

APPENDIX 1

Glossary of Terms

GLOSSARY OF TERMS

Note: This glossary is not a complete coverage of all words or terms used in the study. For instance it does not cover technical geological, ecological or historical landscape terms. Rather, it addresses those terms used as part of this method or in the descriptions, where meanings diverge from common parlance or are not explained in the method statement.

Amenity (Planting)-	planting to provide environmental benefit such as decorative or screen planting.
Analysis-	the process of dividing up the landscape into its component parts to gain a better understanding of it.
Ancient Woodland-	land continuously wooded since AD 1600. It is an extremely valuable ecological resource, usually with a high diversity of flora and fauna.
Apparent-	object visible in the landscape.
Approach-	the step-by-step process by which landscape assessment is undertaken.
Arable-	land used for growing crops other than grass or woody species.
Assessment-	term to describe all the various ways of looking at, analysing, evaluating and describing the landscape.
Biodiversity-	the variety of life including all the different habitats and species in the world.
Conservation-	the protection and careful management of natural and built resources and the environment.
Carr-	woodland in waterlogged terrain. Characteristic species include alder, willow and sallow.
Character-	see Landscape Character.
Characteristics-	elements, features and qualities which make a particular contribution to distinctive character.
Character Area [CA]-	see landscape character area
Characterisation-	the process of identifying areas of similar character, classifying and mapping them and describing their character.
Complexity-	[in the context of describing a skyline]how varied or complicated the skyline is from dead flat with even vegetation at one end of the scale to mountainous with varied vegetation at the other.
Condition-	the degree to which a landscape is soundly managed, is fit for purpose or achieves optimum biodiversity.
Coppicing-	the traditional method of woodland management in which trees are

	cut down near to the ground to encourage the production of long, straight shoots that can be harvested.
Consistent-	relatively unchanging element or pattern across a given area of landscape.
Cultural pattern-	expression of the historic pattern of enclosure and rural settlement.
Cultural sensitivity-	reflects the relative time depth (or continuity) of a landscape through history, and the degree to which its characteristics [such as hedgerows and settlements] are exhibited in the landscape (consistency).
Detractor	a feature that diminishes the quality of a view and/or conflicts with the character of an area and/or is out of place and/or is unattractive and/or is poorly designed or built.
Diversity-	[in terms of the function of an area] the variety of different functions of an area.
Dominant-	main defining feature or pattern.
Ecological sensitivity-	reflects the extent of survival and intactness of semi-natural habitats or patches [areas].
Element-	individual component parts of the landscape such as field boundaries, woodlands, patches of similar vegetation, outbuildings, structures and rock outcrops.
Feature-	prominent eye catching elements e.g. wooded hill top or chapel.
Field Boundary-	the defined edge of a field whether fence, hedge, bank, ditch or wall.
Field Size -	Large 2 Ha Above, Medium Around 1.5 Ha, Small Less Than 1 Ha.
Geology-	the study of the origin, structure, composition and history of the Earth together with the processes that have led to its present state.
Ground Type-	expression of the soil forming environment and its influence in determining the surface pattern of vegetation and land use.
Hedge-	fence of shrubs or low trees, living or dead, or of turf or stone. Though strictly a row of bushes forming a hedge, hedgerow has been taken to mean the same as a hedge.
Hedge bank-	earth bank or mound relating to a hedge.
Horticulture-	intensive form of cropping, such as vegetables or fruit.
Improved [in relation to soils or pasture]-	addition of fertiliser and, in the case of pasture, reseeding with more productive grass species.

Inherent	dictionary definition- 'existing as an inseparable part'. In the context of sensitivity means the sensitivity of the landscape zone itself with all its component elements and features rather than its relationship with adjacent zones.
Joint Character Area-	area of land [one of 159] based on broad landscape character defined by a national landscape character assessment in 1990s for the Countryside Agency corresponding with nationally derived Natural Areas defined by English Nature eg Bodmin Moor.
Landcover-	combinations of natural and man-made elements including vegetation that cover the land surface.
Land cover parcel- [LCP]	Land Cover Parcels are discrete areas of land nested within a larger LDU reflecting variations in the physical character of the land. Bounded by roads, railways, water courses and parish boundaries, these units define areas with similar patterns of land use, field pattern and tree cover.
Landscape-	primarily the visual appearance of the land including its shape, form and colours. However, landscape is not purely a visual phenomena. The landscape relies on a range of other aspects including geology, landform, soils, ecology, archaeology, landscape history, land use, settlement character and pattern and cultural associations.
Landscape Capacity-	the degree to which a landscape/seascape is able to accept change without significant effects on its overall character, or overall change of landscape/seascape character type.
Landscape Description Unit [LDU]-	distinct and relatively homogenous unit of land, each defined by four attributes- physiography and ground type, landcover and cultural pattern.
Landform-	combinations of slope and elevation which combine to give shape and form to the land.
Landscape Character-	a distinct, recognisable and consistent pattern of elements, features and qualities in the landscape that makes one landscape different from another, rather than better or worse.
Landscape Character Area [CA]-	area with common characteristics- in this study it is made up of a number of adjacent landscape description units with common perceptual and other characteristics.
Landscape Resource-	The overall stock of the landscape and its component parts. [The landscape considered as a measurable finite resource like any other eg minerals, land, water].
Landscape Sensitivity-	the inherent sensitivity of the landscape itself, irrespective of the type of change which may be under consideration. It is a combination of the sensitivity of the landscape resource and the visual sensitivity of the landscape.

