

Landscape Character Review for Newry, Mourne and Down



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1.0 INTRODUCTION

1.1 Background

The landscape character of Northern Ireland is described in the Northern Ireland Landscape Character Assessment which was undertaken in 1999 (NILCA 2000)¹. The assessment describes the Northern Irish landscape through 130 landscape character areas (LCAs). 25 LCAs are wholly or in part within the Newry, Mourne and Down District Council Area, albeit 3 only marginally. The character assessment describes the character of each area, its sensitivity, condition and provides principles for landscape and development management. More recently, information on the biodiversity and geodiversity of each LCA was added to the assessment, and these are available on the Northern Ireland Department of Agriculture, Environment and Rural Affairs websites, along with the character assessment.

In the years since the publication of the original assessment, parts of the landscape of Newry, Mourne and Down have been subject to significant change. In order for the character assessment to remain relevant to planning policy and the development management process, an update of the landscape and associated assessments is required to capture the current landscape character and its sensitivities, and to provide up to date development management guidance.

Furthermore, the landscapes of Newry, Mourne and Down are some of the most scenic in Ireland, including Carlingford Lough, Strangford Lough, the Ring of Gullion, and the Mourne Mountains, with special qualities recognised through national and local landscape designation. There is a requirement to make sure that designations, in particular local designations, properly reflect the special landscape qualities and remain relevant to objectives set out in planning policy.

Ironside Farrar was commissioned in 2019 by the District Council to undertake a review and update of the character assessment within Newry, Mourne and Down, including updating of the biodiversity and geodiversity profiles which accompany each character assessment, and a review of local landscape designations. This report describes the findings of the review and provides an updated landscape character assessment for the Newry, Mourne and Down District Council Area.

The updated landscape character assessment is complementary to the Northern Ireland Regional Landscape Character Assessment (NIRLCA)² and the Northern Ireland Regional Seascape Character Assessment (NIRSCA)³, published in 2016 and 2014 respectively, which characterise the landscape and seascape of Northern Ireland at a larger scale.

¹ Published by Northern Ireland DAERA, available on their website www.daera-ni.gov.uk

² <https://www.daera-ni.gov.uk/services/regional-landscape-character-areas-map-viewer>

³ <https://www.daera-ni.gov.uk/publications/northern-ireland-regional-seascape-character-assessment>

2.0 LANDSCAPE CHARACTER ASSESSMENT

2.1 The Landscape Resource

The objective of assessing and understanding the landscape resource is to ensure that the distinct identity, diverse character and scenic quality of Northern Ireland's landscapes as a whole can be safeguarded and enhanced while also accommodating change. Landscape assessment provides the starting point for Local Authorities to develop specific zonal policies for the care, enhancement and sustainable use of their landscapes. These spatial policies can be adapted for use in development plans, but also a range of other strategies, most notably wind energy, forestry, agriculture and design. Landscape character assessment has also been used as the starting point for more detailed assessment of the sensitivity of landscapes to specific types of development, and Historic Landscape Assessment (HLA) can be used in a similar way.

Understanding the landscape, and the relationship between change and landscape management, is a critical part of landscape character assessment. Safeguarding the quality of landscapes and the adoption of an 'all landscapes' approach accepts the need to guide and manage change in accordance with broad principles. The following principles guiding this assessment, are derived from the objectives and definitions of the European Landscape Convention (ELC)⁴:

- Landscapes evolve, but change should be guided

Landscapes are continually changing, but because of the increasing extent and pace of change, and the loss of distinctiveness resulting from it, a more proactive approach to landscape planning and management is required to ensure that the landscapes of tomorrow are of no less value than today's.

- Landscape change should be positive in effect

Most change in our landscapes should fit with and enhance existing landscape character, particularly where present character is highly valued. But the character of a landscape cannot always be retained and some landscapes will be changed through land uses and development. In all these cases the objective should be to ensure that the landscape is recognisable and valued as distinctive and appealing.

- All landscapes deserve care

Safeguarding landscape has traditionally focused on designated areas (e.g. Areas of Outstanding Natural Beauty (AONB)). Nevertheless, it is the countryside as a whole (including settlements) that provides the valued diversity of distinctive landscapes, as well as the settings for most people's lives. All landscapes are of value to those who live and work in them and are therefore deserving of care.

- Some landscapes warrant special safeguard

Even within a universal approach, some landscapes are widely recognised as being of particular value, are therefore more sensitive to change, and justify special effort to ensure they are safeguarded. Their designation is an important planning and management tool to ensure they continue to be given care when proposals for change arise.

- Quality should be the goal

Care for Northern Ireland's landscapes needs an emphasis on achieving high standards of design and management, along with a considered approach to the development and implementation of policies and actions which affect landscape.

- Landscapes are a shared responsibility

Northern Ireland's landscapes are important to all. Many activities influence the landscape's appearance; their net effect is of legitimate concern to all those who live, work and seek recreation in these places. An integrated and collective approach is therefore required, based on a broad agreement on the direction, nature, and extent of desirable landscape change.

2.2 The Landscape of Newry, Mourne and Down

The Newry, Mourne and Down District comprises the legacy districts of Newry and Mourne, Down, and a minor part of Banbridge. The landscape assessments for each of these former District Council areas were originally published in three separate volumes of the NILCA 2000 assessment.

Towards the south and west, the former district of Newry and Mourne includes the dramatic mountain areas of the Ring of Gullion and the Mourne Mountains, which lie to the west and east of Newry respectively. Between these two mountain areas, the drumlin lowlands around Newry drain into Carlingford Lough. Topographic variation is considerable, with Slieve Donard rising steeply from sea level to 853m in little over 3km.

The Mourne Mountains and the Ring of Gullion are dramatic landscapes of great scenic value. They form two cores around which lowland areas are distributed. The Kingdom of Mourne is a unique landscape with drystone walls of rounded glacial boulders, a dramatic mountain backdrop, and extensive sea views. To the south, the Kilkeel Coast with its calm coastal strip, wetlands and mudflats provides a strong contrast. Slieve Roosley comprises an area of lower but still highly distinctive and dramatic hills to the north west of the main chain of the Mourne Mountains. Below these hills to the north, the River Bann and its tributaries drain an area of lowland drumlin farmland.

