Originator: The Nordic Council of Ministers

Approach (summary): NordLaM is a project of the Environment & Monitoring Data (NMD) working group of The Nordic Council of Ministers (NMR), to develop the use of information derived from image data in Nordic landscape level terrestrial monitoring (<http://nordlam.dmu.dk>). The project is motivated by the recognition that there are environmental and ecological issues that demand synthesis on a broad level, incorporating abiotic, biotic and human aspects, i.e. “a landscape perspective”. To understand these issues and guide future developments there is a requirement for landscape level monitoring. A landscape perspective also recognises that for sustainable development of the countryside issues of ecological, economic, social and cultural relevance need to be integrated in decision-making, and that the landscape can form a relevant framework for this integration and for the monitoring of the development process.

Applications:

Monitoring the use of information and image data in the Nordic landscape – umbrella monitoring of other monitoring projects.

Contact / webpage: http://www2.dmu.dk/1_viden/2_miljoe-tilstand/3_natur/nordlam/default.asp

STRATEGIC SELECTED LANDSCAPE REGIONS AND LANDSCAPE ELEMENTS – A SWEDISH APPROACH FOR BASE LINE MAPPING

Approach (summary): The aim with this work was to develop a method for landscape mapping and monitoring in the agricultural landscape as a base for regional planning and nature conservation, with a focus on biodiversity. The method should provide high accuracy in interpretation, be quick and cost effective. The objectives were:

- to develop a classification system for CIR aerial photo interpretation in scale 1:30 000,
- to identify and strategically select biotopes and landscape elements that are of importance for the biodiversity and cultural values in the landscape and which are subject to changes,
- to test the accuracy of aerial photo interpretation and to evaluate the time used,
- to develop a strategy for selection of sample areas and sample techniques.

In Malmöhus, 25km² plots were analysed, with one plot selected for the 4 regions of the county. Field survey was used, with transect methods being most efficient.

Techniques were further developed in Uppsala. Baseline mapping was completed to create a landscape classification system based on: physical geography, vegetation, current and historic land use, administration and ownership boundaries and specific regional characteristics. This classification was overlain with aerial photography and transformed into GIS data: mapping the landscape into points, patches and lines with the focus mainly on the ecological landscape. This created a baseline map. Further aerial photography was then overlain (intervals of 5-7 years were identified as most appropriate) and changes were mapped in the GIS (as opposed to remapping the whole landscape) to develop a change detection monitoring technique.

Applications: Understanding landscape change through establishing baseline and monitoring techniques

Contact / webpage:

THE INVENTORY OF BUILT HERITAGE

Originator: PNR Armorique

Approach (summary): The Regional Council of Brittany, the General Council of Finistère and Brittany Park have been developing an Inventory of Built Heritage since 2006. It aims to identify, count and locate elements of the architectural heritage and landscape through field survey.

The resulting database serves as a tool to the Park and its partners to establish mediation programmes, support the revision of planning documents or to establish architectural guidelines.

Applications:

A baseline dataset used to understand and plan for cultural heritage

Contact / webpage: <http://www.pnr-armorique.fr/>

HERITAGE INVENTORY: EARTHEN ARCHITECTURE

Originator: PNR Cotentin-bessin

Approach (summary): The Regional Park of Cotentin and Bessin, working in collaboration with the Directorate General Inventory of Cultural Heritage of the Lower Normandy region, have developed an Inventory of Earthen Architecture. Initiated jointly by the two services in 2001, the Inventory of Earthen Architecture has identified 3,887 buildings and prepared studies on more than 700.

Applications: Baseline dataset to help establish understanding of this historical resource.

Contact / webpage: <http://www.parc-cotentin-bessin.fr/>

BATIMENTS DE CARACTÈRE / THE CHARACTER OF BUILDINGS

Originator: PNR MCB

Approach (summary): This is a baseline dataset which describes the built heritage using desk and field survey techniques. The results are held in a GIS database with over 100 queryable fields.

Applications: Used to support conservation policies and may, in the future, be used to develop a classification of outstanding buildings.

Contact / webpage: Not yet available

**INVENTAIRE DES TERRES DE MARAIS " COMMUNAUX"
(PROPRIÉTÉ INDIVISE DES HABITANTS ET DE LA
COMMUNE)/ INVENTORY OF WETLAND COMMONS**

Originator: PNR MCB

Approach (summary): Desk and field survey techniques have been used to understand the geographical boundaries of the wetland areas and to consider how they are managed: whether grazed or mown between 1993-2007. Ownership and land tenure are also considered.

Applications: Identifies the areas and methods of management

Contact / webpage:

AGRICULTURE CENSUS DATA

Originator: Ministère de l'agriculture de l'alimentation de la pêche de la ruralité et de l'aménagement du territoire

Approach (summary): Farmer survey every ten years to track changes in agricultural land

Applications: Tracks changes in agricultural land and provides a national scale monitoring tool

Contact / webpage:

LANDSCAPE CHARACTER UNITS

Originator: PNR MCB

Approach (summary): Identification and characterisation of landscape units at four scales: region, territory PNR, communities of commons, and municipalities prepared through landscape analysis and field utilisation layers in GIS. So far there has been no community engagement.

Applications: Characterisation study providing baseline, as opposed to ongoing monitoring data

Contact / webpage:

MAP OF SENSITIVITIES

Originator: PNRMCB et CDC

Approach (summary): Mapping the potential for large scale wind turbines. Identifies sites potentially suitable for wind power development, using multiple layers of GIS habitat, protected areas, monuments from these three layers identifying possible sites and development of criteria (minimum number of wind turbines close to existing infrastructure).

Applications: A baseline study aimed at understanding sensitivity to wind turbines

Contact / webpage:

ENVIRONMENTAL RISKS FROM AGRICULTURE IN EUROPE

Approach (summary): This was an innovative methodology over a three-year study period that applied agri-environmental indicators and European datasets to identify the main environmental risk areas in Europe. It covers soil erosion, nutrient enrichment, pesticide use and their integrated risks for biodiversity and landscapes. This project aims to answer the following questions:

- Which regions in Europe are at highest risk due to agricultural practices?
- What components of agriculture cause the main harm?
- How can risks be identified and reduced?

The book produced from the project lists recommendations for improved data collection, monitoring and processing as well as for policy measures, and provides a useful source of information for policymakers and scientists with an interest in agri-environmental data and policies at a European scale.

Applications: Identifying main environmental risk areas in Europe through a baseline study with recommendations for monitoring

Contact / webpage: http://www.unep-wcmc.org/environmental-risks-from-agriculture-in-europe_158.html

MONITORING AND MAPPING THE IMPLEMENTATION OF THE EUROPEAN LANDSCAPE CONVENTION

Originator European Landscape Network

Approach (summary): Project suggested by Uniscape at the 1st meeting of the European Network (Uniscape, Civilscape, RECEP-ENELC). Meeting held 25th March 2011.

A survey will be carried out amongst the networks' members and the results of the mapping presented at a joint conference in March 2012.

Applications: Monitoring

Contact / webpage:

<http://www.uniscape.eu/pagelmg.php?idCont=1207&idSez=2;3;&parola=european%20landscape%20network&ricerca=Ricerca&lang=en>

THE ENVIRONMENTAL AND LANDSCAPE IMPACTS OF NEW ENERGY PRODUCTION ON THE PLOTS AND FARM BUILDINGS

Originator: Regis Ambrose - Office of Land and biodiversity - Sub-Directorate of biomass and Environment - Food Service Strategy and Sustainable Development - Policy Branch Farm food and territory. French Ministry of Agriculture and Fisheries.

Approach (summary): This study looks at specific impacts of the production of energy and proposes technical and regulatory developments to strengthen positive effects and mitigate the potential problems created by these productions. Chains studied concern the new energy crops (Miscanthus, etc) Woody crops (hedges, TCR, agro-forestry), photovoltaic panels on buildings or in open fields, solar dryers, solar hot water, methane facilities, micro-hydro.

Applications: To propose technical and regulatory developments to strengthen the positive effects and mitigate the potential problems.

Contact / webpage:

http://translate.google.co.uk/translate?hl=en&sl=fr&u=http://www.recep-enelc.net/pagelmg.php%3FidCont%3D1031%26idSez%3D20%26idlink%3D59%26lang%3Den&ei=tEnyTe_WJ8i3hAfuxbhl&sa=X&oi=translate&ct=result&resnum=1&ved=0CB4Q7gEwAA&prev=/search%3Fq%3Dhttp://www.recep-enelc.net/pagelmg.php%253FidCont%253D1031%2526idSez%253D20%2526idlink%253D59%2526lang%253Den%26hl%3Den%26client%3Dfirefox-a%26hs%3Dni5%26rls%3Dorg.mozilla:en-GB:official%26prmd%3Divns

MAPPING COMMUNITY CHANGE IN MODIFIED LANDSCAPES

Originator: World Conservation Monitoring Centre

Approach (summary): Convert point observations of more than 28,000 beetles from 851 species into a continuous biodiversity surface representing the similarity of ecological communities relative to that of pristine forest. This effectively integrates on-the-ground biodiversity data with remotely sensed land cover data to predict the magnitude of community change in a modified landscape. We generated biodiversity surfaces for both present-day and pre-human landscapes to map spatial patterns of change in a diverse ecological community to calculate the combined biodiversity impacts of habitat loss and fragmentation that accounts for the exact spatial pattern of deforestation. Our spatially-explicit, landscape-scale index of community change shows how the fine-scale configuration of habitat loss sums across a landscape to determine changes in biodiversity at a larger spatial scale.

Applications: Assessing or predicting the biodiversity impacts of land use change through monitoring

Contact / webpage: http://www.unep-wcmc.org/mapping-community-change-in-modified-landscapes_259.html

DESURVEY - A SURVEILLANCE SYSTEM FOR ASSESSING AND MONITORING OF DESERTIFICATION

Originator: funded by the European Commission under the Framework Programme 6 and contributing to the implementation of the actions 'Mechanisms of desertification' and 'Assessment of the vulnerability to desertification and early warning options'

Approach (summary): In spite of the relevance of appropriate actions to counter and to combat desertification, there is a lack of standardised procedures to perform them at operational scales. The DeSurvey project offers a contribution to fill this gap by complementing assessment of desertification status with early warning and vulnerability evaluation of the involved land use systems. In this context, the interactive effects of climatic and human drivers of desertification will be taken into account in a dynamic way.