Landscape value-	the relative value that is attached to different landscapes. A landscape may be valued by different communities of interest for many different reasons. These can include scenic beauty, tranquillity, wildness, special cultural associations, the presence of conservation interests, rarity or the existence of a consensus about importance, either nationally or locally. Some areas will be designated to express their value.
Mixed Farmland-	a combination of arable and pastoral farmland.
Mosaic-	mix of different landcovers at a fine grain such as woodland, pasture and heath.
Objective-	method of assessment in which personal feelings and opinions do not influence characterisation.
Outcrop-	the area where a particular rock appears at the surface.
Pastoral-	land down to grass either grazed by animals or for cutting.
Physiography-	expression of the shape and structure of the land surface as influenced both by the nature of the underlying geology and the effect of geomorphological processes.
Polygon-	discrete digitised area in a geographic information system[GIS].
Prominent-	noticeable feature or pattern in the landscape.
Protect-	to keep from harm.
Qualities-	aesthetic [objective visible patterns]or perceptual [subjective responses by the landscape assessor] attributes of the landscape such as those relating to scale or tranquillity respectively.
Regional Character Areas-	see Joint Character Areas
Receptor-	receptors [in this report] are defined as people in a variety of different situations who can experience views within an area and who may be affected by change or development. Receptors can include urban or rural residents, users of public footpaths, roads, rail or cycleways.
Resource-	see landscape resource.
Restore-	repair or renew.
Riparian-	vegetation associated with the water body, usually a river or stream.
Semi-natural vegetation-	any type of vegetation that has been influenced by human activities, either directly or indirectly. The term is usually applied to areas which are reverting to nature due to lack of management.
Sense Of Place-	the character of a place that makes it locally distinctive ie

	different from other places.
Sensory-	that which is received through the senses ie sight, hearing, smell, touch.
Settlement-	all dwellings/habitations, whether single or clustered in cities, towns and villages.
Settlement Pattern-	the predominant pattern of settlement in an area.
Subjective-	method of assessment in which personal views and reaction are used in the characterisation process.
Topography-	term used to describe the features of the Earth's surface.
Value-	see landscape value
Vernacular-	built in the local style, from local materials.
Visual Impacts-	the likely visual effects that would result from a development proposal or change in land management.
Visual sensitivity-	visual sensitivity or 'visibility' is the third component of landscape sensitivity, and is a measure of the degree to which change is likely to cause a visual impact within a particular landscape.

Abbreviations

AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
CA	Character area
20c	20 th century
CWS	County Wildlife Site
SAC	Special Area of Conservation
GIS	Geographic information system
JCA	Joint character area
LBAP	Local Biodiversity Action Plan
LCA	Landscape character assessment
LDU	Landscape description unit
PSAC	Provisional Special Area of Conservation
SAC	Special Area of Conservation
SAM	Scheduled Ancient Monument
SLINC	Site of Local Interest for Nature Conservation
SMR	Scheduled Monument Record
SNCI	Site of Nature Conservation Importance
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

APPENDIX 2

Landscape Assessment Method for Landscape Description Units and their Sensitivity

THE LIVING LANDSCAPES METHOD

November 2007

The importance of the spatial framework

A key component of the character-based approach to rural decision making that has been developed as The Living Landscapes Method is the use of Geographical Information System (GIS) technology, which is now widely available. GIS allows datasets to be displayed showing the relationship between an entity (eg a polygon or line), and its attributes (eg length, height, condition). Any GIS software can be used to perform these tasks, including ArcGIS and MapInfo.

This technology greatly facilitates the storage, analysis and presentation of spatial (map based) data, allowing environmental and other information to be compared *across both space and time*, thus enabling the user to ask questions of the data and to generate hypotheses. The use of GIS also necessitates a rigorous approach to data storage and manipulation, and hence provides the opportunity for establishing a structured database of archival quality.

For GIS to be used effectively as a decision support tool it is essential to create a structured, spatial framework for describing and evaluating the countryside. This framework operates at different spatial levels, ranging from the national/regional (1:250,000), through the county/ district (1:50,000¹), down to the individual farm/site (1:10,000).

