

Chapter 5: Forces For Change

5

FORCES FOR CHANGE

5.1

Introduction

The landscape, ecological and historical physical resources of County Monaghan are in a process of continuous and ongoing change in response to the direct and indirect consequences of human activity and of natural processes. Activities related to agriculture, industry, society and the environment have had, and continue to have a profound influence on the pattern of the landscape that we see today. More recently, road improvements have brought about physical changes at a localised level and indirect changes to the landscape through the expansion of rural settlement in response to this.

Assessment and appreciation of landscape is often subjective and changes to landscape that are regarded as negative by some, may be disregarded or even perceived as positive by others. Perceptions also change with time and new features may become established as valued elements of the landscape. It can therefore be difficult to evaluate the effect of activities and processes in terms of the quality of the change brought about on the receiving landscape.

Despite these difficulties of evaluation, however, it is vital that change is managed to retain or enhance qualities that are generally valued and that make the Monaghan landscape unique, and to conserve the great variety of historical, cultural and ecological resources found within the County.

This section of the report examines in more detail the most influential driving forces behind landscape change together with broad management principles for each of the key forces for change, suggesting how change can be managed so that it has a positive, sustainable influence on landscape character.

A brief review of the principal policies and strategies that provide the context within which the forces for change are likely to emerge is outlined. This is followed by an outline of current trends with respect to each activity or ‘force for change’ and some management guidelines for the receiving landscape.

The key forces that have been identified as having likely effects on the landscape are primarily

- Agriculture and Forestry, and
- Built Development.

In addition, potential for future changes to the County’s landscape could be derived from the following:

- Infrastructure including renewable energy;
- High Voltage Power Lines; and

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- Tourism and recreation.

5.2 Forces for change in the landscape – Agriculture and Forestry

Agriculture and its associated activities has been one of the key components in shaping Ireland's rural landscape. Indeed, it is probably reasonable to state that there is no part of Ireland's landscape that has not been shaped to a greater or lesser extent by agricultural activity. This is likely to be one of the biggest forces in shaping or effecting change to the landscape of County Monaghan.

While agriculture continues to provide both direct and indirect employment, it has reflected the national trend of a decline in employment numbers. In recent years falling incomes has put pressure on farmers to sell development sites to supplement a declining income. It is recognised that such development can be in conflict with the need to protect the character of the countryside. This trend is typical of most counties throughout the country and as a result there are implications for our landscape.

Recent changes which have and continue to occur in this sector which are likely to have implications for landscape change are discussed.

5.2.1 Single Payment Scheme

Payments in the form of subsidies to farmers are no longer linked to production since January 2005. This system has been replaced with the single payment scheme implemented first in March 2005 and revised in 2007. Beneficiaries are required to comply with obligations set out in the guidelines. This is known as cross compliance and has been phased in over a three year period since the introduction of the scheme. Cross compliance involves two elements, both of which could shape or change the landscape in future years where implemented. These are outlined as follows;

- Farmers are required to adhere to a set of statutory management requirements (SMRs) set out in EU legislation concerning the environment, public health and animal and plant health.
- Farmers are also required to maintain land in good agricultural and environmental condition (GAEC). In addition an obligation to ensure that there is no significant reduction in the amount of land under permanent pasture also applies to each EC member State.

The latter of these obligations will have implications for the farmed landscape, many of which will be beneficial. The requirements are various and include the following related to landscape and landscape character:

- Maintenance of soil structure and protection from erosion;
- Maintenance of grassland (non tillage) to avoid undergrazing by adopting suitable grazing or cutting practices;

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- Retention of landscape features including archaeological sites and monuments, designated habitats (NHA, SAC, SPA) and farm boundary features such as hedgerows; and
- Control of the spread or invasive of notifiable plant pests.
- The SPA designation brings particular obligations with regard to the avoidance of overgrazing in the interest of bird habitats.
- The SAC designation brings obligations with regard to the protection of wild flora and fauna.

5.2.2 Changing employment patterns

- The declining numbers engaged in farming;
- The changing non farm employment context: As alternative forms of employment become more available to the agricultural population, some who might have otherwise engaged in full-time farming will be tempted to opt for part-time farming with a non-rural off-farm job as well;
- Farm diversification

5.2.3 Reps 4

The Rural Environment Protection Scheme (REPS 4) was relaunched in August 2007. The object of the scheme is to protect the rural landscape, increase biodiversity and improve water quality. The new scheme was approved at the EU's Rural Development Committee on 24th July as part of Ireland's Rural Development Programme.

Statistics available from the Department of Agriculture (compiled March 2007) reveal that a total of 1,972 farmers in Monaghan are actively participating in REPS and they represent 3% of participation nationally.