The Mourne Foothills immediately to the north of the mountains form a chain of small hills connecting the Mourne Mountains to rugged uplands of Slieve Croob which dominate the northern part of the district, together forming a spine of upland bisecting the district from north to south.

The lowland drumlins around Newry divide the uplands of the Mourne Mountains and Slieve Roosley to the east from those of the Ring of Gullion to the west. The Newry River is fed by tributaries from the surrounding drumlin farmland, which is characterised by attractive valleys and loughs. To the west of Newry, the uplands of the Ring of Gullion have dramatic, rugged volcanic

⁴ <https://www.coe.int/en/web/landscape/home>

peaks. Slieve Gullion lies at the centre of the 'Ring'. To the north the rolling hills, moorland and forests of the Carrigatuke Hills extend into Armagh City, Banbridge and Craigavon District, while to the west, the drumlins and loughs around Crossmaglen extend towards Lough Muckno and Castleblayney in the Republic of Ireland.

East of the central upland chain of Mournes, Slieve Croob and their foothills, is a broad belt of undulating lowland between Ballynahinch and Downpatrick, drained by the winding tributaries of the Quoile River, which follows a meandering course to Strangford Lough. The indented shores of Strangford Lough is a scenic landscape of partially submerged drumlins, many of which form off-shore islands; inland, the drumlin landscape is studded with loughs.

By contrast, the elongated ridges and lower drumlins to the north of Newcastle are subdivided by a series of parallel river valleys, which are aligned NW-SE. The rivers from these valleys flow to the coast but the principal river mouth is diverted by the broad sand spits of Murlough Bank, which enclose the Dundrum Inner Bay. To the east, this smooth, sandy coastline is broken by the rocky headlands of the Lecale Coast, including St John's Point, Ringfad Point and Killard Point. This part of the former Down district has a special remote and historic character, with windswept farmland and numerous prominent archaeological sites.

Slieve Croob and the peaks of the Mournes provide a dramatic backdrop to views across these eastern lowlands and, together with the sea, provide a striking setting to the settlement of Newcastle.

Downpatrick is a central and historical focus to the former Down district. The town is sited at a bridging point of the Quoile River where the Lecale Hills meet the marshes of the Quoile Estuary. The towns of Ballynahinch, Crossgar and Saintfield all have a drumlin setting, although in each case, the town centre is on the banks of a river and the wider setting is influenced by the wooded parkland landscape of a local estate.

2.3 Landscape Character Assessments for Newry, Mourne and Down

Introduction

The landscape of Newry, Mourne and Down is described and characterised as a part of 3 separate but related character assessments:

- The Northern Ireland Regional Landscape Character Assessment (NIRLCA) published in 2016;
- The Northern Ireland Regional Seascape Character Assessment (NIRSCA) published in 2014; and
- The Northern Ireland Landscape Character Assessment (NILCA 2000) published in 1999.

These assessments, and their interrelationship, are briefly described below.

The 2016 Northern Ireland Regional Landscape Character Assessment (NIRLCA)

The Northern Ireland Regional Landscape Character Assessment (NIRLCA) was undertaken in 2016. The NIRLCA provides a strategic overview of the landscape of Northern Ireland, describing

the broad variations in landscape character through the identification of 26 regional character areas with their own distinct character, identity and sense of place.

At this broader landscape level, the landscape of Newry, Mourne and Down is covered by parts of 5 Regional Character Areas (RCAs), as shown on Figure 1:

Strangford, Ards and Lecale: Drumlin strewn, partially submerged, lowlands centred around Strangford Lough;

Down Drumlins and Holywood Hills: A broad drumlin belt of lowland pastures, gently falling to the east towards Strangford Lough, incorporating the upper parts of the Quoile, Blackstaff and Ravernet river catchments;

Mourne and Slieve Croob: Distinctive granite hills, comprising the Mournes to the south and Slieve Croob to the north, connected by a series of lower foothills;

Newry Valley and Upper Bann: Lowland between the Mourne Mountains and Slieve Gullion, forming a link between Carlingford Lough and Lough Neagh, comprising extensive drumlin fields, and the Newry and Bann river corridors; and

Slieve Gullion and South Armagh Hills: Granite mountains of the Ring of Gullion to the south east and the Carrigatuke Hills toward the north, rolling drumlins extending to the border with the Irish Republic.

Published in 2016, the NIRLCA remains current and is not subject to revision as part of this review. It is complementary to the smaller scale NILCA 2000.

2014 Northern Ireland Regional Seascape Assessment (NIRSCA)

The Northern Ireland Regional Seascape Character Assessment (NIRSCA) describes the entire Northern Ireland coast from Londonderry to Newry. The assessment is principally concerned with coastal character as defined by headlands, islands and other coastal features, and the method of assessment follows the general principles of landscape character assessment.

The coastline of Northern Ireland is described through 24 Seascape Character Areas (SCAs), 5 of which adjoin the coastline of Newry, Mourne and Down: *Carlingford Lough, Mourne Coast, Dundrum Bay, Lecale Coast and Strangford Lough*. The *Irish Sea (South Down)* seascape area, also relating to the Newry, Mourne and Down coast, lies at least 4km offshore.

Regional seascape character areas are shown in Figure 1 along with regional character areas of the NIRLCA. The updating of the local NILCA includes the review of the seascape assessments to ensure that important aspects of the coastal landscape character are captured, however the updated NILCA does not update or replace any part of the 2014 seascape assessment.

The 1999 Northern Ireland Landscape Character Assessment (NILCA 2000)

The Northern Ireland Landscape Character Assessment (NILCA 2000) provides a finer grained and more detailed characterisation of the landscape than the regional assessment. 25 landscape character areas (LCAs) fall wholly or in part within the District Council boundary. Very small parts

of 3 of the 25 LCAs (LCA 66 *Armagh Drumlins*, LCA 67 *Armagh/ Banbridge Hills* and LCA 77 *Iveagh Slopes*) fall within the Newry, Mourne and Down boundary solely as a result of discrepancy between the drawing of the LCA and District Council boundaries, and in fact 22 LCAs describe the landscape of the district in its entirety. The NILCA 2000 LCAs are shown on their own Figure 2 and in relation to the RCAs and SCAs in Figure 1.