Figure 1: Assessment hierarchy at different levels of spatial resolution

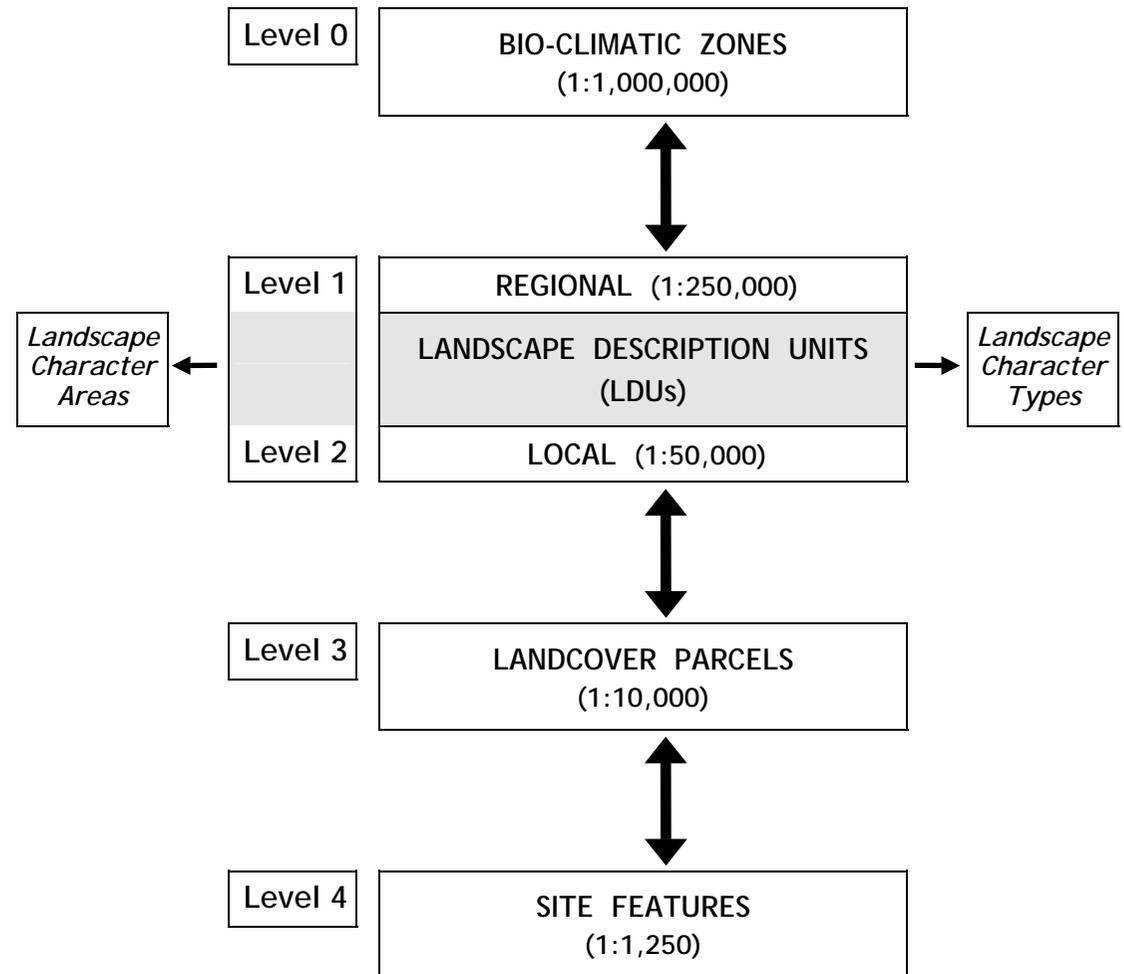


Figure 1 illustrates the relationship between the different levels of assessment. The *landscape scale*, which is between 1:50,000 and 1:250,000, sits in the middle of the diagram, can be defined as a scale of assessment that is smaller than the global environment, but larger than the individual site. It is the integrating scale, providing a landscape context for farm and site based (Level 3) decision making, whilst linking with and (providing the focus for) national/regional policy objectives.

Landscape Description Units

The fundamental building block of the hierarchy at the landscape level is the **Landscape Description Unit (LDU)**. LDUs are distinct and relatively homogenous units of land, each defined by a series of *definitive* attributes, so called because they define the extent of each spatial unit.

There are four attributes used to define LDUs at Level 2

- *physiography* and *ground type*, which together encapsulate the underlying natural dimension of the landscape
- *landcover*, reflecting surface vegetation; and *cultural pattern*, which describes the structural component of the cultural landscape.

Definitive attributes are derived through a process of overlay mapping which is traditionally achieved by physically overlaying a number of acetate sheets one on top of the other. Carrying out the same process on GIS not only overcomes the problems associated with enlarging/ reducing source maps at different scales, but it also allows far

greater scope in the actual analysis of the data. The digital datasets used in defining LDUs vary with availability from the client and are primarily undertaken with national datasets to promote consistency across the country, using local datasets that are relevant to landscape character. In this study this includes: geology, 10m contours, soils (paper based), farm census data, settlements, woodland, ancient woodland, Historic Landscape Classification (HLC), OS 1:50,000, and the National Typology.

The natural dimension of the landscape (physiography and ground type) is mapped first, not only because it provides a context for analysing the historical evolution of the landscape, but also because the baseline attributes of relief, geology and soils have 'real' boundaries which can be readily defined. In practice this entails firstly defining the more immediately distinct areas, where the pattern of topography relates clearly to changes in geology and soil. Cultural attributes do not usually have such clearly defined boundaries, but because of the constraints that have historically been imposed on land utilisation by slope, soil fertility and drainage it is often possible to map cultural patterns at the landscape scale using the emerging LDU framework. The comparison of data to help define the less immediately visible distinctions in the landscape is an iterative one, and there are frequent occasions where local data has been used to inform decision making. For example, a break in slope which coincides with a change in soil type and tree cover to the plateau above will be easily identifiable as a sharp boundary, where a few steps takes you into a clearly different landscape, whereas the transition between a dispersed and a nucleated settlement pattern in a rolling landscape maybe several kilometres wide - the HLC, along with the OS 1:50k, is invaluable in such instances for helping to derive the most appropriate line.

The characterisation of urban areas is beyond the scope of this project, and having defined physiographic units, urban areas are defined as distinct urban units and do not form part of the cultural analysis.

Each aspect of the analysis, and the attributes defined is outlined below. Each of these subdivisions has been developed by those using the Living Landscapes Method since 1997, and is consistent with other areas in the country where this method has been employed.

Physiographic analysis

Physiography is an expression of the shape and structure of the land surface as influenced both by the nature of the underlying geology and the effect of subsequent geomorphological processes. Two definitive attributes are used at Level 2, one defining the geological structure (and relative relief) of the unit and the other to describe the form (and relative relief) of the land surface. This is derived from interpretation of the relationship between geological and contour data. Physiographic boundaries should ideally follow clear 'breaks in slope' that are related to geological boundaries. Where there is no obvious break in slope (eg. the transition between the dip slope of an escarpment and an adjoining vale) a 'best fit' line (ie. a line that has been adjusted to match the surface landform) should be defined that reflects the geological boundary. The physiographic character is denoted in the GIS in the Phys_D column.

Coastal dunes - low hills/ridges of sand piled up by the wind along sandy coasts

Marine levels - extensive areas of flat land formed by the recent deposition of waterbourne drift, mainly of marine origin, in low-lying coastal areas - land usually at or below sea level and may include intertidal flats covered by water at high tide.

River valleys - flat, low-lying land formed by the recent deposition of waterbourne drift in larger river valleys, but also including other low-lying areas formed from lacustrine (lake) drift.

Rocky foreshore - rocky coastal foreshore within the intertidal zone.

Hard rock high hills - uniformly elevated tracts of high ground, generally over 300 metres (1000 feet), with a rolling, in places undulating topography.

Hard rock plateau - uniformly elevated tracts of rolling relief, usually bounded on one or more sides by steeper ground which drops to lower land - often dissected by narrow, steep sided valleys at a greater level of detail.

Hard rock lowlands - areas of intermediate relief, generally <90m (300 feet), with an apparent rolling, in places undulating topography.

Hard rock slopes and ridges - distinct, often steep sided tracts of elevated/steeply undulating land, generally well defined by clear breaks in slope in the form of valley sides.

Hard rock cliffs - distinct, often steep sided tracts of elevated/steeply undulating land, generally well defined by clear breaks in slope in the form of coastal slopes and cliffs

Hard rock uplands - elevated tracts of land with a pronounced undulating, in places steeply sloping relief, comprising hilltops, ridges and narrow, often steep sided valleys.