The latest version of the Rural Environment Protection Scheme, REPS 4, runs until 2013 and sets out to reward farmers for enhancing the environment through a range of actions including reduced use of fertilisers and pesticides contributing to lower greenhouse gas emissions as well as improved water quality. The scheme also assists in maintaining existing hedgerows and planting new ones, growing crops to provide food for wild birds and preserving traditional breeds of animals.

Eleven basic measures are applicable to the scheme many of which relate to landscape and ecological conservation and include the following:

- follow a farm nutrient management plan prepared for the total area of the farm;
- adopt an appropriate grassland management plan for the total area of the farm;
- protect and maintain all watercourses and wells;
- retain wildlife habitats;
- maintain farm and field boundaries;

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- cease using herbicides, pesticides and fertilisers in and around hedgerows, lakes, ponds, rivers and streams, except with the consent of the Minister;
- protect features of historical and/or archaeological interest;
- maintain and improve the visual appearance of the farm and farmyard
- produce tillage crops: without burning straw or stubble; leaving a specified field margin uncultivated where no nutrients or sprays are applied;
- become familiar with environmentally friendly farming practice; and
- prepare, monitor and update agri-environmental plan and keep such farm and environmental records as may be prescribed by the Minister.

5.2.4 Nitrates Directive

The nitrates and phosphorus regulations were introduced in 2007 for the purpose of improving the use of nutrients on farms and as a result improve water quality. Some derogations to this regulation currently apply to grassland farms.

5.2.5 Forestry

Total forest cover for the County stands at approximately 4.4% of land area which is below the national average of approximately 9.7%. The increase in forest cover up to 1991 has been slow because up to that time, the state were almost exclusively responsible for any plantings that took place. This trend has been changing and will continue to change as a growing number of farmers are becoming engaged in afforestation. This increase in privately owned forestry is attributed to a range of grant and forest premium schemes available to farmers.

5.2.6 Broad Landscape Guidance for Agriculture and Forestry

The introduction of environmentally orientated initiatives like REPS are likely to bring about some beneficial changes to the farmed landscape. These range from the retention of wildlife habitats to the strengthening of hedgerow and hedgerow margins and the retention (conservation) of traditional farm structures thereby resulting in an enhancement of the farmed landscape pattern present in much of the County of Monaghan. Additional guidance that can be taken into account includes the following;

- Maintain farm and field hedgerow boundaries which in themselves represent valued wildlife habitats. The replacement of fenced boundaries with hedging or indeed the introduction of hedging to fenced barriers required for stock proofing is encouraged;
- The establishment of riparian planting zones around water courses and water bodies will serve to enhance these habitats and to protect water quality;
- New farm buildings are likely to be sited in close proximity to existing structures within the more intensively used areas of the farm (milking area or harvest grading and packaging area). These are likely to be served by one road access. Farm

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buildings constructed with materials to match the traditional or existing structures will be more discreetly integrated into their setting;

- Routing of farm tracks along screened alignments or natural contours will result in better integration of such structures into the landscape and visual environment; and
- Opportunities can be taken to engage the local community in voluntary activities associated with landscape and habitat restoration in the rural setting generally.

Forest Service Policy and guidelines set out objectives and methodologies for improved siting, design and management of forest areas. These objectives are generally aimed at environmental improvements including landscape enhancement as well as optimum output of forest products. Some of these are summarised below;

- Species diversity in forest plantations is encouraged for the purposes of achieving better timber quality and also facilitate more successful integration of same into the receiving landscape in a manner that recognises landscape character and minimises adverse visual impacts;
- Consultation with prescribed bodies will be undertaken in respect of proposals to be located within or near landscapes of high scenic quality;
- Forestry and landscape guidelines published by the Forest Service are aimed at guiding the developer on issues concerning siting and design that recognise landscape character. The guidance is presented in the context of four generic landscape types which can be found in Monaghan and these are;
 - Rolling moorland
 - Rolling fertile farmland
 - Drumlins; and
 - Mountain and farmland complex.
- Guidance is also available from the Forest Service on water quality and river catchments. Some of the guiding principles include the establishment of a buffer zone of riparian vegetation around the catchment with limits on ground preparation in order to avoid sediment discharges.

5.3 Forces for change in the landscape – Built Development.

The most recent census data (2006) reveals an increase in the population of Monaghan from 52,593 (2002) to 55,997 (2006) representing an overall increase of 6.4%. Population increases were recorded for Monaghan urban area (7.4%), and Carrickmacross Urban Area (0.5%), . However population decreases were measured for Castleblayney urban area (-4.2%) and Clones urban area (-10%).