The ambition of the DeSurvey consortium is to deliver a compact set of integrated procedures of desertification assessment and forecasting, with application and tutorial examples at the EU and national scales. The performance of DeSurvey in other desertification threatened areas of UNCCD regional Annexes will be tested against other expertise and available procedures. Indeed, partners (and sites) from Maghrebian and Sahelian countries as well as from Chile and NW China are associate members of this project.

DeSurvey 39 partners representing 10 EU Member States and 6 Third Country States, integrate key research organisations and industrial companies with a wide range of skills.

Applications: The partners developed an operational prototype that includes flexible procedures, with generic and case specific components to which users can adapt according to their biophysical and socio-economic environments and their data availability. DeSurvey will support international, European, national and regional authorities, organisations and institutions in fulfilling their monitoring/surveillance and reporting obligations, and help them to increase the efficiency of desertification treatment policies.

Contact / webpage:

<http://www.fcsh.unl.pt/docentes/pcasimiro/ENG/Projects.htm#DeSurvey>

USING GIS AND REMOTE SENSING FOR DETECTION OF LAND-USE/LAND-COVER CHANGES

Approach (summary): Analysing trends in land-use/land-cover changes in the context of post-socialistic transformation in Central Europe (a case study of the greater Olomouc region, Czech Republic)

Applications:

Contact / webpage:

https://www.clarku.edu/departments/geography/pdfs/Rogan_GIS_46n01_054-076-Vaclavik.pdf

THE NATIONAL INVENTORY OF LANDSCAPES IN SWEDEN

Originator: SLU

Approach (summary): The National Inventory of Landscapes in Sweden (NILS) is a part of the Swedish nationwide environmental monitoring programme. NILS is performed by SLU and funding for the programme is provided by the Swedish Environmental Protection Agency. The main purpose with the inventory is to monitor changes in the Swedish landscapes and how these changes affect the prerequisites of biodiversity.

NILS is conducted as a sample-based stratified inventory that acquires data across several spatial scales, which is accomplished by combining aerial photo interpretation with field inventory. A total of 631 sample units are distributed across the land base of Sweden, of which 20% are surveyed each year. By 2007 NILS completed the first 5-year inventory phase. As the re-inventory in the second 5-year phase (2008-2012) proceeds, experiences and insights accumulate and reflections are made on the setup and accomplishment of the monitoring scheme.

The main objective is to collect data for and perform analyses of natural landscape changes, degree of anthropogenic impact, pre-requisites for natural biological diversity and ecological processes at landscape scale. Different environmental conditions that can have direct or indirect effects on biological diversity are monitored.

Applications: The programme provides data for national and international policy and offers an infrastructure for other monitoring programs and research projects. An important objective is to provide information for follow-up of the Swedish national environmental objectives and the Natura 2000 network. NILS also contributes data to environmental research and international reporting.

Contact / webpage: <http://www.slu.se/en/collaborative-centres-and-projects/nils/>

MONITORING CHANGING LANDSCAPES: IMPROVING KNOWLEDGE OF SPATIAL RESOURCES

Originator: P. Tassinari, D. Torreggiani, S. Benni, Z. Ludwiczak (taken from Living Landscape Vol 2. P. 238.

Approach (summary):

This paper discusses the initial results of a broader research project, which is still in progress. It is aimed at developing an analysis methodology for the various natural and anthropic landscape resources, through a systematic and interdisciplinary approach.

The specific aim of this work is to test the method referring to an Italian study area and to verify the suitability of the method to quantify landscape dynamics. In particular the assessment of changes in the settlement system of urban, peri-urban, and rural areas was considered.

Applications:

The developed methodology has led to assess, with predefined precision levels the increase in built-up areas and thus to appraise the actual entity 'artificialisation' and high scale changes in the landscape structure caused by new development.

The method proves useful to monitor and assess soil consumption, considered as a fundamental parameter within land-use management.

Contact / webpage:

P. Tassinari, D. Torreggiani, S. Benni, Z. Ludwiczak (2010) Monitoring Changing Landscapes: Improving knowledge of spatial resources in Living Landscape. The European Landscape Convention in research perspective. P 238.

FARMLAND BIODIVERSITY INDICATORS AND MONITORING IN FINLAND

Originator: Finnish Environmental Institute

Approach (summary):

The aim of the survey was to obtain quantitative information on (1) the amount of variation in plant, insect and bird biodiversity in ordinary Finnish farmland, (2) the key factors affecting species diversity at different spatial scales and (3) the relationship between landscape structure and biodiversity. National scale data sets are too crude for measuring change at the landscape scale. This study aimed to create a baseline for understanding landscape scale variation of farmland biodiversity and primary factors affecting it in ordinary Finnish agricultural landscapes. A quantitative transect field survey of 58 1km² study areas measured vascular plants, butterflies, bumblebees and birds in open and semi- open uncultivated agricultural land. Landscape analysis of 58 study landscapes will be done for three different dates: 1990±2 years, 2000±2 years and 2005±2 years, to detect the recent changes of land use in agricultural landscapes. Habitat maps for the Finnish farmland biodiversity survey are derived from remote sensing data. Maps are digitized from low altitude black and white aerial photographs with a spatial resolution of 32 or 62 cm at the screen scale of ca 1:2,000 using Arc View 3.2 software. A total of ca. 20 different habitat types are identified and assigned. The digitised habitat polygons are converted to raster images.

Applications:

Measuring the environmental benefits of agri-environmental support schemes by developing a baseline dataset.

Contact / webpage:

MONITORING PROGRAMME OF PERCEPTION AND APPRECIATION OF LANDSCAPES IN THE NETHERLANDS

Originator: Hans Farjon et al for Dutch Ministry: Milieu en Natuur Plan

Approach (summary):

The project carried out ongoing monitoring of people's appreciation of landscape characteristics and the effects upon them. The monitoring was carried out using a questionnaire at three year intervals.

Applications:

Contact / webpage:

CHILTERN LAND USE AND HEDGEROW SURVEYS

Originator: Chilterns Conservation Board

Approach (summary):

Land Use Survey: Annual surveys from 2005-8 (and 2010) to record land use patterns in 105 1km sample squares across the AONB. The project uses both GIS mapping and fixed point photography to monitor change over time.

Hedgerow survey: Hedgerow condition surveys were undertaken in 2006-8, based on 47 of the sample squares used for the land use survey (above); recording hedgerow characteristics as well as current condition. These results will be used as a baseline for condition monitoring – repeated every five years (funding dependent).

Applications:

The ongoing monitoring work will help the AONB understand and respond to the factors causing landscape change in the protected landscape. Key objectives of the land use survey are:

- To provide data on the current extent of land use and land cover
- To identify the rate and type of land use and land cover changes
- To determine how such changes vary between different landscape types
- To assess the impact of such changes on landscape character
- Where possible, to identify the drivers of land use and land cover change

Contact / webpage:

<http://www.yorkshiredales.org.uk/index/lookingafter/projectwork/wildlifeprojects/juniperconservation.htm>

THE DARTMOOR VISION

Originator: Dartmoor National Park Authority (2006)

Approach (summary):

The Dartmoor Vision captures and sets out on a map what the statutory bodies and agencies have agreed they want the moorland areas of Dartmoor to look like in 2030. The vision map includes 14 Premier Archaeological Landscapes (PALs) where the archaeological values take priority. It also maps areas of blanket bog, heather moorland, Western heath and valley mires. The vision is for Dartmoor moorland to remain the largest open space in Southern England with its varied habitats - blanket bog, mires, heather moorland and western heath in optimum condition.

Applications:

Following publication and endorsement of the Vision the alliance of farmers, statutory bodies and agencies have continued to work closely together to identify the barriers and solutions to delivering the vision. The process of drawing up the mapped vision also helped resolve issues of potential conflict between land management for archaeology and for wildlife.

The mapped information is presented on a poster, leaflet, on the website and in GIS format.

Contact / webpage:

<http://www.dartmoor-npa.gov.uk/lookingafter/laf-landmanagement/laf-moorfutures>

FOREST OF BOWLAND TRADITIONAL BOUNDARIES PROGRAMME

Originator: Forest of Bowland AONB (with funding from CA)

Approach (summary):

This project ran from 2001-2007, undertaking parish-by-parish surveys to classify field boundary types and their condition. This information was used to target restoration work.

Applications:

To understand current field boundary distribution and condition, and target restoration work within the AONB's parishes.

Contact / webpage:

<http://www.forestofbowland.com/tradboundaries#examplemaps>

NORTHUMBERLAND GEODIVERSITY AUDIT AND ACTION PLAN

Originator: Northumberland NPA and British Geological Survey

Approach (summary):

The audit included mapping in GIS the location of important Geodiversity sites (74 in total), along with a condition assessment. These sites form the focus of actions detailed in the Geodiversity Action Plan to:

- Designate and maintain [GIS] data on important geological sites
- Monitor condition of sites – including through maintaining a database
- Ensure protection of sites through local and regional policies and strategies
- Practical conservation
- Geodiversity of active quarries – including through recording information

Applications:

The principal aim of the Audit and Plan are to provide the framework necessary for informing the sustainable management, planning, conservation and interpretation of all aspects of the geodiversity of the Northumberland National Park and surrounding area. One of the stated objectives of the Plan is to recommend strategies for continued monitoring of the district's geodiversity.

Contact / webpage:

http://www.northumberlandnationalpark.org.uk/geodiversity_audit_hi.pdf

AN ONLINE HANDBOOK OF CLIMATE TRENDS IN SCOTLAND (2006)

Originator: SNIFFER (Scotland & Northern Ireland Forum for Environmental Research), 2006

Approach (summary):

An online compendium of Met Office information on climate change in Scotland, with most data presented in graphical and mapped form (created and analysed using GIS techniques). Most of the data is presented for the years 1961-2004 (with some information available for longer or shorter time periods).