Ground type analysis

Ground type is an expression of the soil forming environment and its influence in determining the surface pattern of vegetation and land use. Two definitive attributes are used at Level 2, one describing the nature of the underlying bedrock/drift, the other to reflect variations in the process of soil formation related to drainage and soil fertility. This is derived from interpretation of geological (rock type), soils and land use data (including farm census data and HLC where appropriate). The ground type is denoted in the GIS in the Ecol_D column

Saltmarsh - uncultivated tracts of coastal marshland developed directly on unconsolidated mud/silt and covered by the sea at high tide - also includes slightly elevated areas with muddy channels.

Fenland - marginal land associated with organic soils derived from partially decomposed plant remains - perennially wet where undrained, but in many places (eg. The Fens) groundwater controlled by ditches and pumps.

Wet meadowland - slowly permeable mineral soils developed on alluvial drift and supporting wetland, or relic wetland (lines of willow, reeds in ditches) vegetation. Seasonal or perennial waterlogging is the main constraint to agricultural production.

Dry meadowland - free-draining mineral soils developed on alluvial drift. Seasonal waterlogging may be a constraint to agricultural production but in most places groundwater is controlled by ditches and pumps.

Sandy brown soils - light, free-draining sandy and coarse loamy soils developed on soft sandstones and sandy drift. In

places can include localised patches of wetland, or nutrient poor/podzolic soils.

Sandlands - nutrient poor (podzolic) sandy or coarse loamy soils, some with a humic topsoil, supporting dwarf shrub heath, acidic grassland, or relic heathy vegetation (bracken, gorse, etc.) - associated normally with sandstone, or sandy drift.

Dune sands - low hills/ridges of unconsolidated sands piled up by the wind along sandy coasts. Also includes gravel ridges formed by wave action.

Intertidal sands - uncultivated tracts of coastal sand covered by the sea at high tide.

Bare hard rock - uncultivated tracts of sparsely vegetated land associated with cliffs, steeply sloping upland terrain, or rocky headlands covered by the sea at high tide.

Brown soils with localised wetland on hard rock - reddish/brown, free-draining mineral soils developed on hard mudstone, or siltstone - associated in places with tracts of waterlogged soils which often give rise to patches of relic semi-natural vegetation.

Humic gleyed soils on hard rocks - heavy land with slowly permeable base poor loamy and clayey soils. The land is mainly under permanent grassland due to seasonal waterlogging, but in places tracts of peaty soils give rise to patches of wet heath and/or bog.

Impoverished brown soils on hard rock - nutrient poor (podzolic) loamy, or in places sandy soils, some with a humic topsoil, supporting acidic grassland, or relic heathy vegetation (bracken, gorse, etc).

Impoverished gleyed soils on hard rocks - heavy land with slowly permeable base poor loamy and clayey soils. The land is mainly under

permanent grassland due to seasonal waterlogging, but in places tracts of impoverished soils give rise to patches of wet heath and/or bog.

Impoverished gleyed soils on igneous rocks - heavy land with slowly permeable base poor loamy and clayey soils. The land is mainly under permanent grassland due to seasonal waterlogging, but in places tracts of impoverished soils give rise to patches of wet heath and/or bog.

Impoverished humic soils - nutrient poor (podzolic) peaty soils, supporting dwarf shrub heath/moor, or relic moorland vegetation.

Impoverished humic soils on igneous rocks - heavy land with slowly permeable base poor loamy and clayey soils. The land is mainly under permanent grassland due to seasonal waterlogging, but in places tracts of peaty soils give rise to patches of wet heath and/or bog.

Impoverished soils on disturbed igneous rocks - nutrient poor (podzolic) loamy soils, supporting dwarf shrub heath, acidic grassland, or relic heathy vegetation (bracken, gorse, etc.) - often associated with tracts of disturbed land where mining is still active.

Impoverished soils on igneous rocks - nutrient poor (podzolic) loamy soils, some with a humic topsoil, supporting dwarf shrub heath, acidic grassland, or relic heathy vegetation (bracken, gorse, etc).

Loamy brown soils - reddish/brown, free-draining mineral soils developed on mudstone, siltstone, or drift.

Loamy brown soils with impoverished patches - reddish/brown, free-draining mineral soils developed on hard mudstone, or siltstone, with associated patches of impoverished soils, often giving rise to relics of semi-natural vegetation.

Loamy brown soils with shallow patches - reddish/brown, free-draining mineral soils developed on hard mudstone, or siltstone, with associated patches of shallow soils often giving rise to relics of semi-natural vegetation.

Shallow brown soils on hard rock - reddish/brown, free-draining mineral soils developed on hard mudstone, or siltstone - associated in places with tracts of shallow soils which often give rise to patches of relic semi-natural vegetation.

Shallow soils on limestone - free draining loamy soils developed directly over chalk or limestone at elevations below about 300m (1000ft) - frequently distinguished by stony soils and/or rock outcrops with relic calcareous grassland on steeper slopes.

Landcover analysis

Landcover is an expression of the type of vegetation (natural and man made) covering the land surface. Two definitive attributes are used at Level 2, one describing the predominant land use/type of farming, the other reflecting the contribution that trees and woodlands make to the character of the landscape. The broad pattern of primary land use and associated tree cover at the farm type level as related to the inherent physical (slope, drainage, fertility) and economic constraints within a particular area. Farm census, all woodland (including national Ancient Woodland), HLC, and countywide Land Cover datasets are used as appropriate. The pattern of land cover is denoted by 2-digit 'Land_D' code within the GIS database.

Ancient wooded - landscapes characterised by extensive areas of broadleaved woodlands, mainly of ancient origin (as defined on the ancient woodland inventory), which pre-date the surrounding enclosure pattern. This pattern typically displays clear signs of piecemeal woodland clearance, including irregular woodland outlines and frequent woodland place names ending in terms such as 'ley' and 'hurst'.

Secondary wooded - landscapes with a dynamic tree cover pattern, characterised by extensive patches of recent (in historical terms) secondary and/or plantation woodlands which are often superimposed unconformably on a pre-existing unwooded landscape.