The population is generally dispersed throughout rural areas with an estimated 30% being located in urban areas. Significant future population increases are not predicted in these urban areas however Monaghan Town is considered an exception due to population projections of 15,000 by the year 2020. As a hub town, Monaghan needs to significantly

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increase its population to provide the critical mass that is required to attract sufficient investment to provide the necessary infrastructure for the town to expand.

5.3.1 Housing

Figures from the Department of the Environment, Heritage and Local Government (DoEHLG) indicate that there were 1,406 houses completed in County Monaghan in 2007 of which 506 were individual houses. There is no comparative figure for 2007 yet available however, the quarterly statistics indicate that there were a total of 1,558 completed in the first three quarters of 2007. It can therefore be assumed that there will be more individual houses completed in 2007 which will have implications for the rural landscape of County Monaghan.

In accordance with the Sustainable Rural Housing Guidelines April 2005, the Monaghan County Development Plan 2007 – 2013 identifies a number of areas that are experiencing various levels of development pressure for one off rural housing and outlines the relevant policies that will apply to each area. These policies have implications for the landscape of Monaghan. The categories identified in the Development Plan are as follows:

Areas Under Strong Urban Influence – three areas are identified and include the environs of three principle towns of Monaghan, Carrickmacross and Castleblayney. These areas are experiencing the greatest development pressure (for one off rural housing) in the county. The policies RH1 – RH 7 in the development plan are geared towards facilitating members of the local community.

Stronger Rural Areas – these areas are mainly concentrated in the eastern side of the county with a band running either side of the N2 forming its major part. Policy RH 8 which requires normal planning considerations will be applied to all applications for one off rural houses in these areas.

Structurally Weak Rural Areas – the structurally weak rural areas of County Monaghan mirror all those areas identified in the CLAR programme and are more apparent in the west of the county. These areas have characteristics such as persistent and significant population decline, low population density, as well as a weaker economic structure. Policy RH 9 which requires normal planning considerations will be applied to all applications for one off rural houses in these areas.

The reference to ‘normal planning requirements’ in policies RH 8 and RH 9 with respect to one off rural houses includes the principles of good practice in location, siting and design of houses.

The landscape character assessment can be used as a basis for informing the design process associated with each application in order that local character is recognised in the proposed scheme. Examples of some guiding principles to avoid or observe where possible are outlined as follows;

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- Examples of new structures can be found which are built to a standard design and often may be unrelated to local patterns of built form. In addition, a profuse variety of building styles and materials may be used which contribute little or nothing in terms of sense of place or distinctiveness in Monaghan. This does not mean that modern buildings cannot be constructed but that the design of these should take account of the receiving landscape and not unduly detract from the dominance of the natural.
- Where new development is sited on the edge of towns and villages, or as ribbon development along principal approach roads, it has the effect of isolating the core of the settlement from its landscape context, restricting views to the open countryside and creating a nondescript first impression. In this regard, developments which are grouped in clusters that are more closely aligned with the core of the settlement can often be more successful in terms of preserving the landscape context of any given settlement.
- Expansion of existing settlements usually involves the development of greenfield sites and therefore the loss of a proportion of the region's landscape resource. Such development represents a significant and potentially detrimental force for change in landscapes which are sensitive in visual terms or which are important for their inherent historic or ecological interest. When areas for new housing development are being identified, their landscape potential and the impact of their development on the overall landscape quality of the area should be part of the consideration. In addition, redundant buildings and brownfield sites within the existing urban fabric should be promoted as priority areas for development and their development should be facilitated where possible.
- Derelict buildings are particularly prevalent in areas of marginal farmland, often in remote upland locations, where they lend a sense of abandonment or possible degradation to these landscapes. In these locations however, derelict farms and cottages, although crumbling and overgrown, represent an important and tangible link to the past and are evocative features in the landscape as well as a historic record of a changing society. The abandonment of dwellings may be due to a number of factors including the increased cost associated with renovation. If incentives could be introduced to encourage the reuse of these structures, this would be seen as an enhancement of the local landscape generally.

5.3.2 Rural Design Guide for Rural Houses

Monaghan County Council have commissioned Colin Buchanan Consultants to draft a design guide for houses in the countryside. This booklet is currently in draft form. This Landscape Character Assessment will be used to provide baseline landscape information for the rural design guide. It will also outline guiding principles that can be used to establish future policy and guidance. It is anticipated that the rural design guide will provide clarity, certainty and improved design for all future planning applications for rural houses which will complement, rather than conflict with Monaghan's unique landscape.

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5.4 Forces for change in the landscape – Infrastructure

5.4.1 Transportation

The County has one National Primary Route, the N2 road route which is regarded as a key link to the north at a national level and is also greatly depended on for movement within the County. Recent road developments have focused on this route and include the bypassing of both Monaghan Town and very recently Castleblayney in the year 2007. Various sections of the N2 route are currently being upgraded including the Castleblayney to Clontibret section now complete and at 16km length is the longest 2+1 type of road to be constructed in Ireland.