Applications:

The climate trends examined in this handbook provide benchmarks against which future change can be measured. The website states that the information will be of value to users across a wide range of sectors and disciplines who are developing strategies to prepare for adapt to the impacts of a changing climate in Scotland.

The information is also available in printed format.

Contact / webpage:

<http://climatetrendshandbook.sccip.org.uk/index.html>

LIFE ON THE VERGE

Originator: Lincolnshire Wildlife Trust

Approach (summary):

A volunteer-based survey to identify the most important roadside verges for limestone grassland wildlife in South-West Lincolnshire, North-East Rutland and East Leicestershire. It is the largest wild flower survey of Britain's roadside verges, with 2034km surveyed thus far. The results map combines all the wildflower-rich road verges discovered by volunteers during the course of 2009-10, as well as existing Roadside Nature Reserves.

Applications:

Over 200km of recently discovered verge will be considered for designation as Local Wildlife Sites (LWSs), whilst newly discovered sites will be mapped and potentially restored.

Contact / webpage: <http://www.lifeontheverge.org.uk>

2 SHORT-LISTED CASE STUDY PROJECTS

- 2.1 After the CORDIALE workshop in June 2011, further detail was added to a shortened list of case study projects to inform the Landscape Mapping Studio Report. These are included for reference in this Chapter (again starting with European examples, followed by those from the UK).
- 2.2 Each template is divided into two sections, with the first considering general information on the project (similar to the long-list write-ups), with the second providing 'metadata' information.

DETECTION OF WOODED HEDGEROWS IN HIGH RESOLUTION SATELLITE IMAGES USING AN OBJECT-ORIENTED METHOD

Approach (summary): The objective of this study was to assess the accuracy and reliability of identifying wooded hedgerows from remote sensing data using an object-oriented approach. The aim was to measure the proportion of hedgerow networks in a landscape.

An object oriented approach means that several attributes can be considered concurrently in defining objects. This means that a process which is normally carried out manually using aerial photography could be semi-automated using remote sensing data.

The method was tested to understand the reliability, accuracy and computational efficiency of the approach. Three different landscapes, located in Brittany and Normandy, were selected for this pilot study. The three landscapes had different hedgerow characters, ranging from a landscape with a dense network of hedges to an open landscape.

Five different types of remote sensing image were segmented and classified with the relevant software to identify three landscape features: hedge, tree and fields.

The images used were:

- aerial photography
- an 'orthophotoplan'
- a SPOT 5 image (satellite image)
- 2 ASTER Visible Near InfraRed images
- One Landsat Enhanced Thematic Map +

The results were then compared to a manual digitisation of the relevant hedgerow networks.

The SPOT 5 image provided 85% accuracy in classifying the three feature classes correctly, whilst the spatial resolution of the orthophotoplan image was highest at 0.5 metres. The study found that the results varied in response to the complexity of the landscape: detection of hedgerows increased when the hedgerow network was denser. The results proved that when applied at a spatial resolution less than 10m the object oriented method was valid.

Applications: The design of appropriate policies for landscape management and the conservation of hedgerows in intensive agricultural landscapes.

Publication date: 2008
Frequency of monitoring: N/A
Lead organisation: University of Rennes
Partners: N/A
Website: http://ieeexplore.ieee.org/Xplore/login.jsp?url=http%3A%2F%2Fieeexplore.ieee.org%2Fiel5%2F4757194%2F4779630%2F04779826.pdf%3Farnumber%3D4779826&authDecision=-203
Geographical extent: N/A
Scale: Various

NATIONAL LANDSCAPE PHOTOGRAPHIC OBSERVATORY/ L'OBSERVATOIRE PHOTOGRAPHIQUE NATIONAL DU PAYSAGE

Approach (summary): The National Landscape Photographic Observatory was established in 1991. The Observatory aims to develop a series of photographic datasets from which to analyse landscape change and the role of different driving forces in creating change. It is intended to complement understanding of landscape as derived from satellite imagery and mapping by adding a perceptual perspective and understanding of landscape 'as perceived by people'.

The method defines routes comprising 40 fixed point photographs which are chosen to be re-photographed over time. There are 60 additional views taken as part of the baseline study of each route, which provides a larger selection of points that can be selected in future for monitoring by re-photographing if particular changes affect these points.

The establishment of a photographic route requires a commitment between the National Landscape Photographic Observatory along with two or more local stakeholders to create a steering committee. Stakeholders can include the governing body which manages a landscape and local partners such as a local authority or agency. This local partner is crucial because they provide local understanding of the photographic route and are best placed to observe and understand the evolution of the landscape.

19 landscapes (6 of which are PNRs) were identified to be monitored by the National Landscape Photographic Observatory. Selection of these landscapes was dependent on various factors including the landscape type, changes occurring in the landscape (natural, cultural or developmental factors), landscapes subject to new management methods and landscapes subject to pressures such as infrastructure, quarrying or tourism. Re-photographing routes can be made variable time steps: two, three or five years. This rate can be varied as needed, it is initially defined at the outset of each project but can be redefined if required for the different landscapes.

As part of the evidence base a number of documents accompany each route: a log book records the technical metadata related to each photograph (e.g. location, bearing, weather conditions and the technical information regarding the image including the ISO etc) thus enabling it to be repeated accurately; an analytical framework provides the narrative for the route, justifying the choice of shots and explaining change; archives of the route include the contracts drawn up with photographers, minutes of steering group meetings and information on image rights.

This is a national programme and the role of central government is to manage the records of National Landscape Photographic Observatory through:

- Archiving and cataloguing all the routes in the NLPO;
- Ensuring the accessibility and dissemination of data;
- Providing technical support to decentralised services;
- Analysing the contributions of routes to identifying the mechanisms and factors of changing landscapes nationally;
- Organising the research and making links with the research programmes of different governmental departments; and
- Promoting the programme at the national and European level.

Applications: The dataset can be used at national, regional or local scales to observe and understand landscape change and its driving forces. It is a useful tool for studying the mechanisms causing landscape change and the changes taking place over time, along with the role of different driving forces/ actors involved in landscape change. The data collected on the route enables the monitoring of changes that alter the landscape as well as being able to understand when there is "no change". The photographic observation can be used to inform and assess the value of specific approaches to landscape planning, to define management goals and to understand landscape quality and condition. The data sets are used to help plan and understand the impact of development and other changes. They also provide a useful tool for enabling stakeholders to understand how their actions are altering landscape and thus they help educate people into changing their actions to have a more beneficial landscape outcome.

Publication date: 1991 onwards

Frequency of monitoring: 2, 3 or 5 years

Lead organisation: Ministère de l'Écologie, du Développement durable des Transports et du Logement

Partners: Various: Regional and local government/ agency or other permanent organisation who is a stakeholder in the landscape

Website: <http://www.statistiques.developpement-durable.gouv.fr/lessentiel/article/279/1129/observatoire-photographique-national-paysage.html>

Geographical extent: 19 different landscape areas in France:

Parc naturel régional du Pilat

Parc naturel régional des Vosges du Nord

Département de l'Hérault

Parc naturel régional du Livradois-Forez

Plateau de l'Arbois

Parc naturel régional de la Haute Vallée de Chevreuse

Région du Nord - Pas de Calais

Parc naturel régional de la Forêt d'Orient

Côtes d'Armor

Friches industrielles de Lorraine

Canton de Saint-Benoît-du-Sault

Parc naturel régional d'Armorique

Environs de Valence

Picardie maritime

Hauts de Seine

Banlieue de Paris

Ville de Montreuil

Île de la Réunion

Vallées des Duyes et de la Bléone.

There are other landscape monitoring projects using photographic methods that have been developed outside the framework of the National Observatory and which are not centralised at the Department level but which can be integrated into the National Observatory archive if they are methodologically rigorous and appropriate.

Scale: Routes can vary in size and depend on the landscape being observed. Variables which affect the scale of work include development projects being observed as part of the route, the themes under consideration and the availability of other data sets associated with the study landscape.

Points are plotted in the log book at 1:25000

HCEA: HISTORICAL AND CULTURAL EVALUATION APPROACH (TUSCANY)

Approach (summary): This methodology assesses the cultural landscape of an area in order to understand the driving forces creating landscape change and the landscape effects of these changes.

This methodology is based on an analysis of land cover mapping using GIS in combination with qualitative studies. Three time periods were selected for analysis based upon data availability and/or relevance of the time period:

- 1832 was selected because of the availability of detailed land cover data from the Tuscan Land Register for this period;
- 1954 was selected because of the availability of aerial photography showing the landscape before the mechanisation of agriculture;
- 2000-2004 was selected to represent the current landscape.

The most recent images were interpreted and ground truthed using field survey, which focused on vegetation. Field survey was targeted in areas where landscape change was observed in the GIS analysis in order to understand the relationship between floristic diversity, vegetation succession and landscape change. Interview data, written sources and sample plot data were all analysed to understand the economic value and social perceptions of landscape change.

Data from all three periods was analysed using GIS. The data from the different time periods was cross tabulated in order to understand change from one land use to another. Data was cross tabulated to compare between 1832/1954, 1954/2000, 1832/2000. This analysis led to the development of categories of landscape change including built up, deforestation, extensification, forestation, intensification, conifer expansions and stable (no change).

The data was also analysed using a Historical Index. This is a tool for assessing the value of a land use or patch analysing changes, in time and space, creating a hierarchy to which values can be attached and each land use or patch can be ranked according to the value of the index. The Index uses a spatial scale (hectares), a temporal scale (years) as limits. It defines the historical geographical distribution (the extent of a land use/ patch at the beginning of a time period) and present geographical distribution. This information is then subjected to the following equation:

Historical Index = Historical persistence x (historical geographical distribution/present geographical distribution)

This information can be used to understand the vulnerability of land uses/ patches. Land uses or habitats which have existed for a significant period but are declining are valued higher than those which have persisted for a short time but have expanded in range. The results can also be mapped. An improved Historical Index is being developed based upon a classification and regression tree model.