LCAs of NILCA 2000 do not fall neatly within NIRLCA 2016 RCA boundaries, because the assessments were undertaken separately and at different scales, with boundaries of the regional assessment inherently more imprecise when defining very broad variations in landscape character. However, there is good correspondence between boundaries in the two assessments and they complement each other.

Within Newry, Mourne and Down, RCAs correspond to at least 2 LCAs and in some cases many more, providing a more nuanced local characterisation. For example, the lowlands of *Strangford, Ards and Lecale* RCA is divided into 5 main LCAs describing a diverse landscape including the coastal dunes of Tyrella, the Lecale peninsula with its rocky shoreline and hills, the broad Quoile valley, and the partly submerged drumlins fringing Strangford Lough.

Each LCA character assessment includes key characteristics, landscape description, an assessment of landscape condition and sensitivity to change, principles for landscape management and principles for accommodating new development. An overview of the geodiversity and biodiversity of each LCA was added to the assessment in the mid-2000s.

The original NILCA covers the Newry, Mourne and Down landscape in 3 volumes: one for each of the former councils which covered what is now the current District Council area (Newry & Mourne, Down and Banbridge). Each volume includes descriptions of the settings to principal settlements, including siting and design guidance for new development. Volumes of the original assessment are not widely available; the assessments for each LCA are published online⁵ but settlement assessment are not.

The following review covers NILCA, incorporating relevant information from the regional landscape and seascape assessments where appropriate.

2.4 The Need for Reassessment

Pressures for development have led to gradual landscape change over the past 20 years and some present and likely future trends are different to those from 20 years ago. Some development types, such as wind energy, had very limited presence in the landscape at the time, whereas wind turbines are now often striking features of the rural landscape. Continued house building in the countryside, urban expansion and new roads have also changed the character of countryside around towns and cities.

For the landscape character assessment to remain relevant to planning policy and the development management process, it is necessary that the contemporary landscape conditions and sensitivities

are properly described, and that development management guidance is relevant to current and likely future pressures for change.

At the time of preparing NILCA 2000, the process of landscape character assessment in the UK was evolving and it predated the publication of the very influential 2002 *Landscape Character Assessment Guidance for England and Scotland* (Scottish Natural Heritage/ Countryside Agency).

Recent English guidance, the 2014 *An Approach to Landscape Character Assessment* (Natural England), has been adopted in Northern Ireland as 'best practice'. The 2014 guidance provides an approach to landscape character assessment fundamentally unchanged from that described in the 2002 publication, but which includes additional guidance on the involvement of stakeholders and on the updating of existing assessments. The 2014 publication largely excludes the guidance provided in that of 2002 for 'making judgements' with the outcome of a landscape character assessment e.g. for development management guidance, focussing only on the landscape characterisation process. The earlier 2002 guidance remains current in Scotland.

Therefore, as well as ensuring that the assessment reflects current landscape conditions and trends, it is also of benefit to ensure the assessment corresponds with the established principles of landscape character assessment that have evolved since publication of the original assessment.

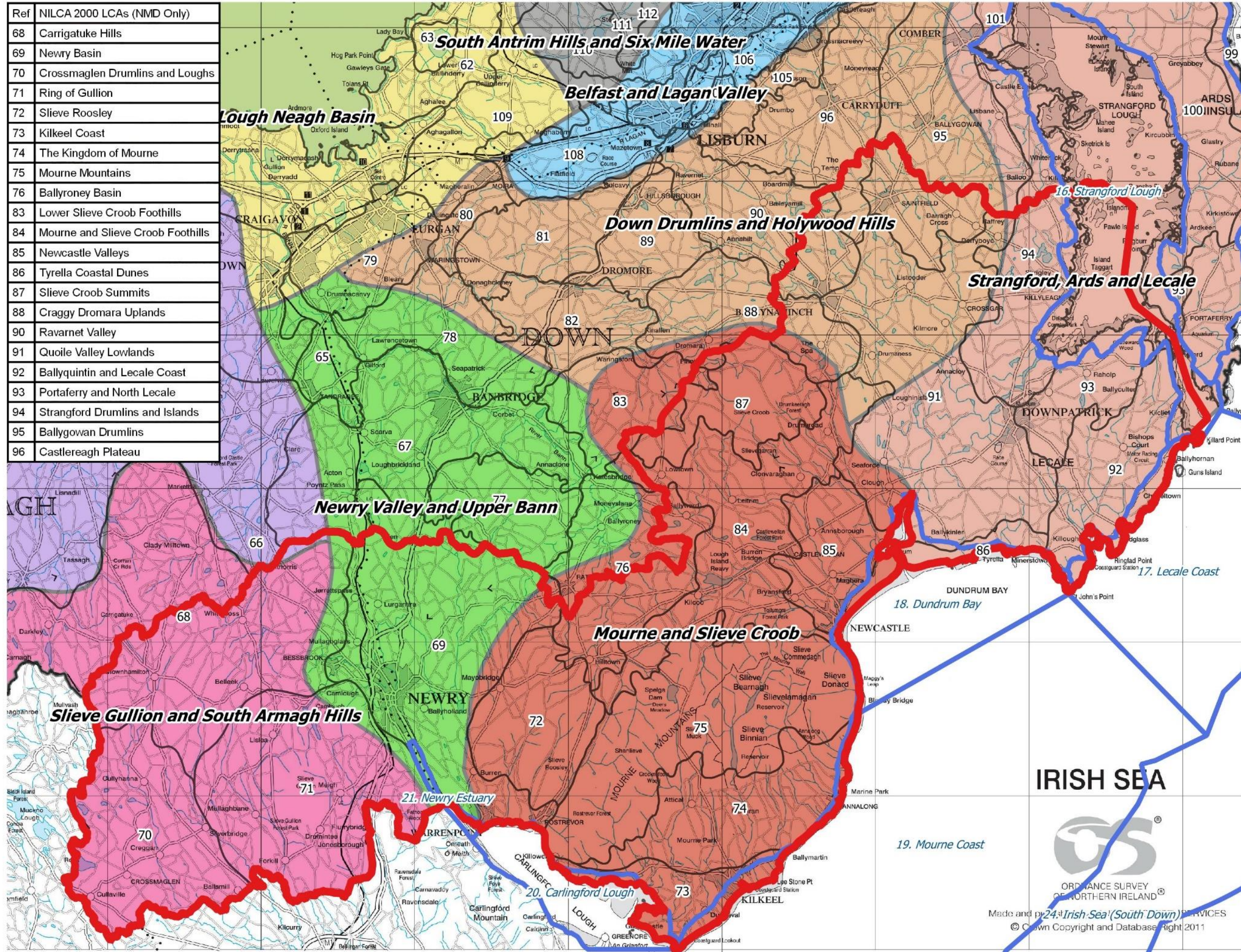
As noted previously, since publication of the original NILCA 2000 assessment, there has been the publication of the regional landscape and seascape assessments. Updating of the local landscape character assessment provides an opportunity for linking to, and ensuring consistency with, these two assessments.