Settled farmlands - arable landscapes characterised by small coverts and/or thinly scattered, or small groups of trees, often associated with farmsteads, in an otherwise 'open' setting, typically created by Parliamentary type enclosure of arable field, or former 'waste'.

Open farmlands - treeless tracts of cultivated land where natural constraints, or traditional management practices, generally preclude the establishment of tree cover.

Ancient pastoral farmlands - pastoral landscapes characterised by a mixture of scattered, often dense, hedgerow trees (typically oak) and small irregularly shaped woods, mostly of ancient origin.

Estate pastures - pastoral landscapes characterised by an ordered pattern of discrete field sized, or larger, estate plantations/coverts which were planted at the same time, or which post date the surrounding enclosure pattern.

Settled pastures - pastoral landscapes characterised by small coverts and/or thinly scattered, or small groups of trees, often associated with farmsteads, in an otherwise 'open' setting, typically created by Parliamentary type enclosure of former 'waste'.

Open pastures - treeless tracts of pastoral farmland where natural constraints, or traditional management practices, generally preclude the establishment of tree cover.

Secondary wooded wildland - uncultivated, tracts of predominantly semi-natural vegetation characterised by recent (in historical terms) tracts of naturally regenerated woodland/secondary tree cover.

Open wildland - treeless, usually uncultivated, tracts of open land where natural constraints (climate and/or soils), or traditional management practices, generally preclude the establishment of tree cover.

Disturbed - treeless tracts of disturbed land where the existing land use (eg. mineral extraction, etc.) generally precludes the establishment of tree cover.

Secondary wooded pastures - unwooded, pastoral landscapes characterised by scattered trees (usually in hedgerows, or along ditches) and small patches of scrub.

Cultural pattern analysis

Cultural pattern is an expression of the structural component of the cultural landscape as reflected in the historic pattern of enclosure and rural settlement. Two definitive attributes are derived, one describing the broad pattern of village formation and settlement dispersion, the other reflecting the structure (size/tenure) of agricultural holdings. Farm census data (where available), the OS base and HLC are used in deriving this information as appropriate.

The cultural pattern is denoted in the 'Sett_D' code within the GIS database.

Clustered with estate farms - settled rural landscapes characterised by multiple settlement clusters and large (>65 ha) estate farms (defined as those areas where >50% of the land is managed by tenant farmers).

Clustered with large farms - settled rural landscapes characterised by multiple settlement clusters and medium to large sized (<95 ha), often tenanted farms.

Clustered with small farms - settled rural landscapes characterised by clusters of wayside dwellings and small (<65 ha), mainly owner occupied farms.

Dispersed with small farms - rural landscapes characterised by loose clusters of dwellings and small (<65 ha), mainly owner occupied farms.

Settled common - an often densely settled rural landscape characterised by loose clusters of dwellings and small (<65 ha), mainly owner occupied farms within a surveyor enclosed pattern of small-medium sized rectilinear fields.

Meadow and marsh - largely unsettled agricultural landscapes often characterised by a surveyor enclosed pattern of large rectilinear fields on river floodplains and coastal grazing marsh.

Meadowland - small sized farms - largely unsettled agricultural landscapes associated with small, mainly owner occupied farms on river floodplains.

Unsettled wildland - extensive areas of uncultivated, mainly unenclosed land (including moor, heath, coastal dunes and salt marsh) characterised by the virtual absence of human habitation.

Mining with small farms - semi-urbanised landscapes characterised by ribbon development, loose clusters of dwellings and small (<65 ha), mainly owner occupied farms.

Sensitivity

The LDU is also the scale at which to derive and consider sensitivity. Sensitivity has now become accepted as a landscape-related concept - i.e. it is related to the nature of the landscape, rather than to any proposed agent of change, and therefore does not vary for different proposed changes.

The approach uses the physical and cultural attributes of each LDU to derive maps of inherent landscape sensitivity that take into account differences in the ecological, cultural and visual characteristics of the unit. The method also includes a desk based analysis of tranquillity (based on mapping areas not impacted by sources such as urban centres, traffic routes etc) which provides a useful objective indication of tranquillity for verification in the field, although this was not required as part of the Cornwall brief.

The technique is as objective as possible, transparent, and provides a consistent assessment and evaluation across the LDUs. Capacity is particular to the type of change considered and may therefore vary with type of change. Thus, while a landscape may be highly sensitive to change, it may have a moderate capacity to accommodate, for example, bio-fuel planting, but only a low capacity to accommodate housing development.

Sensitivity - Ecological Sensitivity

The oldest (and by implication most sensitive) landscapes are those that still survive in a semi-natural state (i.e. heathland, moorland, etc.). Most landscapes in the lowlands, however, have been settled and improved for

agricultural production and as a result, any surviving semi-natural habitat is almost invariably associated with the cultural pattern (e.g. woodlands, field boundaries and other 'man made' features). Where such patches still survive they will increase overall sensitivity. Analysis of patch survival is largely a predictive exercise which looks at the current pattern of land use within the context of 'productive' and more 'marginal' ground types - the assumption being that a settled arable landscape associated with good (brown/gleyed) soils is likely to have fewer patches of semi-natural habitat than a pastoral landscape associated with marginal (wetland, heathland, chalk & limestone or moorland) soils.

The desk based sensitivity evaluation establishes where the landscape character implies that there will be ecologically significant habitats, likely to be at risk. It does not refer to designations etc as these are clearly not landscape based but deals with the site specifics and as such offer protection and/or information at that scale. Three components are examined, using LDU data sources, as outlined in the table below.