Applications:

Data from this study has been used to inform:

- Guidelines for assessing the impact of windfarms in the Tuscan landscape
- The development of Tuscany's first landscape park
- Guidelines for conserving, managing and enhancing protected landscapes in Tuscany
- A landscape framework to inform the regional structure plan
- Analysis of change in the suburban landscape of Florence in the last two centuries

It has also contributed to the definition of measures for landscape in the Italian National Strategic Plan for Rural Development. This is significant because it represents the first time landscape has been used as a strategic indicator for improving the competitiveness of agriculture and forestry sector, environmental quality of rural areas, quality of life and diversification of the rural economy.

Publication date: 2006

Frequency of monitoring: N/A

Lead organisation: The University of Florence

Partners: Regional government of Tuscany – particularly the Nature Conservation Service

Website:

http://www.mauroagnoletti.com/it/tuscany_monitoring.asp

Agnoletti M., 2006, The Conservation of Cultural Landscapes, CAB International, New York.

Agnoletti M., 2007, The degradation of traditional landscape in a mountain area of Tuscany during the 19th and 20th centuries: Implications for biodiversity and sustainable management, Forest Ecology and Management 249 (2007) 5-17

Geographical extent: 13 study areas covering 23,753 hectares (1% of the region) and split between three Tuscan landscape types: Apennine Mountains, central hills and the coastal plain. Including abandoned land, farms, urban and suburban areas. The average study area is 2000 Hectares and these were selected to represent the different geographical and socioeconomic conditions in the region – nine are located in the central hills, representing 65% of the region, two are in the mountains (25% of the region) and two are on the coastal plain.

Scale: Land cover was mapped at a minimum unit of 1000m²

DEVELOPING A HIGH NATURE VALUE FARMING AREA INDICATOR FOR EUROPE

Approach (summary):

Low intensity farming systems have been recognised as valuable to the rural environment, particularly for nature conservation, for over a decade but there is limited data regarding the distribution, character and evolution of such systems. This project aimed to test and develop an indicator for high nature value farmland. The methodology included:

- Review of European datasets
- Conceptualisation of potential HNV farming area indicators
- Map of HNV farmland
- Analysis of the possibility of extending such an indicator to all EEA countries and Switzerland
- Validation of results
- Recommendations for future work

There was limited consistent data availability at the pan –European level which could account for the relationship between species, habitat and farming practice and consequently three different types of indicator were developed based on:

- Land cover approach – understanding the distribution of High Nature Value Farmland in relationship to habitat and land cover
- Farming system approach – understanding the distribution of High Nature Value Farmland in relationship to farming systems associated with the presence of High Nature Value Farmland
- Species approach – understanding the distribution of High Nature Value Farmland in relationship to relevant bird species

The Land Cover approach worked with the CORINE dataset and identified relevant land cover types which related to High Nature Value Farmland and plotted this information on a European map. This land cover data was then correlated with High Nature Value Farmland. This approach was deemed useful for identifying potential locations for High Nature Value Farmland but offered no means of understanding the intensity of farming systems. The CORINE dataset was not sufficiently fine grained for detailed analysis.

The Farming System approach applied holding level data on farm types from the Farm Accountancy Data Network to identify systems likely to promote the maintenance or enhancement of nature value. The main limitation with this approach is that it is hard to account for the fact that the relationship between farming systems and nature value are rarely direct and therefore the correlation between farming systems and resulting Nature Value land was hard to define. This approach can be used to give indications on the pressure from farming in relation to Nature Value land and can be used as a tool for designing and assessing relevant policy initiatives.

The species approach tested two methods: one considered breeding bird species indicative of different types of farmland habitat in Europe; the other considered bird species of conservation concern which were potentially associated with farmland. Both approaches mapped presence-absence data based upon the EBCC's Bird Atlas of Europe. The limitation here is that this data set plots presence-absence and makes no account of abundance or breeding success and thus can only be indicative of what is actually present in reality.

All three approaches have limitations but they also have values: the land cover approach can be used to understand the probabilities of where High Nature Value Farmland is located in Europe; the farm system approach can be used for monitoring the extent of High Nature Value Farmland but does not give precise figures regarding how this extent is changing and; the species approach can be used to qualitatively assess the results from the other two approaches. Further work is required to combine information on HNV farming systems to specific land cover classes.

Applications: Used at a European level to advance understanding and knowledge regarding the presence, extent and character of High Nature Value Farmland.

The study identifies a number of potential uses for the dataset:

- As part of an impact assessment for new policy proposals or large infrastructure development proposals
- To understand the extent and distribution of potential HNV farmland and the key agricultural characteristics of farming systems associated with such farmland
- To assess the progress in integrating agricultural and nature conservation measures

Publication date: June 2004

Frequency of monitoring: N/A

Lead organisation: FSL

Partners: Institute of European Environmental Policy, IDRISI, European Forum on Nature Conservation and Pastoralism, Wageningen University, International Institute for Sustainable Development

Website: http://www.ieep.eu/assets/646/Developing_HNV_indicator.pdf

Geographical extent: EEA countries and Switzerland

Scale: Various

INDICATORS FOR ASSESSING CHANGING LANDSCAPE CHARACTER OF CULTURAL LANDSCAPES IN FLANDERS (BELGIUM)

Approach (summary): This study focused on an area between Ghent and Bruges to develop a methodology for the time depth analysis of landscape character to understand landscape change.

A series of maps were used to understand how landscape character and land uses/ features have changed through time. Maps included:

- 1770-1780 de Ferraris map representing landscape at the end of the Ancien Regime
- 1850 Vander Maelen topographic maps represent the first maps of independent Belgium
- Military Geography Institute maps from just before World War One and revised in 1940
- 1950 Topographic map
- 1990 onwards, aerial photography repeated every 5 years

The maps were analysed in GIS and significant landscape features, based upon land cover and land use, were identified and captured using the 2000 aerial photography map as a base. This information was used to define landscape character types (LCTs).

Landscape metrics were calculated to describe the landscape character in terms of spatial pattern, presence and variety of distinctive land cover/ land uses e.g. urban, forest, commons and outfields. By understanding how patches of land cover/land use change in relation to the different landscape character types it is possible to understand the evolution of landscape, the rate of change and the 'constancy' of the landscape character. Landscape metrics used include:

- The proportion (%) of coverage of a patch within a LCT - used to describe the dominance and diversity of character types
- Number of patches within an LCT defining the degree of fragmentation within an LCT
- Mean patch area – describes the variation in character at the landscape scale
- Patch density – defines landscape scale and the size of elements
- Mean shape index – describes the spatial complexity of the landscape
- Patch richness – landscape character type diversity
- Landscape heterogeneity – level of variation of monotony in the landscape
- Openness – levels of enclosure/ openness in the landscape

These landscape metrics are used to understand the nature and magnitude of landscape character change, for example, the analysis found that 10% of the area contains structures which existed from the 18th century and whilst 50% of the area had changed only once during the study period, 4% of the area had changed between three or more of the time periods considered.

The study found that landscape character types defined using maps, aerial photography and other historical sources can provide a means for analysing time depth and landscape character trajectory. Landscape metrics proved to be valid as indicators of some properties of the changing landscape but multiple indicators are needed to assess different aspects of landscape character change.

Applications: Understanding time depth helps in defining landscape quality objectives as stated by the European Landscape Convention. The data from this project describes the time depth characteristics of the landscape and can be used to aid planning decisions and prepare policy. It is a useful tool for illustrating and reinforcing the value of historical and/or ecological landscape features such as ancient woodlands and grasslands, reinforcing their constancy and nature conservation value in the landscape. Understanding time depth is also valuable for establishing landscape quality objectives as required by the ELC.

Publication date: 2008
Frequency of monitoring: N/A
Lead organisation: Ghent University
Partners: N/A
Website: Veerle Van Eetvelde and Marc Antrop, Geography Department, Ghent University, Krijgslaan 281 S8 B9000 Ghent, Belgium
Geographical extent: 52km ² relic zone between Ghent and Bruges
Scale: 1:10 000

SUPPORT TO INTEGRATE 'TRAME VERTE ET BLEUE' IN INTER COMMUNAL STRATEGIES (TEMPLATE PREPARED BY CORDIALE PARTNERS)

Approach (summary): An experimental project led by PNR des Marais du Cotentin et du Bessin from February 2009 to June 2010 in the 'communauté de communes' and commune of Lessay. The project had two phases: analysis and mapping at the inter communal scale and a 'reflexion phase' at the scale of the commune.

Existing land cover classification (CORINE used for species and areas) was not sufficient precise so a new layer of land use classification was created by integrating the data on the land registry, RGP, wetland and natural habitats. This was completed on 1/4 of the area by an interpretation of aerial photographs checked when ambiguous on the ground. The study then analysed 7 sub categories: moors, woodland areas, bocage framework, saline coastal areas, dunes areas, aquatic areas (permanent waterways) and other wetland.

Reservoirs of biodiversity were defined following different approaches:

- . for the saline areas, dunes areas, moors and woodlands, additional information was gathered from a group of experts because surfaces are quite small and well known already;
- . for the wetlands: ecological assessments were undertaken. The study also took into account the inventories of ponds and amphibians (supplied by CPIE) valid on all the study area;
- . for the sub category of aquatic areas: all waterways were chosen as reservoir for biodiversity and ecological corridor.
- . for the bocage framework a combined analysis included hedge density, meadows, and elements breaking corridors (such as a road) to determine the best preserved zone of bocage (and not the reservoirs of biodiversity as all the bocage of this 'communauté de commune' is still functional);
- . for the saline coastal areas and dunes areas the potential axes of ecological corridors were determined by visual interpretation;
- . for the other sub categories, the 'least-cost-pathway' technique was used. This method is taking into account all sorts of habitats from land use but also the hydrographic network, hedge density, anthropic activities.

The second phase of the project focused on the 'commune de Lessay'. The geomatic method identified precise enough ecological continuity at a commune level but more detailed survey and digitisation would be needed to identify the main challenges for planning. The information gathered on the reservoirs of biodiversity and axes of ecological corridors were therefore compared to the existing Plan Urbanism Locale (PLU). The objective was to see what the PLU would have been like with the knowledge about ecological systems.