Finally, the landscape character assessment for the current Newry, Mourne and Down district is described in three hard copy volumes for each of the three legacy District Council areas which are difficult to obtain, or alternatively as downloadable individual LCA assessments which are lacking in specific local context. This review provides the opportunity to present the landscape character assessment for the district in a single comprehensive illustrated report, and in a more accessible format.

⁵ <https://www.daera-ni.gov.uk/articles/landscape-character-northern-ireland>

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| Ref | NILCA 2000 LCAs (NMD Only) |
|-----|-----------------------------------|
| 68 | Carrigatuke Hills |
| 69 | Newry Basin |
| 70 | Crossmaglen Drumlins and Loughs |
| 71 | Ring of Gullion |
| 72 | Slieve Roosley |
| 73 | Kilkeel Coast |
| 74 | The Kingdom of Mourne |
| 75 | Mourne Mountains |
| 76 | Ballyrone Basin |
| 83 | Lower Slieve Croob Foothills |
| 84 | Mourne and Slieve Croob Foothills |
| 85 | Newcastle Valleys |
| 86 | Tyrella Coastal Dunes |
| 87 | Slieve Croob Summits |
| 88 | Craggy Dromara Uplands |
| 90 | Ravarnet Valley |
| 91 | Quoile Valley Lowlands |
| 92 | Ballyquintin and Lecale Coast |
| 93 | Portaferry and North Lecale |
| 94 | Strangford Drumlins and Islands |
| 95 | Ballygowan Drumlins |
| 96 | Castlereagh Plateau |



Legend

- Local Authority Boundary
- NILCA 2000 LCAs

Regional Character Areas

- Belfast and Lagan Valley
- Down Drumlins and Holywood Hills
- Lough Neagh Basin
- Mourne and Slieve Croob
- Newry Valley and Upper Bann
- Slieve Gullion and South Armagh Hills
- South Antrim Hills and Six Mile Water
- Southern Drumlins and Orchards
- Strangford, Ards and Lecale
- West Lough Neagh Drumlins
- Seascape Character Areas

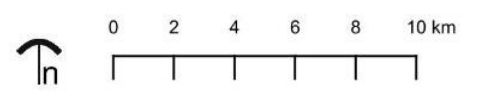


**Newry, Mourne and Down
Landscape Character Review**

Figure 1

**Regional Landscape & Seascape
Character**

October 2020



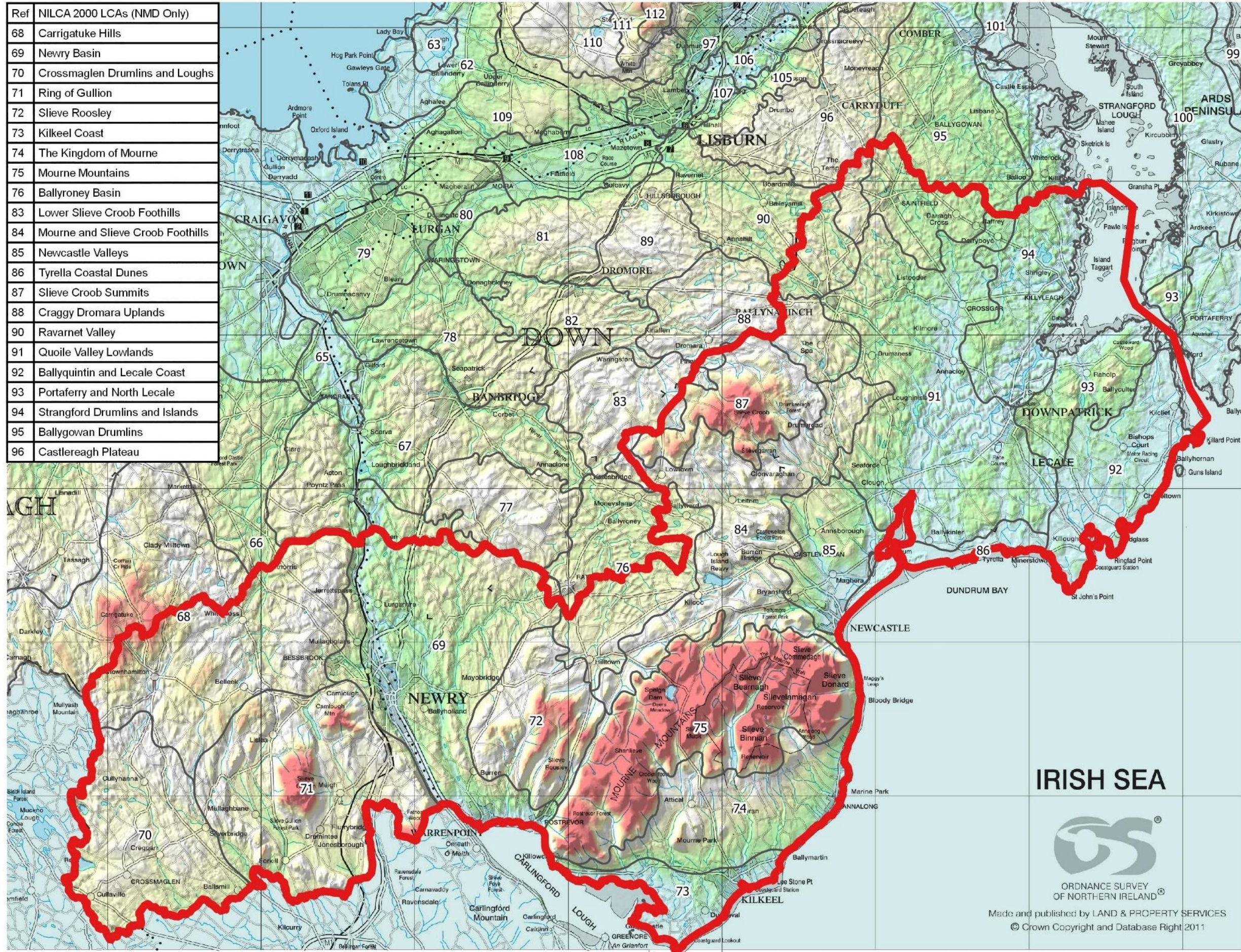
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| 93 | Portaferry and North Lecale |
| 94 | Strangford Drumlins and Islands |
| 95 | Ballygowan Drumlins |
| 96 | Castlereagh Plateau |