Road proposals are identified in the County Development Plan for the five main towns including Monaghan, Carrickmacross, Castleblayney, Clones and Ballybay.

Best practice guidance in regard to the landscape design and mitigation of impacts on road schemes is endorsed by the National Roads Authority and reflected in recently published guidance. Whilst road developments represent a force for change on the landscape, their integration into the landscape setting can be carefully considered and in many cases, road access can improve visual access to the receiving countryside thereby heightening awareness of the particular scenic qualities present in Monaghan. The landscape character assessment will serve as a useful guide to inform the design process and the achievement of some of the main guiding principles summarised below:

- Road projects will aspire towards ecologically sensitive integration of the proposals into the receiving environment. The proposed landscape treatments will complement the surrounding ecological network and will counter the potential barrier and fragmentation effect of the proposals as well as compensate for the loss of habitat;
- The engineering design will seek to route proposals around significant prominent hills and upland ridgelines in the receiving landscape in order to minimise visual impacts;
- Engineering earthwork slopes will be designed where space allows to mimic naturalistic profiles, and to match in with the existing landform;
- New signs will be positioned wherever safety allows to avoid new significant visual intrusion to nearby properties and to avoid the loss of established vegetation;
- Fencing or other built elements, for example boundary walls or structures for noise attenuation will be of a colour to blend in with the surrounding landscape. In regard to noise attenuation, the use of earthworks bunds or mounds as noise screens is preferable to the use of fences or similar built structures. Post and rail style of fencing is predicted to be most suited to the receiving landscape;
- Consideration of the landscape character and context of the road will be crucial in the preparation of effective landscape design proposals. These will also consider the

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road user and the scheme will aim to retain and reinforce regional identity in landscape terms;

- Use of landscape treatments that require minimal long term maintenance;
- A range of different habitats will be created to enhance local biodiversity including grasslands, scrub, woodland planting and hedgerows;
- Plant species chosen as part of the road landscape design will seek to enhance local biodiversity through providing food for birds and animals, increased species diversity etc. Berried and other fruiting species as well as evergreens will be included in the design. Use of native species is encouraged and where possible the proposed planting and seeding mixes are to reflect native plant communities adjacent to or in the vicinity of the road scheme; and
- Plans for the long term management of the road estate will address short term and long term maintenance of the landscape and ecological resources associated with the road.

5.4.2 Wind energy

Policy in the County Development Plan supports the deployment of wind energy in the County subject to legislation and best practice guidelines issued by the Department of the Environment. County Monaghan has, in terms of alternative energy a substantial potential for the development of wind. A wind farm of 5 turbines has recently been constructed at Mullannalt, Ballybay, while a further planning application at Tullynageer, Castleblayney has recently been approved. Two other proposed wind farm developments at Carricknabrock and Eshnasheeda (a cross border planning application with additional turbines in Co. Tyrone) are the subject of current planning applications. Wind farm development represents a force for change in Monaghan's landscape.

5.4.3 High Voltage Power lines

The future upgrades of the National Transmission Network have the potential to significantly affect the physical landscape of Co. Monaghan which the County Development Plan seeks to protect. Every effort should be made to ensure that any future developments in this area, do not have a negative impact on our drumlin landscape, the built environment or the quality of life or our people.

5.5 Forces for change in the landscape – Tourism and recreation

The Tourism Development Strategy for the whole of Ireland identifies tourism as a significant economic force and this is underlined by reported increases in demand (13.9% increase in numbers in the period 1999-2005). Although since 2005, there has been a decrease in spending by overseas visitors in the Border, Midland and West Region.

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Although Monaghan has an attractive and varied natural landscape and a rich cultural heritage, the county is not widely perceived to be a tourist destination. It is largely perceived as being an agri-business county which carries no county brand image for tourism and is also possibly overshadowed by nearby coastal counties in Northern Ireland that have more developed tourism sectors and specific attractions.

The Tourism Product Development Strategy 2007-2013 published by Failte Ireland identifies the physical environment as being of central importance to tourism product. 82% of visitors in 2005 rated scenery as an important reason for visiting Ireland.