Agricultural potential	Influences surface vegetation/land use Derived from geology, fertility and drainage
Agricultural use	Primary use of land; reflects woodland cover/farming type
Woodland pattern	Highlights where ancient woodland/remnants are likely within agricultural landscapes

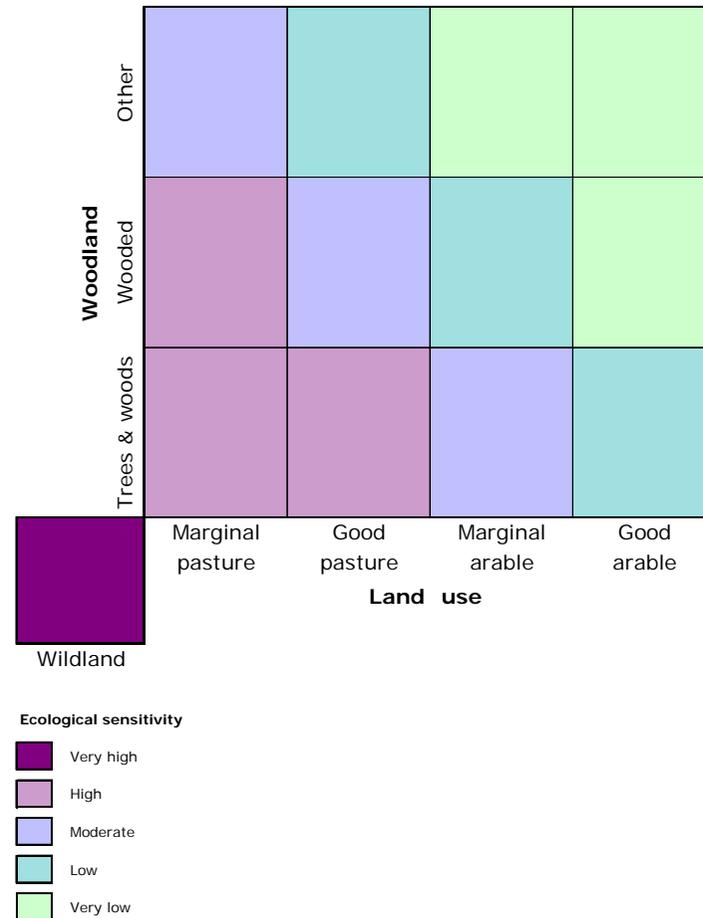
The analysis makes three main assumptions:

- agriculturally marginal land is more likely to be of ecological interest than good agricultural land
- pastoral land is more likely to support ecological interest as a result of less intensive use than arable
- landscapes with woodland of ancient character are the more ecologically valuable than other woodland character, and of these those characterised by fragmented woods and hedgerow remnants are more sensitive than larger woodland blocks (largely due to lack of protection/awareness).

The relationship between these elements helps to define the relative likelihood of ecological value, and therefore ecological sensitivity to impacts. The matrix below illustrates how these components have been analysed.

Ecological Sensitivity Matrix

The woodland category 'other' includes pastoral or arable landscapes characterised by thinly scattered/groups of trees; 'wildland' refers to semi-natural landscapes, typically associated with marginal, usually lowland heath or coastal dune/marshland.



Sensitivity - Cultural Sensitivity

Cultural sensitivity largely reflects the relative time depth (or continuity) of a landscape, and the degree to which its characteristics are exhibited in the landscape (consistency). A similar approach is adopted as for ecological sensitivity, based on a clear conceptual framework based on matrices and drawing on consistent, robust data.

The measure of landscape continuity is derived by examining the scale and age of the landscape: on the vertical axis of the Continuity matrix landscape scale is ranked (small at the bottom to large at the top) - the assumption being that small scale agricultural landscapes tend to be more sensitive to change than their larger scale counterparts. On the horizontal axis the attributes are ranked by landcover pattern (pastoral landscapes with ancient woods on the left to arable landscapes with secondary tree cover on the right) - the assumption being that heritage (natural and cultural) features representing visible relics of an older pattern, are more likely to have survived in pastoral landscapes.

Scale	Expresses structural component of the landscape, combination of settlement pattern and land cover
Pattern	Establishes extent to which landscape is planned or organic. Indicative of age.

The continuity analysis has two main assumptions:

- smaller scale, more organic landscapes are an indication of age, and therefore likely to be of higher cultural interest and sensitivity
- organic landscapes are more culturally sensitive than planned as their time depth and very nature implies non-recreatability.

Farm type and tree cover are particularly influential in controlling the consistency of the cultural pattern at this level. Settlement pattern tends to vary at a much broader scale, whilst land use is more suited as an indicator of condition. Relatively good baseline digital data for both farm type and tree cover is also available, which makes it possible to rigorously define each of the different farm/tree cover types that underpin the LDU analysis. Thus an 'ancient wooded' character will be stronger in an LDU where there is widespread woodland cover that is consistently ancient (as defined in the Ancient Woodland Inventory) than in another LDU where the woodland cover is localised and/or comprises a mixture of ancient woods and more recent plantations. The same applies to farm type. The most distinctive agricultural landscapes are those dominated by small owner occupied farms on the one hand and those characterised by large estates on the other. LDUs that are wholly one or the other will have a strongly unified character.

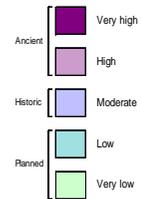
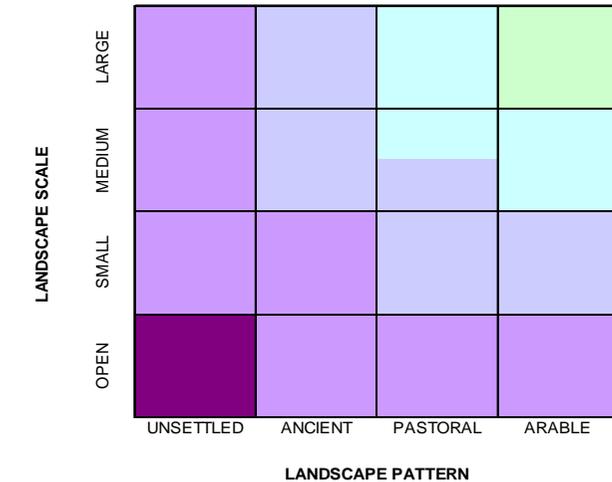
The relationship between continuity and consistency indicates the likelihood of the landscape providing elements of cultural value, and therefore cultural sensitivity to change.