Legend

- Local Authority Boundary
- NILCA 2000 LCAs

Elevation (m AOD)

- 0
- 41
- 83
- 124
- 166
- 207
- 248
- 290
- 331



**Newry, Mourne and Down
Landscape Character Review**

IRISH SEA

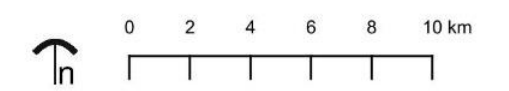


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Figure 2

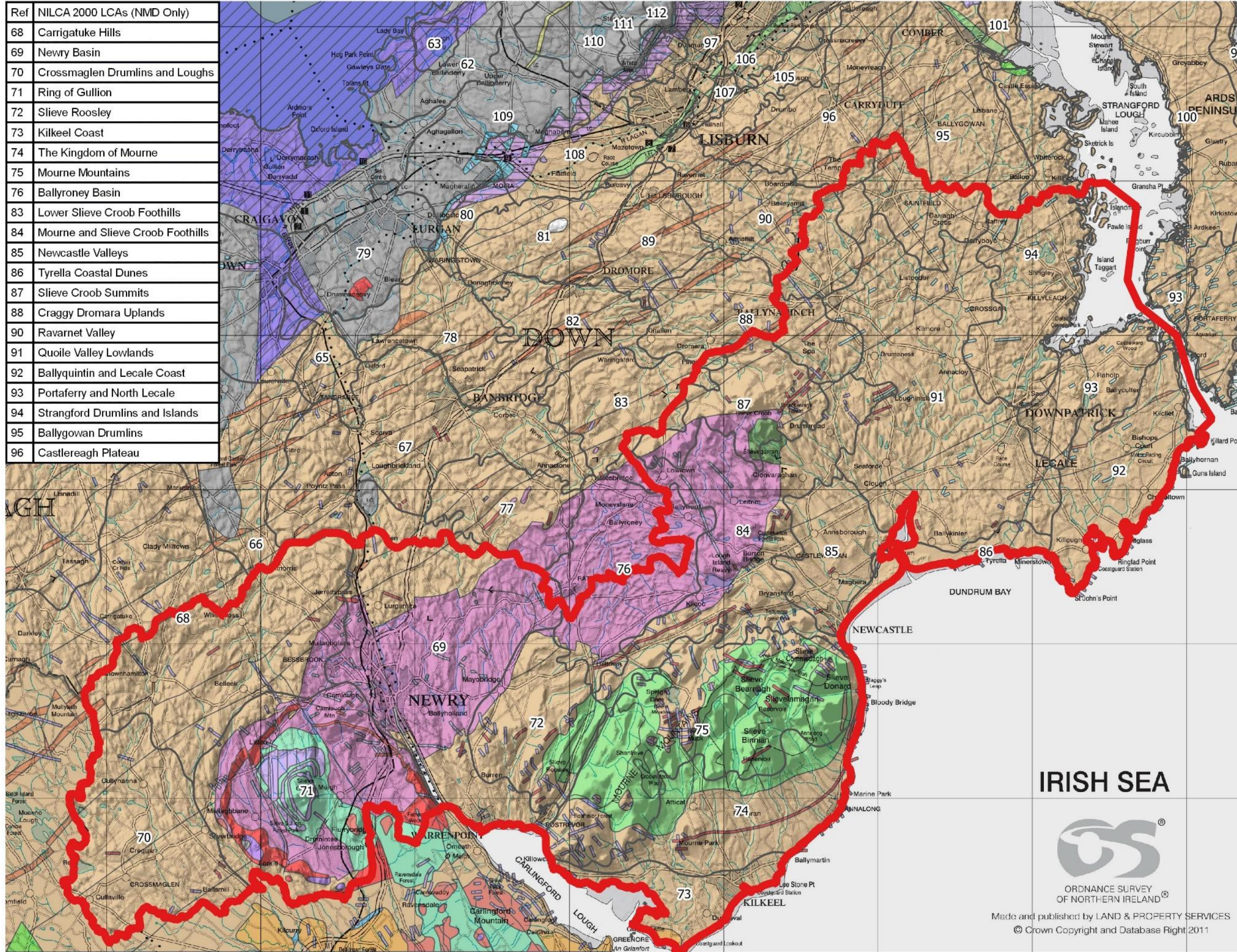
Topography with NILCA 2000 LCAs

October 2020



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| 95 | Ballygowan Drumlins |
| 96 | Castlereagh Plateau |



Legend

- Local Authority Boundary
- NILCA 2000 LCAs
- Solid Geology**
 - AGGLOMERATE
 - BASALT
 - DIORITE
 - FELSITE
 - GABBRO
 - GRANITE
 - GRANITE, GRANOPHYRIC
 - GRANODIORITE
 - LAMPROPHYRES
 - LIMESTONE
 - MICROGABBRO
 - MUDSTONE
 - SANDSTONE



**Newry, Mourne and Down
Landscape Character Review**

IRISH SEA

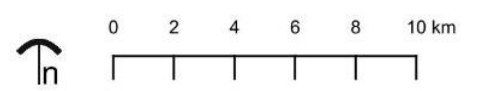


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Figure 3

**Solid Geology
with NILCA 2000 LCAs**

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3.0 LANDSCAPE DESIGNATIONS

3.1 Landscape Designations within Newry, Mourne and Down

All landscapes are important, and the 'all landscapes' approach advocated in the European Landscape Convention and established guidance recognises that all landscapes are a resource deserving of care irrespective of the presence or otherwise of formal landscape designation. However, much of Newry, Mourne and Down is designated in recognition of its special landscape qualities.