The actions arising out of the strategy which relate to the landscape or physical environment are many and a list of those that currently are, or could be relevant in the future to the County of Monaghan are provided;

- Undertake a comprehensive national review of scenic landscapes. This initiative could include for a range of scenic landscapes in Monaghan, in particular those associated with the lakelands and upland moorland;
- Maximise tourism potential of historic towns. Towns such as Clones and Carrickmacross are associated with the history of lacemaking and indeed the town of Inniskeen is associated with the poet Patrick Kavanagh;
- Review the environmental factors influencing the decline in angling tourism. The potential for angling exists throughout the entire County;
- River basin management plans to be developed in support of the water framework directive;
- Failte Ireland to become involved in environmental planning, with some influence on the location and quality of new development;
- Encourage and monitor the use by Local Authorities of urban and rural design guidelines;
- Prepare guidelines on the sustainable development of holiday homes and caravan parks;
- Resolve and improve access to countryside and cultural heritage. In Monaghan, access to the countryside is gained largely by car on local roads. Other means of access could be developed in a sustainable way to add to the existing facilities including the forest parks (Rossmore and Billy Fox);
- Fund the development of up to 300 looped walks and 2,500km of cycling routes. This initiative could include for the planned extension of the Monaghan Way or indeed the planning of new walking routes in a sustainable manner;
- Improve inland waterway facilities. Plans to renovate the Ulster Canal from Lough Erne to Lough Neagh were the subject of an application for funding under the EU Interreg III programme with the object of providing recreational access. The canal when renovated will become a major recreational resource for Monaghan extending right across the county from near Glasslough in the north east to near Clones in the south west;
- Fund specialist activities including equestrian sports. This is an emerging, if not already developed market in Monaghan with facilities in Castle Leslie and Carrickmacross;

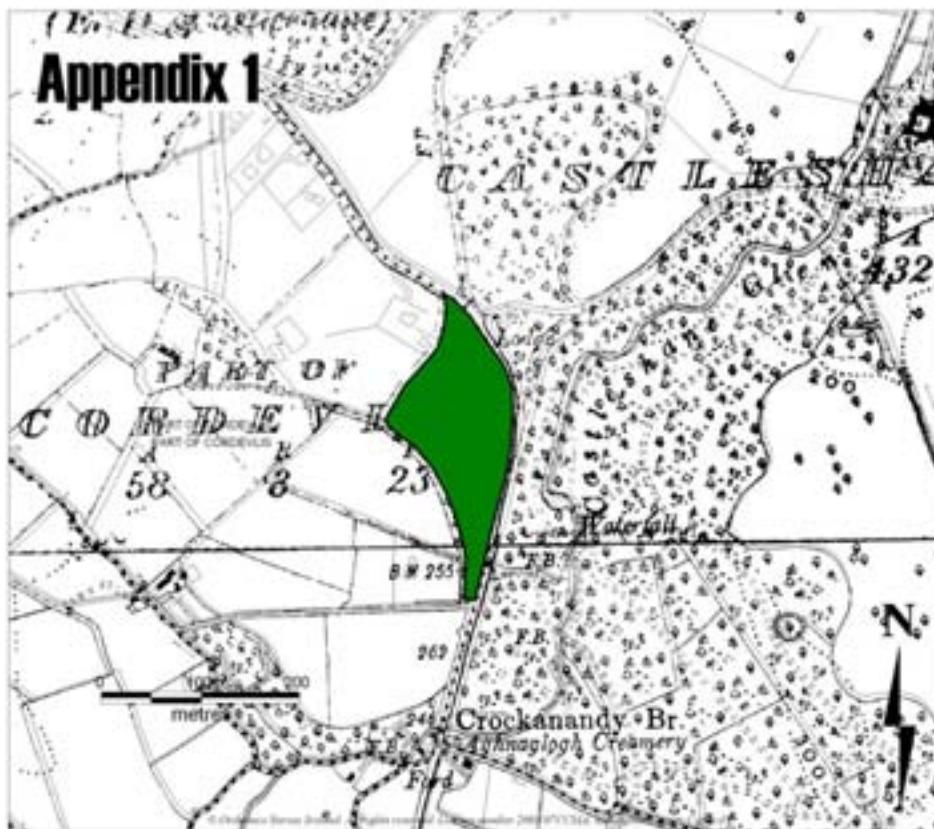
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Low levels of tourism activity in the County provides an opportunity to demonstrate best practice in developing sustainable tourism and learn from mistakes made in other counties. Some guiding principles for landscape change related to tourism include the following;

- The Landscape Character Assessment is a starting point for identifying the scenic landscapes of the county and sustainable means by which these can be accessed and enjoyed.
- The baseline information from the Landscape Character Assessment can be used to guide and support local tourism initiatives, for example the Tidy Towns initiative.
- The use of local materials for tourist related developments will help to ensure that they are well integrated with their surroundings and reflect a strong sense of local identity.
- Potential erosion of footpaths by increasingly numbers of walkers and mountain bikers is a risk particularly in upland areas. The provision of short stretches of raised or floating walkways over peaty/bog landscapes such as Sliabh Beagh area may be necessary to prevent both soil erosion and loss of flora along upland footpaths.
- Development and management of footpaths for short distances (4-5km) walks will open up local areas of the landscape to a large number of people.
- The lakes and environs represent scenic landscape resources which could undergo change as a result of tourism and recreational activities including angling and watersports as well as more passive forms of recreation. These activities will need to be developed in a manner that safeguards the water quality, ecological and landscape setting of these lakes