The continuity matrix shows a distinct 'time depth' continuum ranging from the older unsettled and small scale, ancient wooded landscapes in the bottom left hand corner to the more recent larger scale 'planned' landscapes at the top right. The slight subdivisions

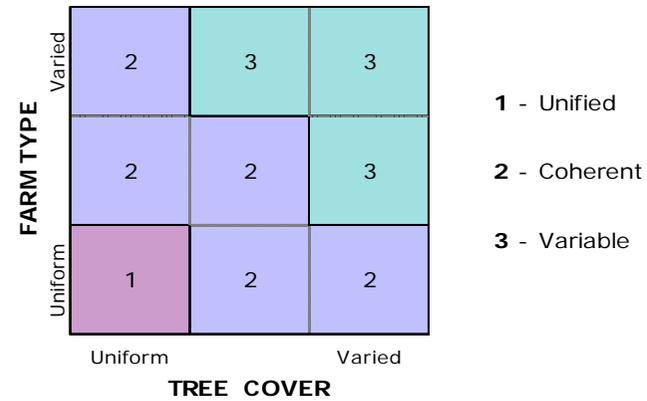
(e.g. in medium scale/pastoral landscapes) into 'Moderate' and 'Low' reflect where landscapes approach the larger end of the medium scale, and the continuity is lower.

Cultural Sensitivity Matrices

Continuity



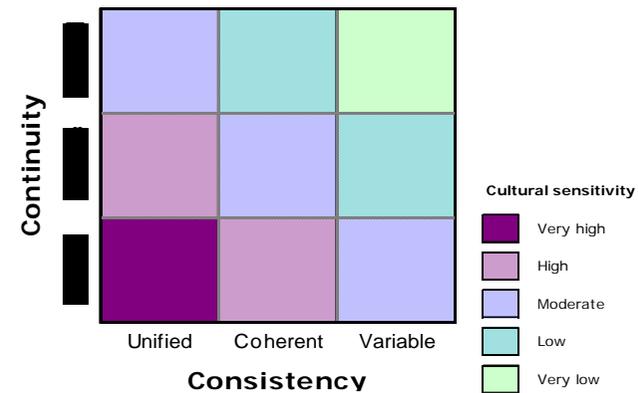
Consistency



- 1 - Unified
- 2 - Coherent
- 3 - Variable

Consistency is a measure of the uniformity of pattern for farm type and tree cover for each LDU. This is used to derive an indication of consistency from 'unified' to 'variable'. Where HLC information is available, this more detailed dataset is used.

Cultural Sensitivity (continuity with consistency)

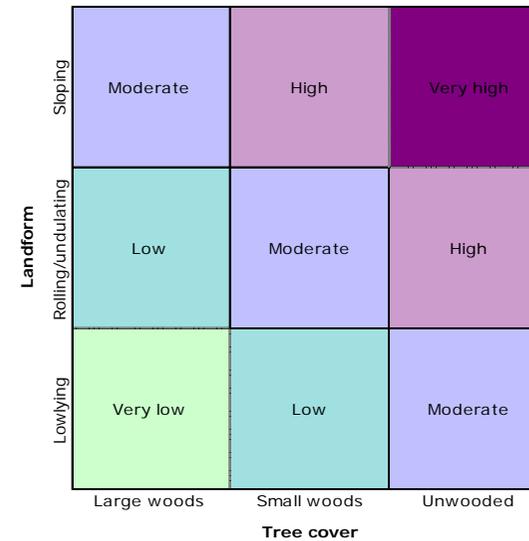


The combination of the continuity and consistency values in the matrix above provides a measure of the sensitivity of each LDU.

The landscapes that are most sensitive to change are those that occur in the bottom left hand corner (i.e. those that are considered to be ‘ancient’ and/or strongly unified) whilst those that are variable in character and/or more recent in origin are likely to be less sensitive.

Sensitivity - Visual Sensitivity

Visual sensitivity or ‘visibility’ is the third component of landscape sensitivity, and is a measure of the degree to which change is likely to cause a visual impact within a particular landscape. A visibility measure can be defined, as outlined in the recent Topic Paper², as “a function particularly of the landform of a particular type of landscape and of the presence of potentially screening land cover, especially trees and woodland”: thus, an upland landscape with little tree cover would have a high visibility score whereas a well-wooded lowland landscape would have a very low score.