Areas of Outstanding Natural Beauty (AONB)

AONBs were designated by the Department of the Environment, and three AONBs lie fully or partly within the Newry, Mourne and Down District:

- The Ring of Gullion, focused around Slieve Gullion;
- Mourne, incorporating the Mourne Mountains and Slieve Croob; and
- Strangford and Lecale, encompassing Strangford Lough, and including the Lecale hills and coastline (this AONB extends into the neighbouring local authority area).

AONB are designated for their '*...high landscape quality, wildlife importance and rich cultural and architectural heritage...*'⁶. These AONB are contiguous, effectively forming a large single designated area encompassing the majority of the coast and upland areas, comprising around 55% of the District Council area.

Area of High Scenic Value (AoHSV)

AoHSV is a local designation recognising areas of local landscape quality. Areas of Scenic Quality (ASQ) were identified in NILCA 2000, and subsequently adopted into local planning policy as the AoHSV landscape designation.

The Ards and Down Area Plan 2015, originally adopted in 2009, identifies an AoHSV within the Ravernet River valley centred around the Magheraknock Loughs. The majority of the AoHSV designation lies with the Lisburn and Castlereagh City Council (LCCC) area, with a small part of the designated area within Newry, Mourne and Down forming the setting to Bow Lough and Dumb Lough.

Special Countryside Areas (SCA)

DoE Strategic Planning Policy Statement (SPPS) and Planning Policy Statement 21 (PPS 21) requires Councils to identify those areas of exceptional landscape quality and amenity value. Within these areas, designated as Special Countryside Areas (SCA), national policy states that development should only be permitted in exceptional circumstances, and local plans and local policies brought forward to protect their unique qualities.

⁶ *Strategic Planning Policy Statement for Northern Ireland (SPPS) Planning for Sustainable Development* (DOENI, 2015)

The Banbridge/ Newry and Mourne Area Plan (2015) defines SCAs covering the High Mournes, Slieve Croob and the Ring of Gullion. The Ards and Down Plan does not identify SCA, and therefore the High Mourne and Slieve Croob SCA ends abruptly at the legacy District Council boundary and does not cover all of the mountain area.

The Newry, Mourne and Down Local Development Plan 2030 Preferred Options Paper proposes the retention of the SCA designation, subject to review and potential extension into the former Down District so as to be consistent across the development plan area.

3.2 UNESCO Geopark Status for Mourne, Gullion and Strangford

UNESCO defines Geoparks as single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education, and sustainable development. A UNESCO Global Geopark uses its geological heritage, in connection with all other aspects of the area's natural and cultural heritage, to enhance awareness and understanding of key issues facing society, such as using our earth's resources sustainably, mitigating the effects of climate change and reducing natural disasters-related risks. By raising awareness of the importance of the area's geological heritage in history and society today, UNESCO Global Geoparks aim to give local people a sense of pride in their region and strengthen their identification with the area. The creation of innovative local enterprises, new jobs and high quality training courses is stimulated as new sources of revenue are generated through geotourism, while the geological resources of the area are protected.

The aspirational geopark designation encompasses thirty six sites of geological significance identified in the Mourne, Ring of Gullion and Strangford & Lecale AONBs. The Ring of Gullion is a world-renowned example of ring dyke formation. The development of which is discussed in Appendix A. The Mourne Mountains display rare igneous petrology. Direct field evidence of the involvement of crystal fractionation in the crystallisation of felsic magmas is rare in British Palaeogene granites. However, The Mourne Mountains contain evidence of rhythmic layering within roof granites. Strangford displays world renowned examples of a post glacial drumlin landscape.

It is believed that the combination of these three geologically significant areas across the region will validate the designation of a UNESCO Geopark.

3.3 Landscape Designations and the Landscape Character Review

Landscape designation is usually based upon a range of criteria encompassing recreational, natural and cultural heritage value in addition to special landscape qualities. Landscape character assessment is a key informative study, contributing to the evidence base for designation decisions, but not usually the sole reason for designation.

This study therefore includes a review of designations, taking into account the updated landscape character assessment, but also taking into consideration other designation criteria. In Northern Ireland there is no formal guidance on the process of local landscape designation, however draft

guidance produced by Scottish Natural Heritage and Historic Environment Scotland⁷, based on published guidance from 2006, is up to date and considered relevant.

The AONB designations are the responsibility of DAERA and are therefore not reviewed as part of this study. AoHSV and SCAs are designated at a local level through the Development Plan process, and are subject to review, but with differing objectives:

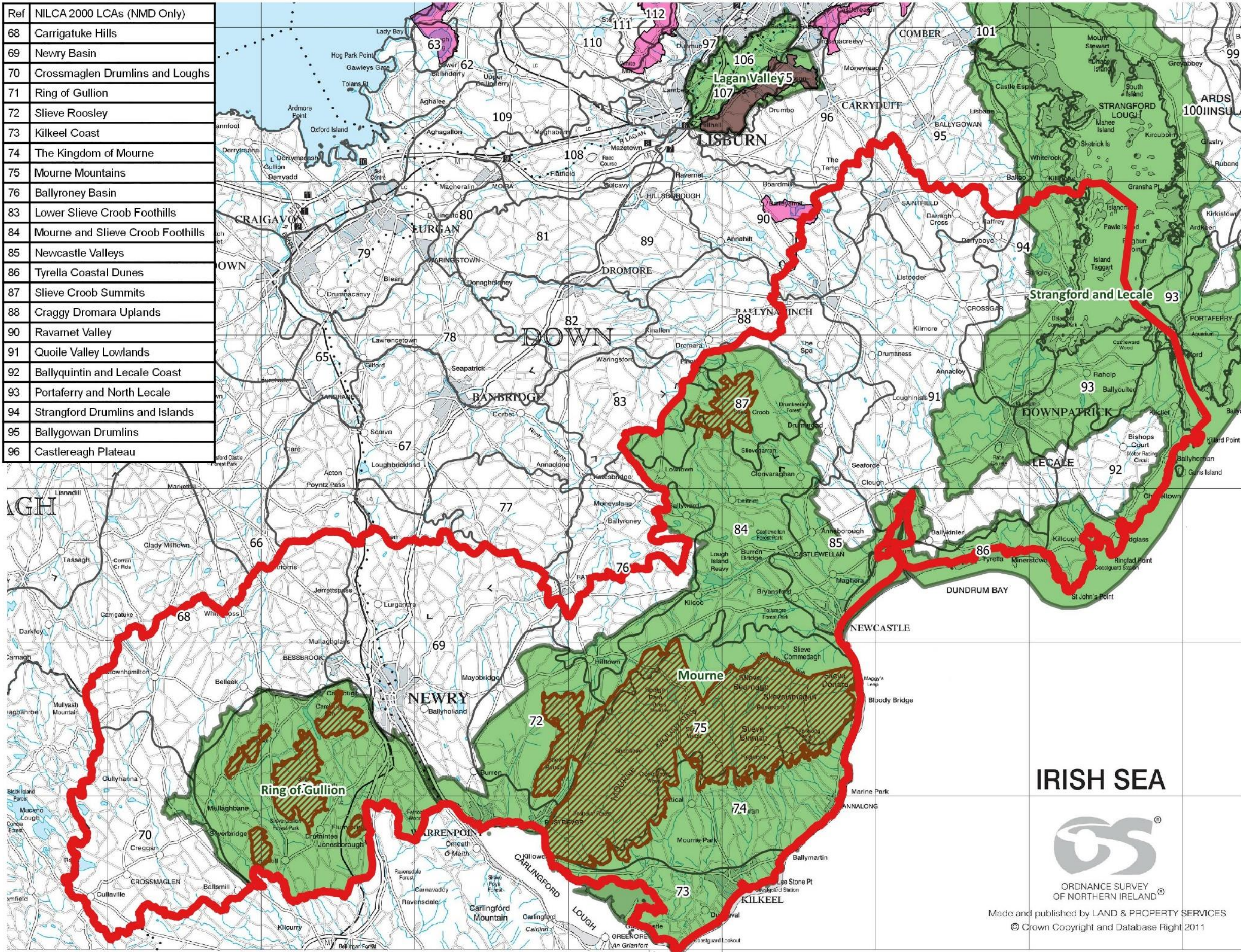
- The review of the AoHSV designation at the Magheraknock Loughs will consider whether the qualities of the landscape area justifies its retention as a locally designated landscape or whether its boundaries require adjustment.
- The boundaries of the existing SCA designations will be reviewed against policy objectives to ensure they remain relevant. Revised boundaries for the SCA extending into the High Mourne and Slieve Croob of the former Down District will be considered.

The landscape qualities of the AONB designated areas will be updated through the landscape character assessment; however, recommendations for the revision to AONB boundaries or the preparation of revised statements of significance⁸ is beyond the scope of this study.

⁷ DRAFT – *Guidance on Local Landscape Areas* (2017, Scottish Natural Heritage and Historic Environment Scotland)

⁸ Descriptions for AONB in Northern Ireland are available online at <https://www.daera-ni.gov.uk/topics/land-and-landscapes/areas-outstanding-natural-beauty>

| Ref | NILCA 2000 LCAs (NMD Only) |
|-----|-----------------------------------|
| 68 | Carrigatuke Hills |
| 69 | Newry Basin |
| 70 | Crossmaglen Drumlins and Loughs |
| 71 | Ring of Gullion |
| 72 | Slieve Roosley |
| 73 | Kilkeel Coast |
| 74 | The Kingdom of Mourne |
| 75 | Mourne Mountains |
| 76 | Ballyrone Basin |
| 83 | Lower Slieve Croob Foothills |
| 84 | Mourne and Slieve Croob Foothills |
| 85 | Newcastle Valleys |
| 86 | Tyrella Coastal Dunes |
| 87 | Slieve Croob Summits |
| 88 | Craggy Dromara Uplands |
| 90 | Ravarnet Valley |
| 91 | Quoile Valley Lowlands |
| 92 | Ballyquintin and Lecale Coast |
| 93 | Portaferry and North Lecale |
| 94 | Strangford Drumlins and Islands |
| 95 | Ballygowan Drumlins |
| 96 | Castlereagh Plateau |



Legend

- Local Authority Boundary
- NILCA 2000 LCAs
- Special Countryside Area (SCA)
- Area of High Scenic Value (AoHSV)
- AONB



IRISH SEA



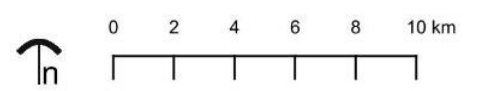
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**Newry, Mourne and Down
Landscape Character Review**

Figure 4

Landscape Designations

October 2020



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4.0 APPROACH TO LANDSCAPE CHARACTER ASSESSMENT

4.1 Aim of the Assessment

The following landscape character assessment has not been carried out from first principles. It is essentially a review and update of the NILCA 2000 assessment for the parts within the boundaries of Newry, Mourne and Down. It builds constructively on this and does not seek to challenge its principles and broad thrust. The assessment does not include any review of the regional or seascape character assessments and remains complementary to these assessments.

The review seeks to provide a more up to date landscape record appropriate to the strategic planning uses which it will support. It has the following aims:

- 1) To review the NILCA 2000 assessments and identify significant change in the landscape that has taken place since the original assessment was carried out in the late 1990s. This includes tailoring descriptions to ensure they describe the areas within Newry, Mourne and Down where LCAs straddle District Council boundaries.
- 2) To systematically categorise LCAs with similar characteristics into broad landscape character types (LCTs).
- 3) To review the boundaries of the current LCAs and determine whether they reasonably correspond to the point of transition between one area of landscape character and another.
- 4) To identify where sub-division of existing LCAs may be appropriate where there is significant variation in character within existing LCAs.
- 5) To identify where simplification may be appropriate, for example through amalgamation of LCAs of similar landscape character.
- 6) To reappraise landscape sensitivities and forces for landscape change based on the updated assessment, taking into account any redefinition of boundaries and the changes to character that have occurred since the original assessment was undertaken.
- 7) To provide revised landscape management guidelines based on the reassessment of sensitivities and forces for change.
- 8) To provide updated assessments and guidance for the key settlements within Newry, Mourne and Down.