Applications:

'Trames Vertes et Bleues' (TVB) can be used in various processes to manage a territory or support local authorities or organisation who are developing approaches to better consider biodiversity. Taking environment into account in land management policies is slowly being strengthened with new French legislation (The law Grenelle 2) defining the role of 'urbanism documents' This includes TVB locally as a means to conserve and rehabilitate ecological continuities. In addition SCOT (Scheme of Territorial Coherence) and PLU (Local plan for urbanism) have to take into account the 'Regional Scheme of Ecological Coherence'. Methodological guidance to include TVB in urbanism documents is being developed by MEEDM (Ministry of Ecology, Environment and Sustainable Development). Local members will be responsible of implementing policies to identify, preserve and restore ecological continuities.

Beyond integrating TVB in urbanism documents and in various policies of natural environment, it is necessary to integrate the issue of ecological continuities in all project scales and all private or public approaches. Communes and public authorities in general, social landlords and large companies own or manage large areas that could contribute to the good functionality of ecological continuities. Urbanism documents can't regulate everything and it is often necessary to reconcile various political objectives. It is often necessary, especially close to an urban zone, to implement adapted policies of management. This may well include private or public landowners delegating all or a part of their land management to capable organisations or institutions: EPCI, joint association or charities. It could also be just about coordinating actions or pooling methods/means.

If urbanism regulations and incentives regarding management are not enough and if other input isn't possible or efficient, it could then be necessary to put in place a 'land purchase' strategy, enabling public authorities to implement protection and adapted management measures or to make some restoration works or implement the necessary developments to conserve ecological continuity.

It was found that:

Zoning in the PLU was globally coherent; but the integration of this ecological data might enable adjustments to regulations on some sectors, especially with the support of the detailed socio economic diagnosis, more precisely the part detailing agricultural issues: future of developments, changes of the structure of developments and the evolutions of technic-economical orientations. Ecological knowledge could also have reinforced the directions of development expected in some areas becoming more or less urban or could have preserved some distinctive features of the landscape.

The study also opened new perspective in terms of differentiated management or restoration of areas, by making the elected members aware and by pointing to the zones with specific challenges.

Publication date: December 2010
Frequency of monitoring: No update anticipated
Lead organisation: Parc Naturel Régional des Marais du Cotentin et du Bessin ; PNR du Perche et PNR Normandie Maine
Partners: DREAL, Basse-Normandie; Région Basse-Normandie; MEEDDM
Website: n/a
Geographical extent: Within PNR Marais du Cotentin et du Bessin
Scale: Clusters of local communes (equivalent to English Parishes)

HISTORIC ENVIRONMENT ACTION PLANS FOR THE CRANBORNE CHASE AND WEST WILTSHIRE DOWNS AREA OF OUTSTANDING NATURAL BEAUTY (template prepared by Cordiale partners)

Approach (summary):

Between February 2009 and February 2011 the Cranborne Chase and West Wiltshire Downs Area of Outstanding Natural Beauty created a series of comprehensive Historic Environment Action Plans (HEAPs) for the whole AONB landscape. This work was funded by English Heritage as a best practice exemplar for protected landscapes (National Parks and AONBs) and undertaken by a project officer supported by a steering group.

The HEAPs build on an AONB wide Historic Landscape Characterisation which was completed between January 2007 and September 2009. Historic Landscape Characterisation provides a detailed evidence base which captures, maps, and analyses the present day historic landscape character of the AONB. While the county based Historic Environment Record provide point based information on archaeological sites, buildings, finds and events. The complexity of these complementary datasets means that it is often time consuming and difficult for non specialists to understand the information held within these datasets and its significance. The point based data held within Historic Environment Records also has limitations in terms of landscape scale evaluation and assessment. Historic Environment Action Plans can be used to provide a more accessible overview of the information held within these records. They also can be used to identify the significance of the key attributes of these data sets.

The Historic Environment Action Plan approach provides a mechanism through which the AONB and its partners can systematically and transparently assess the significance of its historic and cultural assets.

The HEAPs provide a summary of the key characteristics of the historic environment of the AONB at a landscape scale, they then set out the significance, condition and forces for change affecting the historic fabric and character of this special landscape and identify proactive actions to conserve and enhance these special characteristics. These summaries are divided into two groups:

- Summaries of the historic environment of the AONB by area
- Summaries of the historic environment of the AONB by theme

These core documents are accompanied by other documents which provide supporting background information, supplementary information and detail on the methodologies used to create these documents.

Applications:

The Historic Environment Action Plan can be used as a means of increasing understanding of the archaeological, historical and cultural aspects of the Cranborne Chase and West Wiltshire Downs AONB. The documents forming the HEAP:

- synthesise a wealth of historic environment information and present it in one easy to use of source.
- provide a clearer vision of how different aspects of the historic environment contribute to the special qualities of the APNB landscape.
- present the key historic environment characteristics of the AONB landscape in a way which is accessible to non-specialists.

The documents comprising the Historic Environment Action Plan can be used as an evidence base. This evidence base can be used to:

- add value to both spatial policy and development application decisions effecting the AONB landscape. In particular they inform:
- the strategic evidence base for Local Development Frameworks and other strategies.
- forward planning documents including regeneration strategies and masterplans.
- development management decisions.

The AONB has documented its work in this area using its own Historic Environment Action Plans in a document entitled “A guide to the role of historic landscape characterisations in planning in and around the Cranborne Chase and West Wiltshire Downs Area of Outstanding Natural Beauty”.

This document includes case studies of where and how it has promoted the evidence base provided by the Historic Environment Action Plans as a tool to:

- allow the creation of specific planning policies which address the historic aspects of landscape.
- develop a strategic overview of historic landscape character.
- develop an understanding of the landscape context from which to appreciate site-specific information.
- assess potential and actual development sites and produce statements of significance.
- inform wider planning and management strategies including the AONB Management Plan, Conservation Area Assessments, and Environmental Stewardship Schemes.
- enhance existing landscape characterisations.
- inform land management practices including agri-environment agreements.
- facilitate the better targeting of historic environment resources and advice.

The Historic Environment Action Plan can be used as a tool for engagement within a protected landscape. The documents forming the HEAP can be used:

- in outreach to present the key historic environment characteristics of the AONB landscape in a way which is accessible to the non-specialist.
- to facilitate a debate with a wide range of individuals, groups and organisations surrounding the key features of the historic environment in a given area, their significance and the forces for change enacting upon them.
- to raise the profile of the historic environment and historic landscape of the AONB.

The Historic Environment Action Plan can be used as a tool for research. The Historic Environment Action Plan approach provides an opportunity to assess gaps in current knowledge and understanding, and identify actions through which research can be undertaken to fill those gaps.

The Historic Environment Action Plan can be used as a means of creating real action.

The action plan at the centre of the HEAP provides the opportunity to implement a series of specific, measurable, achievable, realistic and time-based actions. The action plan will provide targeted opportunities through which the historic aspects of the AONB can be both conserved and enhanced. This will include improved management of features, sites and landscapes.

As an exemplar for other protected landscapes (AONBs and Protected Landscapes) and other rural areas. The Historic Environment Action Plan project has thoroughly documented the methodologies used to create area and theme statements, has produced a guidance document aimed specifically at Protected Landscapes.

Publication date: February 2011
Frequency of monitoring: Progress with the Action Plan reviewed quarterly with a full review every three years.
Lead organisation: Cranborne Chase and West Wiltshire Downs AONB
Partners: The implementation of the historic environment actions is being overseen by an Implementation Group with individuals or organisations signing up to oversee the implementation of a particular action. Membership of this group includes English Heritage, Natural England, Local Museums, Academics, Local Interest Societies etc. The minutes of these meetings of this implementation group will be made available on the AONB's historic landscape website www.historiclandscape.co.uk . A crucial spin off from these meetings and the activities generated through the implementation of actions will be to raise awareness of the special characteristics of the history and archaeology of the area.
Website: www.historiclandscape.co.uk
Geographical extent: 981 sq km of the Cranborne Chase and West Wiltshire Downs AONB covering parts of Wiltshire, Hampshire, Dorset and Somerset
Scale: Landscape Scale – all GIS mapping plotted on OS Mastermap at a scale of approximately 1:2500

LANDSCAPE MONITORING PROJECT – CORNWALL, TAMAR AND ISLES OF SCILLY AONBs (template prepared by AONB partners)

Approach (summary): The project developed a method and established a monitoring baseline (based on the AONB LCAs as a spatial framework) for assessing landscape character change in the three AONBs. The baseline data collection included an analysis of existing data held by the AONBs, aerial photographic interpretation and primary data collection (e.g. field surveys of boundary condition). All of the baseline information is held in GIS, with a photographic record from the ground surveys.

The Methodology involved the creation of Landscape Monitoring Units (LMUs) from the existing Landscape Character Areas. Forces for change were then identified and used to select landscape condition criteria for each indicator of landscape character. The indicators were then tailored to the individual Monitoring Unit, some were universal e.g. tranquillity, some were specific to the Monitoring Unit e.g. extent of bare mining spoil.

For more detailed monitoring, e.g. hedgerow condition, 1km sample squares were chosen, two per LMU. These were subject to closer aerial analysis and field investigation and a photographic record made.

Baseline results were provided for each AONB, and protocols were also prepared for repeat monitoring. A scoring system was set out to assess landscape condition as to whether the perceived change was positive or negative for each indicator. This could be totaled to give a condition score for the whole AONB.

Applications:

The monitoring baseline will be updated at set intervals to provide a thorough record of landscape change in the AONBs. This information will provide the main evidence base for State of the AONB reporting, AONB Management Planning and to help guide activity in response to recorded landscape change.