6 CASTLESHANE WOODS AND ENVIRONS

A portion of land is excluded from the Area of Secondary Amenity known as Castleshane Woods and Environs. The subjects lands excluded from the Area of Secondary Amenity are identified on the map below.⁽¹⁾



*Portion of land excluded from the Area of Secondary Amenity
at Castleshane Woods and Environs.*

 Lands Excluded

(1)'The exclusion of lands within the Castleshane Woods and Environs Secondary Amenity Area was made by the members of Monaghan County Council as a modification to Variation No 07 in accordance with Section 13 (6) (a) of the Planning and Development Act, 2000'.

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(1) source: www.peatlandsni.gov.uk/wildlife/birds/g_wf_goose.htm, 2006

(1) source: A. Whilde, 1993; Red Data Book 2: Vertebrates, London.

(1) source: www.jncc.gov.uk, 2006

(1) source: Monaghan County Council, 2006; Draft County Development Plan 2006 - 2012.

(1) Coote, 1801, quoted in Livingstone, 1980, 554.

LANDSCAPE CHARACTER ASSESSMENT GLOSSARY

LANDSCAPE TECHNICAL TERMS

An explanation of how the terms are being used in the context of the *County Leitrim Landscape Assessment*.

Analysis - the process of breaking the landscape down, usually in descriptive terms, into its component parts in order to understand how it is made up.

Approach - the step-wise process by which a landscape assessment is undertaken.

Assessment - an umbrella term used to encompass all the many different ways of looking at, describing, analysing and evaluating landscape.

Character - a distinct pattern or combination of elements that occurs consistently in a particular landscape.

Character Area (Image Unit) - a unique geographic area with a consistent character and identity.

Character Type (Physical Unit) - a generic term for a landscape with a consistent, homogeneous character. Landscape character types may occur in different parts of the County, but wherever they occur, they will share common combinations of geology, topography, vegetation or human influences.

Characteristic - an element that contributes to local distinctiveness (eg narrow winding lanes, vernacular building style).

Classification - a process of sorting the landscape into different types, each with a distinct, consistent and recognisable character.

Description - verbal description of what a landscape looks like. This is usually carried out in a systematic manner, but it may also include personal reactions to the landscape.

Element - a component part of the landscape (eg hedges, roads, woods).

Feature - a prominent, eye-catching element (eg wooded hilltop, church spire).

Landcover - combinations of land use and vegetation that cover the land surface.

Landform - combinations of slope and elevation that produce the shape and form of the land surface.

Landscape - the term refers primarily to the visual appearance of the land, including its shape, form and colours. However, the landscape is not a purely visual phenomenon; its character relies on a whole range of other dimensions, including geology, topography, soils, ecology, archaeology, landscape history, land use, architecture and cultural associations.

OTHER TECHNICAL TERMS

AOD - abbreviation for 'above ordinance datum'

Barrow – a general term for burial mound dating from Neolithic up to early medieval period.

Bawn -(babhun) Irish word generally taken to mean a fortified enclosure or bulwark of mud or stone walls. These are a particular feature of the Plantation Period. One of the conditions of obtaining a large land grant was that settling landlords construct a manor house or strong house surrounded by a bawn.

Biogeography - the study of plant and animal distributions together with the geographical relationships with their environments over time.

Bronze Age - (2500 BC to 500 BC) during this period, Bronze became the primary material in tools and weapons, enabling settlement to expand into lowland areas. Burials were in pits and cists, sometimes in cemeteries and much simpler than in the Neolithic period. Greater emphasis was placed on worship of the living with the construction of ceremonial megalithic stone circles.

Blanket bog - a bog which drapes all features of the terrain such as filling hollows. It is composed essentially of peat on which rough wet moorland or marshland vegetation prevails. It is formed in high rainfall and low evapotranspiration conditions.

Carboniferous Period - period of the Palaeozoic era which ranged from 345 million years to about 280 million years BP (Before Present). The Carboniferous can be divided into the Lower Carboniferous and the Upper Carboniferous separated by a boundary dated at about 325 million years BP.

Chert - a hard siliceous rock, which occurs as bands or layers in sedimentary rocks. Flint is a variety of chert.

Clachan - nucleated group of farm houses where landholdings were organised communally, frequently on a townland basis and farmed by communities with strong kinship ties. Houses were surrounded by a permanently cultivated infield, defined by a study wall outside which lay the outfield and commonage.