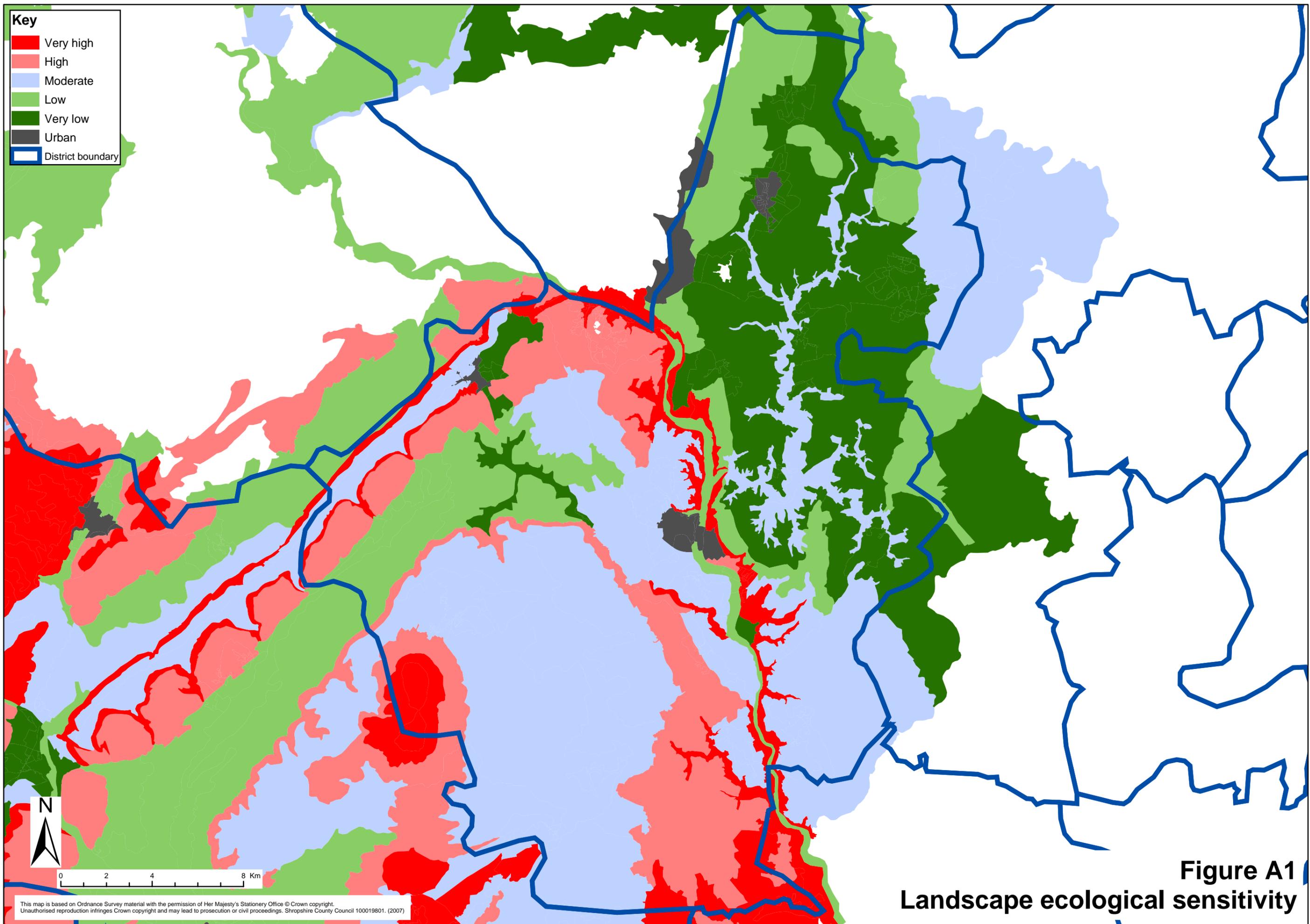


The matrix below illustrates these relationships and how they affect visual sensitivity.

² Topic Paper 6 - Techniques and criteria for judging capacity and sensitivity, Published by The Countryside Agency, 2003
<http://www.countryside.gov.uk/LAR/Landscape/CC/landscape/LCATopicPaper.asp>

APPENDIX 3

Appendix Figures



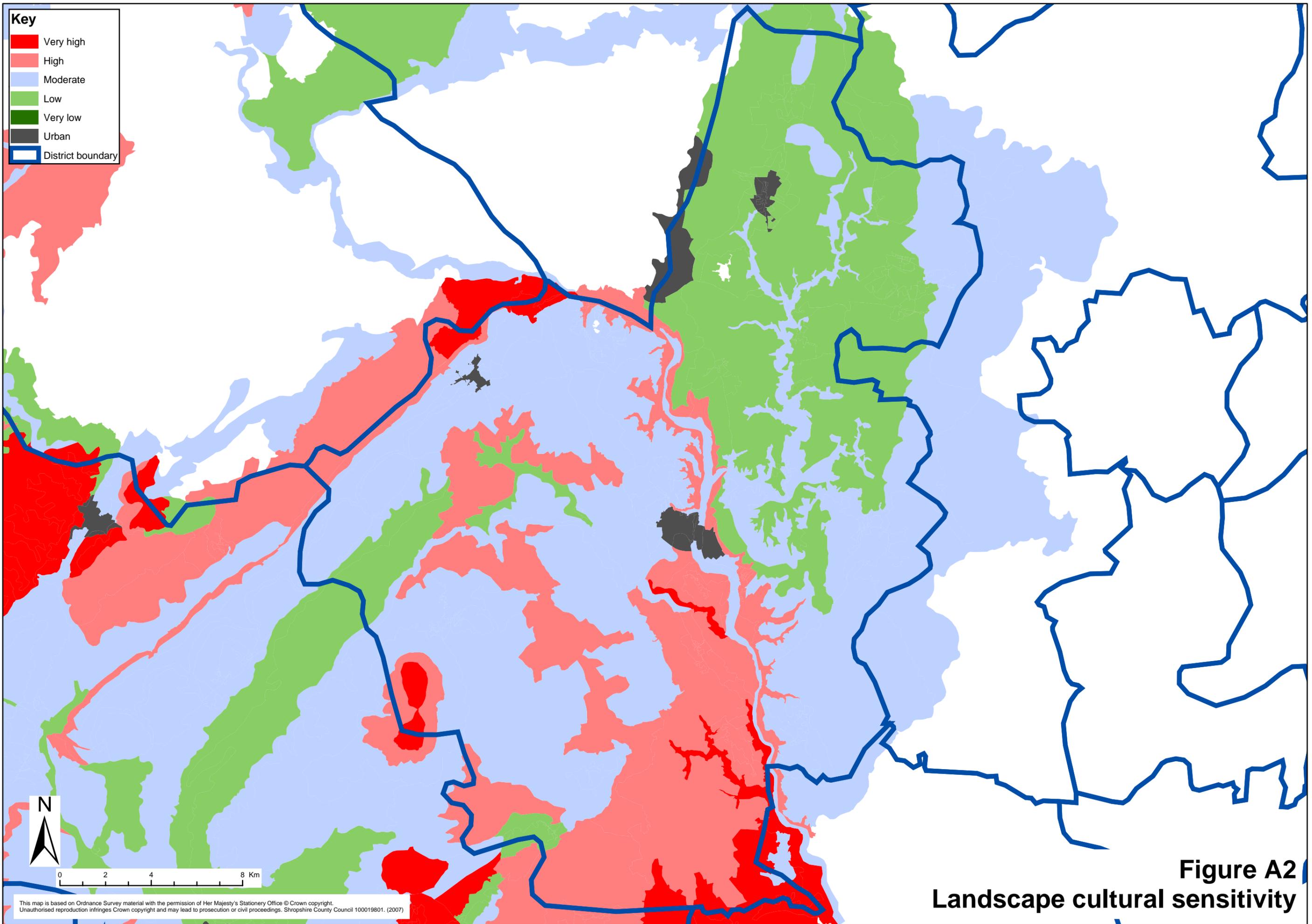


Figure A2
Landscape cultural sensitivity

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