Publication date: Unpublished report 2008, work undertaken by Land Use Consultants
Frequency of monitoring: 5 years +
Lead organisation: Cornwall, Tamar and Isles of Scilly AONBs
Partners: As above
Website: For Cornwall AONB, the results are included in the Cornwall AONB Atlas: http://www.cornwall-aonb.gov.uk/atlas/Landscape.html
Geographical extent: All of the areas of the three AONBs
Scale: Various

DORSET CLIMATE CHANGE RESILIENCE PROJECT (template prepared by Cordiale partners)

Approach (summary):

In this study, we used the climate projections for 2080 under a scenario of high greenhouse gas emissions, to set out the likely impacts on the natural environment. The climate of the Dorset Downs and Cranborne Chase might resemble that of present day Portugal. An innovative approach to land use planning was used to map a resilient landscape for the future in small group workshops. These cross-sectoral workshops stimulated lively debate, knowledge exchange and practical solutions. A film was produced in which some of the workshop participants present these solutions against the back-drop of a future, resilient landscape.

The project was initiated by Natural England as a national pilot with three other areas (The Broads, Lake District High Fells, and the Shropshire Hills). The target audience was local authority sustainability managers, planners, risk managers, and Government agency and third sector persons involved with planning to adapt to climate change.

The project set out to answer the question: How will the predicted changes in climate effect the natural assets of the soft chalk landscape of the Dorset Downs and Cranborne Chase, and what changes in land use and management would safeguard those natural assets and thus our well being?

Four separate aerial photographs were produced for four representative landscape types within the Dorset Downs and Cranborne Chase AONB. These were:

- Chalk escarpment ridge,
- Chalk plateau,
- Wooded chalk downland,
- Floodplain and upper catchment.

Workshop participants debated changes that would create more resilient landscapes and recorded conclusions in a series of action plans that were deemed to be the most urgent and/or important. Five themes emerged:

- Management of semi-natural habitat, including trees and woods,
- Wetlands,
- Forward planning (renewable energy),
- Forward planning (natural resources),
- Land use policy.

The action plans set out; where we wanted to be by 2020; indicators of progress, and necessary actions and resources. For example, in the wetlands plan no more built development in the floodplain, the indicator being the number of planning permissions granted by the local authority, and the action being for local authorities to define floodplains and to include protective policies in Local Development Frameworks, in consultation with the Environment Agency.

Stage 1 - Natural England completed templates describing the projected biophysical impacts of climate change on significant natural assets, and practical action that could be taken to assist adaptation. The templates had the following headings [an example is given in brackets]:

- Asset [lowland calcareous grassland],
- Climate risk [drier, hotter summers],
- Nature of the effects [drought],
- Extent of the effects (spatially and quantitatively) [highly xeric plant communities],
- Projected (biophysical) impacts [*Upright brome* (a key grass of chalk) is retarded by a dry season, so may be at a competitive disadvantage].

Stage 2 – Two workshops were held with external partners (statutory agencies, local authorities and non-governmental organisations) moving from the Natural England templates toward the practical actions to detail who could do what, and by when (the action plan).

A third workshop series, with a maximum of eight participants were selected for their knowledge of biodiversity, soils, agriculture, heritage, landscape, access, and water. These workshops used visualisations of the adapted landscapes in 2080 so that land owners, land managers, and land-use decision makers could comprehend the precise scale, quality and location of the changes needed. The third series of workshops were facilitated by Community Enterprise Unit Ltd.

Applications:

116 people who had been involved in the project in some capacity were invited to evaluate it. Half said that they had acted or thought differently as a result of the project. The third workshops generated the richest debate and some 'no regrets' solutions that should be pursued now. Participants said the sessions were fun and thought provoking. An excellent, independent facilitator was also crucial.

It was not possible to consider the impacts of climate change in isolation from other global drivers (energy, fuel, food)

Focusing on areas about 50km² in size led to a tangible debate about how climate might impact. The bioclimatic data was essential to frame the debate and it is essential to explain how this data is derived and what timeframe is being considered. The use of 'geographical climate analogs' e.g. comparing the predicted climate of Dorset with that of present day Portugal, does help and could be developed..

The project aimed to generate a sense of urgency that some of the predicted changes in weather are already being realised. We also wanted to paint a picture of a positive future. Proposed solutions are relatively cheap, build local resilience and safeguard natural resources. For example, the re-establishment of chalk grassland, native woodland or hedges on steep slopes will prevent erosion of thin chalky soils.

Publication date: 2008
Frequency of monitoring: No monitoring was established in this project.
Lead organisation: Natural England (Government agency for nature conservation, access and recreation)
Partners: Local Steering Group: Forestry Commission, Environment Agency, Dorset AONB, Cranborne Chase & West Wiltshire Downs AONB, Dorset County Council, Wiltshire Wildlife Trust Consultants: W S Atkins, Community Enterprise Unit Ltd, Pangaea TV Ltd.
Website: The executive summary, full reports (code NE116) and film (English) can be found at http://www.naturalengland.org.uk/regions/south_west/ourwork/climatechangeproject.aspx
Geographical extent: Dorset into West Wiltshire
Scale: The Dorset Downs and Cranborne Chase Character Area is 116,500 ha.

MONITORING OF LANDSCAPE CHANGE USING FIXED POST PHOTOGRAPHY SOUTH DEVON AND NORTH DEVON AONBS (template prepared by Cordiale partners).

Approach (summary):

The project utilises photography taken from key vantage points throughout the South Devon and North Devon Areas of Outstanding Natural Beauty to capture changes in the landscape. Image capture is expected to run for at least a 10 year period. The use of a post mounted camera that can be taken from site to site is central to the project and ensures the same view extents are captured each time a visit is made. Each set of photographs contributes to a 'bigger picture' archive and will aid our understanding of landscape change over time.

Sites were selected across the AONBs to ensure that each of the area's distinctive landscape character areas/types were represented. A mixture of sites where landscape change was expected, possible and unlikely were chosen. Vantage points giving a good view of landscape features in the foreground out to around 2.5kms were used as these are captured best through the fixed post technique and enable reasonable analysis of special qualities. All the locations have either public access to the fixed post site, or have a very similar view that can be achieved from nearby public rights of way or roads.

A bespoke manufactured heavy duty demountable pole attaches to base plates at each site. The pole is topped off with a pole top camera mount that rotates a full 360 degrees and can be locked in place at 22.5 degree intervals. This enables shots to be taken at each of the 16 standard compass points. A prescribed number of photographs are taken at each site covering a set number of compass points. This process ensures that the same views are captured each time a site is visited. A minimum of 4 visits are made throughout the year to each site, timed to coincide with the changing seasons. Focal lengths are kept the same to allow accurate comparisons between pictures.

In addition to the main photo sets, extra point-of-interest photos are captured along with a short 30 second video burst. The video footage provides visual and audio clues to the levels of tranquility experienced at the vantage points. An MP3 format digital sound recording device is used for better quality sound. Where possible, night time photographs will be taken for all sites in order to quantify the levels of night time scenic intrusion, visible dark night sky and sources of light pollution.

Sets of images are created for each of the sites. These can be analysed separately and also joined together to form panoramas.

Individual images can be compared against other individual images taken for the same site and compass point to assess the degree and type of change. Notable changes can be transferred from the photographs and digitised over map bases within a Geographical Information System in order to measure distances or areas and provide a quantitative assessment of change. Notable changes will be recorded.

Current work involves looking at software programmes that can compare changes in photographs digitally, and these trials are continuing.

Applications:

The evolving time stamped series of photographs provide both a baseline and evolving resource for monitoring changes in representative parts of the AONB landscape. The approach provides data from which to analyse and evaluate a range of changes and their landscape effects, including:

- incremental change
- components of change and/or consistency
- cumulative impacts of change
- impacts of land management activities, cropping patterns
- planned and unplanned development
- regulated development and permitted development
- incidents of night time scenic intrusion and light pollution

Individual image frames and stitched panoramics are used to aid the communication of smaller changes in the context of the wider landscape and assist communities, individuals and land managers in understanding how their actions change the character of the landscape.

Robust technical analysis is still to be developed – initial discussions with University of Plymouth have taken place to establish the potential for automation and auto-rectification to enable analysis of photos within a GIS package.

The system and / or equipment can be utilised by partners to supplement the core fixed post photography set.

Consideration may be given in the future to taking supplementary less frequent photos from fixed points, not utilising the base plate system to augment the core set of fixed post photos.

The post equipment and fixings being used were developed as part of a Southwest Protected Landscapes joint project. As a result, in addition to the photos being viewed in the context of the South Devon AONB alone, other similar archives are available for comparison purposes from those SWPLF AONBs also taking part.

Publication date:	Not currently published, but quarterly image results for individual sites are shortly to be made available via google-earth based re-photography slideshows.
Frequency of monitoring:	Quarterly photography rounds to capture images within each of the 4 main seasons.
Lead organisation:	South Devon and North Devon Areas of Outstanding Natural Beauty
Partners:	Private landowners and farm tenants, Sharpham Estate, Torbay Coast and Countryside Trust, the National Trust, Torridge District Council, North Devon Council
Website:	http://www.southdevonaonb.org.uk/text.asp?PageId=341
Geographical extent:	9 locations throughout the South Devon AONB and 10 locations in the North Devon AONB.
Scale:	10.1 megapixel image resolution for individual photographs. Fixed Point sites are geo-referenced into OS Mastermap, however no work has been undertaken on viewshed analysis from points or to map the photo extents.

NORTH DEVON COAST AREAS OF OUTSTANDING NATURAL BEAUTY: VISITOR IMPACTS SURVEY (template prepared by Cordiale partners)

Approach (summary): The visitor impacts survey was undertaken in two stages. Firstly, a questionnaire was sent to 78 consultees, selected on the basis of their working or domestic association with the AONB. These included parish clerks, conservation managers, land owners and members from the tourism sector. The questionnaire was then used as a basis for follow-up telephone interviews with the consultees.