Colluvial –deposition of sediment or rock particles accumulating from overland flow at the base of a slope and originating from higher slopes where sheet erosion is in progress.

Crannog - A type of ancient lake-dwelling found throughout Scotland and Ireland. Most are circular structures that seem to have been built as individual homes to accommodate extended families. Other types of lake settlements are also found in Scandinavian countries and throughout Europe. Crannogs are also known as artificial or modified natural islands and they were as much a product of their environment as the period in which they were constructed.

Demesne - lands held by the manor for its own use and occupation incorporating farmland, gardens, woods and buildings. With Medieval origins the concept survived until the break-up of the estate system in last present century.

Devonian - the fourth geological period of the Palaeozoic era extending from 395 to 345 million years. It comprises marine and continental deposits, the latter being referred to as the Old Red Sandstone.

Drumlin - an Irish term widely accepted to describe a streamlined, elongated egg-shaped hillock of glacial drift formed under a moving glacier during the ice age. The long axis of the hillock is aligned parallel to the direction of the ice flow. Drumlins usually occur in swarms or 'fields'.

Erratic - a large rock fragment which has been transported by moving ice away from its place of origin and deposited in an area of dissimilar rock types.

Esker - long, sinuous ridge of sand and gravel deposited by sub-glacial stream.

Eutrophic - the state of a water body when it has an excess of nutrients usually derived from agricultural fertilisers. The process by which a water body becomes overloaded with nutrients is known as eutrophication and leads to a dense plant population, the decomposition of which kills animal life by depriving it of oxygen.

Fault - a rupture or fracture of rock strata due to strain.

Flush - an area of soil enriched by transported materials, either dissolved mineral salts or rock particles. Wet flushes are found surrounding springs and rivulets and appear as bright green, rushy areas on a hill slope.

Fluvio-glacial - a term referring to the processes and landforms related to the action of glacial meltwater.

Fulachta fiadh - a Bronze Age cooking site. The method of cooking involved the heating of stones in a fire until they were hot enough to drop into a trough of water to bring it to the boil at which point a parcel of food could be dropped in. The shattered stones were thrown into a pile surrounding the trough on three sides which over time formed the distinctive horseshoe-shaped mound which may be identified today.

Geomorphology - the scientific study of the origin of landforms based on a cause and effect relationship.

Gley soils - Soils characterised by being affected by periodic or permanent saturation by water in the absence of effective artificial drainage. Various gley soils exist.

Infield - large open field surrounding houses within a clachan. This large open field was situated on the best ground and was divided up into a multiplicity of strips separated by sods or stones in which potatoes or stones were grown. Each family used a variety of strips which were periodically re-distributed (rundale). The infield was permanently cultivated and nutrients were replenished by the use of lime, seaweed and dung.

Iron Age - (500 BC to Early Christian Period) A period of antiquity in which iron metallurgy superseded the use of bronze for tools and weapons. Elsewhere in Europe Iron Age communities succumbed to Rome. However, in Ireland the 'celts' survived for many centuries. The Iron Age saw the emergence of kingdoms and the consolidation of territories defended by hilltop fortifications and earthworks.

Kame - kames can result from the accumulation of glaciofluvial sediments in a supraglacial position whence they are lowered by ice melting until they form a tumultuous hummocky terrain after the ice has disappeared.

Kame terrain - an undulating landscape composed of groups of kames and/or kame terraces interspersed or pitted with kettle holes. This type of landform is sometimes termed a kame complex and is created when glaciofluvial sediments are lowered onto the sub-ice surface as the glacier or ice-sheet decays, especially when it can be established that the kame sediments were formed in separate basins of accumulation on the ice surface.

Lazy bed - garden like method of farming used in marginal areas to maximise the capacity of thin or nutrient poor soils. Manure was laid out in lines on which sods were lapped over using a thin bladed spade (loy) to create a series of ridges and furrows of equal width.

Lower Palaeozoic - first of the eras of geological time lasting from about 600 million years to 240 million years BP. In Europe it comprises the Cambrian, Ordovician and Silurian (which together constitute the Lower Palaeozoic) and the Devonian, Carboniferous and Permian which form the Upper Palaeozoic.

Lough - an Irish term for a body of water, either enclosed as a fresh-water lake or a long, narrow penetration of sea water extending inland from the ocean.

Lumper - a high bulk variety of potato which tolerates poor soils and requires little manure.

Megalithic tomb - a construction made of large stones, largely dating to the Neolithic and Bronze Age. Four types of megalithic tombs have been identified on the basis of architecture, excavation artefacts and distribution patterns: court, portal, passage and wedge. The various tomb types have been interpreted as a chronological sequence, starting

with court tombs and ending with wedge tombs. However the extensive age range provides evidence for a considerable overlap and other explanations for their distribution in the landscape is required.