The AONB Partnership devised a list of visitor impact themes for consideration within the survey. These themes provided the basis for development of the survey questionnaire (Appendix I). The themes incorporated in the questionnaire included seven main areas in which visitors might have an adverse impact within the AONB:

- Damage to public and/or private property
- Adverse impacts to livestock
- Damage to wildlife and habitats
- Nuisance noise
- Litter and eyesores
- Unregulated camping
- Traffic

The questionnaire was designed to identify how consultees perceived the severity of impacts associated with these themes, as well as the overall severity of adverse visitor impacts within the AONB. The consultees were asked to rate impact severity on the following scale:

- 1 = None
- 2 = Minor
- 3 = Moderate
- 4 = Severe

Emphasis was also placed on identification of particular locations within the AONB that were affected by potential visitor impacts. A map was attached to the questionnaire for this purpose. Telephone interviews were undertaken where respondents to the questionnaire indicated that they agreed to be interviewed and it was considered that it would be useful to elaborate on the information they had already provided; particularly in relation to identifying specific locations where they perceived visitors to be having an adverse impact.

Calls were also made to a selection of those consultees who had not responded to the questionnaire. Where these consultees were willing and able to participate, they were first asked to rate how they perceived the severity of adverse visitor impacts within the North Devon AONB, and then to provide details of any specific locations they perceived to be affected for each of the main impact themes listed above.

The results of the questionnaires were used to create charts showing how the respondents perceived the severity of visitor impacts for each of the impact themes. These charts are shown in the following section. The questionnaire results were also used, along with the information obtained from the telephone interviews, to plot maps showing the areas where moderate or severe visitor impacts had been identified.

Applications:

Influencing behaviour through Public Awareness raising and Action Campaigns

Influencing Policy e.g Local traffic Management

Prioritising and Directing of resources

Evidence base for funding bids

Publication date: 2009
Frequency of monitoring: 5 years
Lead organisation: North Devon Coast AONB
Partners: Contractors Andrew McCarthy Associates
Website: Full report available at http://www.northdevoncoast.org.uk/
Geographical extent: North Devon Coast AONB
Scale: Point data Desk top study only, the results were not quantified

BRIXHAM URBAN FRINGE STUDY (template prepared by Cordiale partners)

Approach (summary):

Brixham is the southern-most of the three major towns in Torbay in South Devon and the landward area enclosing the town forms the most easterly part of the South Devon AONB. Tourism has helped diversify the economy of the town adding to the well established commercial sea fishing industry. A significant number of holiday camps emerged within Brixham's coastal hinterland during the 1950's. Many of these sites were subsequently included within the South Devon AONB when it was formally designated in 1960.

The town and its coastal hinterland have experienced significant growth over the last 50 years and in common with other resort areas, changes in holiday trends have meant that chalet parks are no longer as popular as they once were. Pressure for further growth is now largely focussed on and around these dilapidated holiday park sites.

A partnership led by the South Devon AONB Unit and including Torbay Council (the unitary local authority within whose jurisdiction the sites of interest are located); Torbay Coast and Countryside Trust (a local independent charitable trust responsible for managing a range of Torbay's wildlife and heritage sites); and Brixham Town Council, commissioned Enderby Associates to undertake The Brixham Urban Fringe Study with the aim of considering ways in which Brixham might continue to develop whilst respecting the landscape of the AONB. In June 2011, a final draft report with associated mapping was published to illustrate both the landscape of the urban fringe in this location and how pressures for growth may be reconciled with the primary purpose of AONB designation: the conservation and enhancement of natural beauty.

Applications:

The study and associated material:

- Provides an evidence base to inform the emerging Local Development Framework Core Strategy and to assist with strategic planning
- Identifies opportunities for repairing and strengthening landscape character
- Identifies the optimum functions and purposes that could be provided by land compartments (their ecosystem services)
- Identifies opportunities for securing enhancements through the development system (by conditions to planning permissions, through section 106 agreements and developer contributions)
- Provides design and land management guidance appropriate to the locality (covering – for example – boundary treatments, planting, pasture management, lighting)
- Identifies the critical environmental capital of the locality and makes recommendations for conserving, maintaining and enhancing the integrity of the various designations
- Identifies opportunities for improving connections between Brixham and the countryside and coastline of the study area and opportunities to improve the management of the rural-urban interface.

Publication date:

The report was published in its final draft form in June 2011. Publication of the final report is anticipated for Autumn 2011.

Frequency of monitoring:

The study was a focused one-off piece of work but will inform the development of Torbay's key strategic planning documents. With this in mind the study sets a baseline and trajectory against which future change can be judged. The AONB Unit will be using the document to periodically review decisions made on development type and location and the resultant development from these decisions to ultimately conclude whether or not the s85 Countryside and Rights of Way Act 2000 'duty of regard' toward conserving and enhancing the natural beauty of the AONB has effectively been met.

Lead organisation:

South Devon AONB Unit

Partners:

Main - Torbay Council (Unitary Local Authority), Torbay Coast and Countryside Trust (independent charitable trust), Supporting - Brixham Town Council, National Trust

Website:

The final published version of the report will be available via the South Devon AONB website www.southdevonaonb.org.uk following autumn publication.

In addition to this, the Brixham Urban Fringe Study feeds into the Torbay Green Infrastructure Plan and as such the study area forms part of the Brixham and Kingswear Peninsula "Green Infrastructure Delivery Area" for Torbay. See <http://www.countryside-trust.org.uk/mainsub.cfm?id=1274&parid=1049#menutop> for further information.

Geographical extent:

The study area encompassed the part of the South Devon AONB that lies within the Torbay Unitary Authority area and a small area of countryside immediately south of Brixham town which is not subject to AONB designation but is relevant to the context of the study.

Scale:

Mapping included within the study has been presented with an accompanying at 1:25,000 scale Ordnance Survey base layer. Compartment boundaries and features however have been digitised at 1:10,000 scale

CHILTERNES LAND USE AND HEDGEROW SURVEYS

Approach (summary):

Land Use Surveys: Annual surveys from 2005-8 to record land use patterns in 105 1km sample squares across the AONB. For each sample square, surveyors assess the land use in every parcel of land that is visible from a road or public right of way and also take photographs from fixed viewpoints. Different land uses are recorded on a basemap using a set of codes developed by the AONB. The results are entered into a Geographical Information System (GIS) to allow measurement of different land uses and annual comparisons to be made. In 2010, a scaled back version of the survey took place due to budget restrictions, concentrating on those squares that had experienced landscape change in the previous surveys.

Hedgerow surveys: Hedgerow condition surveys were undertaken in 2006-8, based on 47 of the sample squares used for the land use survey (above); recording hedgerow characteristics, adjacent land use as well as current condition. The boundaries surveyed within each 1km square were randomly selected, and the survey was carried out using the methodology in the latest Hedgerow Survey Handbook (Defra 2006). A total of 330 hedgerow sections in 53 squares were surveyed in the two years of the project. In addition, in 2007, 92 isolated hedgerow trees were recorded in the sampled hedgerow sections. Recording the age and species of hedgerow tree enabled the AONB to conclude that only 2% of the specimens surveyed were classed as young – a cause of concern for the AONB in terms of the future stock of hedgerow trees in the landscape. The results of the hedgerow survey have been used to:

- Set a baseline of condition for future surveys.
- Help set priorities in the AONB Management Plan 2008-2013.
- Measure progress in achieving local Biodiversity Action Plan (BAP) targets for hedgerows in the Chilterns AONB.
- Assist in the appropriate management of Chilterns hedgerows.
- Increase awareness and understanding of hedgerows in the Chilterns landscape.
- Ascertain if there is a link between hedgerow condition and adjacent land management.

The AONB holds an in-house instruction manual (6 chapters) that gives guidance on the field survey methods as well as the data entry and analysis elements of the project.

Applications:

The ongoing monitoring work will help the AONB understand and respond to the factors causing landscape change in the protected landscape. Key objectives of the land use survey are:

- To provide data on the current extent of land use and land cover
- To identify the rate and type of land use and land cover changes
- To determine how such changes vary between different landscape types
- To assess the impact of such changes on landscape character
- Where possible, to identify the drivers of land use and land cover change

Publication date:

Land Use Surveys: Mapped results and analyses are available from the annual surveys undertaken

in 2005, 2006, 2007 and 2008 in a short report. The report of the 2010 surveys is not yet available.

Hedgerow surveys: Mapped results and analyses from the condition surveys undertaken in 2006, 2007 and 2008 are available in a short report from the AONB website.

Frequency of monitoring: For the land use surveys, these have been undertaken annually since 2005 (apart from in 2009). Because of funding uncertainties at the present, it is not known whether the 2011 surveys will be able to take place.

The next hedgerow surveys are planned to take place in around 2013 – roughly five years since the last surveys.

Lead organisation: Chilterns Conservation Board

Partners: N/A

Website:

http://www.chilternsaonb.org/caring/farming_surveys.html

Geographical extent:

Land Use Surveys: cover 105x 1km sample squares across the AONB. The 105 1km squares represent 12.5% of the total AONB area.

Hedgerow Surveys: cover 47 of the same 1km squares as the land use survey.

Scale:

The mapped information is digitised at a scale of 1:10,000 using Mastermap as a base.

MALVERN HILLS LANDSCAPE MONITORING PROJECT

Approach (summary):

The AONB Partnership commissioned the Centre for Rural Research (University of Worcestershire) to research a methodology for monitoring landscape change in the AONB, using the Landscape Character Assessment as a framework. The report concluded that the most appropriate technique to use was fixed point photography – devising a consistent approach to selecting the location, taking the image and analysing the image data.

The AONB's 30 Land Description Units (LDUs) are used as a framework for the monitoring programme, with one or two locations chosen per LDU. As well as taking photographs and recording exact GPS grid references and directions of view, the photographs are accompanied by a field survey sheet which records landscape features present in the view and a commentary on condition. The first round of photographs (2006) were also annotated with information relating to the distinctive components of the generic landscape type and observations on condition.

The photographs for 2006 and 2009 are presented side-by-side on the AONB's website – accessed through a 'clickable' map of the AONB arranged by its component LDUs.

Applications:

The information feeds into the State of the AONB Reports, which are prepared every three to five years to support the AONB Management Plan.

Publication date: Report of the methodology published Spring 2006. Comparative fixed point

photographs are available for the years 2006 and 2009.

Frequency of monitoring: To-date, every three years to coincide with State of the AONB Reporting.