Mesolithic - (9000 BC - 4000 BC) an archaeological term meaning 'middle stone age' and used to describe the culture of the early Post Glacial period. It is a period of transition in the early Holocene when mankind moved from the hunter gathering practices of the Palaeolithic of the last glaciation and the farming and pottery of the post glacial Neolithic. Mesolithic inhabitants frequently lived along coasts, rivers or lake shores and may have used fire to clear forested land for semi-permanent villages. Mesolithic tool kits reflect a need to adapt to the changing environment and are characterised by the presence of microliths and stone axes.

Metamorphic rocks - rocks which have been altered from their original state by various metamorphic processes, generally as a result of mountain building and the intrusion of magma.

Midlandian glaciation - the name given to the final glacial stage of the Pleistocene.

Moraine – accumulation of rock debris carried by glacier or ice sheet and deposited by ice to become a depositional landform.

Motte-and-bailey castle - the earliest form of Norman castle established along key communication routes after the Conquest. An inner courtyard was protected by simple earth and wood defences.

Mudbanks - masses of fine grained limestone which were formed by the production of huge amounts of calcium carbonate by organisms. These rose above the general level of the sea floor in a manner similar to modern day coral reefs.

Neolithic (4000 BC - 2500 BC) an archaeological term meaning 'new stone age' which describes the period of antiquity in which people began to use ground stone tools, cultivate plants and keep domestic livestock. The gradual spread of farming though Europe brought with it the custom of communal burial in megalithic tombs.

Outcrop - the area where a particular rock type, stratum or vein appears at the surface.

Outfield - poorer, more marginal or boggy ground where occasional reclamation might be made for the purposes of growing potatoes.

Peat hag - mossland that has formerly been broken up; it could be a pit, break, gap or chasm in the moss, or an area of turfy or heathery ground which rises out of the peat bog.

Pedology - the scientific study of soils.

Plantation- a newly established settlement generally associated with a period of subjugation of the native Irish élite and colonisation by a Protestant and British landed class in the late sixteenth and early seventeenth century.

Poaching - to become muddy or broken up from being trampled. Largely used to describe stock damage on grassland.

Rath - a type of ring fort found in Ireland mainly dated in Ireland to the early Christian period, c. 5th-10th centuries AD.

Raised bog peat - under suitable climatic conditions this is built up on top of fen peat. As the depth of the fen peat increases its living vegetation is less influenced on ground water and becomes more dependent on atmospheric precipitation as a source of moisture. This change in moisture supply results in the growth and development of a raised bog with its characteristic convex surface and acid plant remains.

Riparian habitat - riverbank habitat.

Rundale - periodic re-distribution of strips of land in the infield of a clachan practically universal throughout the poorer lands of the west of Ireland. The re-distribution of strips of land ensured a fair distribution of all soil types to each family of the clachan.

Turbary - the right of digging turf on another man's land or the ground where turf is dug.

Scree slopes – through weathering, water contained in rocks expanded on freezing and blocks and fragments were prised off and crept downhill to accumulate as features known called scree slopes.

Semi-natural vegetation - any type of vegetation which has been influenced by human activities, either directly or indirectly.

Silurian period - third period of the Palaeozoic lasting from 440 million years ago to about 395 million years ago. Its rocks comprise thick layers of sandstones, shales, mudstones and limestones.

Souterrain - a long stone-built chamber sunk into the ground and roofed with stone slabs, usually beneath a house and intended for cold storage, roughly dating to the 2nd and 1st centuries BC.

Sweathouse - a small stone building in which a fire would be lit to heat the stones. Two people would enter and have the entrance stopped by a stone behind them. The patients would stay in the sweathouse for as long as was bearable before leaping into the nearby stream. The sweathouses offered a cure for rheumatism, sciatica and general aches and pains up until the establishment of dispensaries after 1851.

Tundra - the tundra lies between the polar region of perpetual snow and ice and the northern limit of tree growth. The term is used to describe landscapes which are characterised by treeless vegetation consisting of mosses, lichens, sedges and stunted shrubs growing on permafrost. During the quaternary tundra like conditions were translated south as continental ice sheets expanded.

Vernacular - buildings constructed in the local style, from local materials. Concerned with ordinary rather than monumental buildings.

Veteran tree - a tree which is of interest biologically, culturally or aesthetically because of its age, size or condition.

ERM Ireland

Suite 508, The Capel Building
Marys Abbey, Dublin 7

T: +353 (0) 1 814 7700
F: +353 (0) 1 814 7700

NSC Campus, Loughmahon Technology Park
Mahon, Cork
T: +353 (0)21 230 9323
F: +353 (0)21 230 9362