Lead organisation: Malvern Hills AONB Partnership (methodology developed by the Centre for Rural Research, University of Worcestershire)

Partners: N/A

Website: http://www.malvernhillsaonb.org.uk/landscape_monitoring.html

Geographical extent:
The Malvern Hills AONB.

Scale:

The information is presented at the Land Description Unit (LDU) scale for the whole of the AONB – there are 30 LDUs in total.

Aside from presenting the photographs within a clickable map of the AONB's 30 LDUs, this project did not undertake any mapping.

CANNOCK CHASE AONB PEACE AND TRANQUILLITY STUDY

Approach (summary):

Work by LUC in 2007 reviewed the method developed by CPRE in their national tranquillity map (2006), and explored other more local studies, to come up with recommendations for future tranquillity mapping in the AONB. An approach was tested and GIS-based maps created, incorporating local perceptions on tranquillity gauged from stakeholder input.

LUC's suggested approach was developed and tested by Red Kite in 2010, incorporating the results of public participation exercises on tranquillity perceptions. The main features of the method rolled out in 2010 were:

- The assessment was based on perceptions of tranquillity in the AONB by AONB partners, representatives of interest groups and the community.
- Each respondent was invited to identify their one most tranquil place and their one least tranquil place in the AONB.
- Each participant was also invited to say when the locations were most and least tranquil and why, and their responses were recorded on spreadsheets.
- The locations were marked by small coloured stickers (Green for 'Most' and red for 'Least') on 'Most Tranquil' and 'Least Tranquil' maps of the AONB, while the 'when' and 'why' responses were tabulated in a spreadsheet. The stickers were individually numbered to correspond with the entries in the spreadsheets.
- The spreadsheets were compiled to form a summary spreadsheet with recorders identified by their code letter, and individual numbers corresponding with the entries.
- The 'when' and 'why' responses were converted in Wordle (see www.wordle.net) to identify the most used words, which are presented graphically.
- The maps were processed in a Geographic Information System to provide a visual representation of the scores for each grid square in the AONB.

Volunteers were used to collect data for the study, which was felt to be a great success, both in terms of using local knowledge as well as strengthening engagement and interest by local communities in the work of the AONB.

Applications:

The maps created through this project will form the baseline for future tranquillity assessments to help inform State of the AONB reporting.

<p>Publication date: March 2010 – report and maps produced by the Study.</p>
<p>Frequency of monitoring: To coincide with reviews of the AONB Management Plan (every five years). Ideally, the survey should take place as part of the review process, perhaps a year or so before the publication of a revised plan allowing time for the results of a survey to guide the revised objectives, policies and actions.</p>
<p>Lead organisation: Cannock Chase AONB (with Red Kite Countryside Training Partnership and Ecology Land and People (ELP) as consultants)</p>
<p>Partners: N/A</p>
<p>Website: http://www.cannock-chase.co.uk/assets/downloads/Peaceandtranquillityreport2010reducedforweb.pdf</p>
<p>Geographical extent: The Cannock Chase AONB</p>
<p>Scale: Tranquillity scores are assigned to individual OS grid squares (1km), with the results mapped at a scale of 1:4000.</p>

CONSERVING CHARACTER: LANDSCAPE CHARACTER ASSESSMENT & MANAGEMENT GUIDANCE FOR THE DORSET AONB (template prepared by Cordiale partners)

Approach (summary): The United Kingdom ratified the European Landscape Convention, reinforcing the approach to Landscape Character Assessment and forward landscape planning and management. For the Dorset AONB, Landscape Character Assessment is an important tool in pursuing the primary purpose of the designation to “conserve and enhance” natural beauty,” providing practical landscape planning and management guidance that contributes to the conservation and enhancement of the AONBs special qualities whilst balancing the needs of agriculture and wider economic and environmental change.

The Landscape Character Assessment was carried out in line with the “best practice” methodology as set out in “Landscape Character Assessment, Guidance for England and Scotland” (Countryside Agency 2002). The process followed 4 key stages namely the Desk Study, Field Study, Classification & Description, and the Evaluation & Decision Making.

The initial Desk Study was based on the “The Living Landscapes Method” (LLM) that uses Geographical Information System (GIS) technology to store, analyse and present spatial (map based) data. The LLM promotes a consistent country-wide approach to describing and evaluating countryside, and provides an “Integrated Landscape Framework” that operates at different spatial levels ranging from national/regional (1:250,000), through to the county/district (1:50,000), down to the individual farm/site (1:10,000).

The Assessment was carried out at the local landscape level (between 1:50,000 and 1:250,000), and is based on Landscape Description Unit’s (LDU). LDU’s are distinct and relatively homogenous units of land, defined by a series of definitive attributes that are “Physiography” and “Ground Type” which together encapsulate the underlying natural dimension of the landscape, “Landcover” reflecting surface vegetation, and “Cultural Vegetation” which describes the structural component of the cultural landscape.

The Field Survey was carried out from a point within each LDU in order to confirm the information gathered through the Desk Study, and provided the opportunity to collect further descriptive information regarding each unit’s visual character and condition. Information relating to the cultural and ecological integrity of each area was collected, including the survival and condition of the habitat matrix and key landscape features such as field boundaries and trees. The impacts of recent change, such as the intensification of agriculture, equestrian management and climate change, and the presence of significant incongruous features were also recorded to develop an understanding of the threats to landscape character now and into the future.

Approximately 440 LDU’s were identified across Dorset. The Classification & Description stage grouped the LDU’s into larger Landscape Character Types (LCTs) and Landscape Character Areas (LCAs), at a more appropriate scale for developing landscape planning and management guidance and presenting information to a public audience. 14 LCTs were identified across the AONB, generic areas that refer to a particular type of landscape that can occur in many different places, for example across the AONB typical LCTs include Open Chalk Downland, Lowland Heathland and Valley Pasture. 34 LCAs were identified across the AONB and represent discrete geographical areas that sit within the broader framework of LCTs, for example within the Open Chalk Downland Landscape Character Type, two distinct Landscape Character Areas were identified namely the Dorchester Downs and the South Dorset Downs.

Using the information gathered throughout the desk and field studies, for each LCA the Assessment presents a map of the area, lists its key characteristics, and provides a detailed description of the landscape under the headings Land shape and structure. Soils and vegetation, Settlement and landcover, Historic character, and Visual character and perceptions. It goes on to provide an evaluation of the areas “strength of character” on a scale of Strong, Medium or Weak, and “condition” defined as Stable, Improving or Declining.

The final stage of the Assessment was the Evaluation & Decision Making that pulled together the evaluation of each LCA’s landscape character and condition, along with the understanding of landscape change, to develop a suite of practical and readily accessible landscape guidance based on the landscape strategies as promoted through the European Landscape Convention to “Conserve”, “Enhance”, “Restore” and “Create.” For each LCA the Assessment identifies the forces for Landscape change, and lists the landscape strategies under the relevant planning and management headings.

Applications:

The Landscape Character Assessment is aimed at public bodies, organisations and groups that play a key role in the planning and management of the AONB. Many of the organisations are represented on the Dorset AONB Partnership and have a statutory duty to take into account the purposes of the designation. Additionally, developers, architects, community groups and anyone that has an interest in the protection of the AONB will find aspects of this work relevant to theirs.

Links to the Dorset AONB Management Plan

The CRoW Act requires AONB Management Plans to be produced, published and regularly revised by local authorities. The Landscape Character Assessment significantly contributes to the implementation of the Management Plan and adds a further spatial dimension to its largely generic Aims and Objectives.

Links to Land Management

The landscape guidance is used to inform land management, including farming and forestry practices, which can potentially have a big impact upon the character of the AONB. The landscape area descriptions add further detail to the existing National Character Area descriptions (previously known as Joint Character Areas) and inform targeting strategies for environmental land management schemes, as well as the associated land management agreements. This helps to ensure that any funding to manage environmental features helps to conserve local character. The assessment also helps to steer the location and nature of woodland felling and planting proposals administered by the Forestry Commission.

Links to Local Planning

The Landscape Character Assessment informs the preparation of Local Plans and emerging Local Development Documents, including the County Minerals and Waste Core Strategy, ensuring that policies meet with the policies and objectives of the AONB Management Plan and seek to conserve and enhance the special qualities that underpin the designation.

The Assessment informs the development control process, providing advice on the particular qualities of the Dorset AONB landscape, and can be used in conjunction with other guidance as available, such as Built Environment Character Assessments and Conservation Area Appraisals.

The Landscape Character Assessment provides the landscape character baseline for the development of policy and guidance documents such as the “Dorset Coast Land and Seascape Assessment” (LDA Design 2010) undertaken to inform the C-SCOPE Project (Combining Sea and Coastal Planning in Europe). It also provides evidence in the development of landscape sensitivity strategies such as the “Dorset Landscape Change Strategy” (Land Use Consultants 2010 commissioned by Dorset County Council) and is currently influencing the emerging “Landscape sensitivity to Renewable Energy” (West Dorset District Council).

Publication date: 2008

Frequency of monitoring: The guidance within the LCA is intended to set a framework for guiding landscape change for the next twenty years. The LCA is reviewed and updated every 5 years, the first review is due in 2012.

Lead organisation: Dorset AONB Team

Partners: Dorset Landscape Advisory Group (Steering Group) consisting of Natural England and various local government representatives who are stakeholders in the landscape.

Website: <http://www.dorsetaonb.org.uk/our-work/landscapework/30/331-landscapecharacterassessment.html>

Geographical extent: The Dorset Area of Outstanding Natural Beauty, covering 1129km² and approximately 42% of the county of Dorset.

The AONB stretches from Lyme Regis in the west, along the coast to Poole Harbour in the east, and north to Hambleton Hill near Blandford Forum. It covers over half of Poole Harbour, including Brownsea and the smaller islands. Outside of the harbour, the designated area ends at mean low water.

Scale: The LCA is a local level assessment carried out a “Landscape Scale” between 1:50,000 and 1:250,000, providing a landscape context for site based decision making. The assessment nests within the national spatial framework of National Character Areas (1:250,000) produced by Natural England (previously known as Joint Character Areas).