The assessment has been carried out by means of a desktop review of the existing character assessment, OSNI mapping, spatial datasets, aerial photography and through undertaking site visits between October 2019 and January 2020.

The NILCA 2000 assessment includes sections describing the geodiversity and biodiversity of each landscape character area, seemingly added in the mid to late 2000s. These sections have been updated by means of a review of recently published materials such as recent geological records, spatial datasets relating to habitats and biodiversity, wildlife records, and comparisons between historical and contemporary aerial photography.

4.2 Assessment Methodology

This review is undertaken with reference to the guidance *An Approach to Landscape Character Assessment* (2014, Natural England). The process of landscape character assessment remains unchanged to that set out in the earlier *Landscape Character Assessment Guidance for England and Scotland* (2002, SNH/ Countryside Commission). The assessment is divided into the two main stages:

Stage 1 – landscape characterisation: the process of identifying, classifying and describing areas of distinctive landscape character. Existing landscape characterisations are used as the starting point, with the assessments updated to take account of landscape change or new information available since the original assessments. The updated character assessments for each landscape character area (LCA) include classification into landscape character type (LCT), a landscape description and the key landscape characteristics. This section of the assessment includes:

- A description of the landscape condition; and
- Likely forces for change which may result in changes to landscape character.

Stage 2 – making judgements: a primary application of this assessment is to assist with the development management process, and this part of the assessment includes judgements as to the sensitivity of the landscape to different development types, guidance for the accommodation of development in a way that will not undermine landscape character, and recommendations for its enhancement. Each landscape character assessment includes:

- An overview of the landscape sensitivity; and
- Management and planning guidelines recommended for the maintenance or enhancement of key landscape characteristics.

It should be noted that the 2014 Natural England publication provides guidance only on landscape characterisation (Stage 1 of the assessment). Guidance on Stage 2 is provided in the 2002 SNH/ Countryside Commission publication.

4.3 Settlement Assessments

Settlement assessments describe the development patterns and landscape settings of key settlements. The purpose of these assessments is to define the key landscape issues which should guide future development of the settlements.

At the request of Newry, Mourne and Down District Council, the principal settlements that have been assessed are as shown on Figure 8 in Section 9 of this report.

Recommendations are included which promote the following generally desirable landscape/ townscape planning objectives:

- Maintenance of the distinction between the rural and urban landscapes;
- The retention/ enhancement of landscapes which contribute to distinct townscape character, important views from settlements, or important landscape resources for recreation, natural heritage, cultural heritage or other reasons;

- Preventing coalescence of settlements;
- The retention or creation of distinct settlement gateways;
- The maintenance or creation of strong settlement boundary features; and
- The avoidance of generally undesirable patterns of urban development, such as linear developments, uncontained 'sprawl' or development dislocated from settlement cores which may undermine the identity or character of a settlement and its landscape setting.

5.0 MAIN FEATURES OF THE REVISED LANDSCAPE CHARACTER ASSESSMENT

5.1 Review of the NILCA 2000 Assessment

A number of observations on the assessment of NILCA 2000 have been made whilst undertaking this review and have resulted in changes to the assessment for the areas covering Newry, Mourne and Down. While Sections 8 and 9 of this report provide the updated, detailed assessments for landscape character areas and settlements, what follows is an overview of the main changes to the assessment.

Landscape Character Types

The 2002 and 2014 guidance on landscape character assessment make the distinction between landscape character types (LCTs) and landscape character areas (LCAs): LCTs are generic categories of landscape with broadly similar characteristics that can be found in many locations across an area; LCAs are geographically specific landscape areas of a particular LCT which may be found in one or more locations. NILCA 2000 only identifies LCAs and does not provide categorisation of these into LCTs.

Landscape character type categorisation is useful for better understanding and describing the landscape in a systematic approach, and for identifying those landscape character areas which may have similar sensitivities or could benefit from common management approaches. Therefore, this update has provided a categorisation of LCAs into LCTs.

LCTs have been identified where landscapes share broadly similar patterns of topography, geology, land use, settlement and landscape patterns. LCTs have been defined solely from observations of the Newry, Mourne and Down landscape; there is no common system of landscape type classification for Northern Ireland, although many of the landscape types identified in this assessment will be found elsewhere in Northern Ireland.

Landscape categorisation requires balancing the need to be sufficiently simplified so as to provide an understandable landscape overview, while at the same time not missing important distinctions in landscape character. Judgement is required when deciding if an area of landscape falls into one category or another, and therefore there can be some notable differences between the character of landscapes classified as of the same type.

Updated landscape character types and areas are shown on Figure 6, while the original LCAs of NILCA 2000 are shown on Figure 5.

Landscape character types identified as part of this assessment, with their associated LCAs, are as follows:

Lowland Drumlin Farmland – Newry (69), Crossmaglen (70), River Bann (76), Newcastle (85), Raveret River (90), Quoile River (91), Saintfield (95): The most commonly occurring landscape character type within Newry, Mourne and Down comprising low lying undulating drumlin farmland within broad river and lough basins.

Loughs and Drumlins – Strangford (94): The partially submerged landscape of sunken drumlins at Strangford Lough and its setting.

Coastal Plain – Kilkeel (73), Ballyquintin and Lecale (92): Flat pastoral hinterlands ending in the low, rocky coastline of the Irish Sea.

Elevated Drumlin Farmland – Dromara (88), Castlereagh Plateau (96): More elevated areas of drumlin pasture located above broad, lowland river valleys or transitioning to more upland landscapes.

Inclined Coastal Pastures – The Kingdom of Mourne (74): An area of unique landscape character comprising farmland with distinctive walled boundaries on the southern slopes of the Mourne Mountains extending to the coast.

Lowland Hills – Carrigatuke (68), North Lecale (93): Distinct low hills to the west and east of the District Council area, separate from the main upland areas of the Mournes and Slieve Croob.

Farmed Foothills – Slieve Roosley (72), Lower Slieve Croob (83), Mourne (84): Lower foothills and higher ground at the fringes of the Mournes and Slieve Croob.

Rugged Uplands – Mourne Mountains (75), Slieve Croob (87): The upland landscapes of the Mournes and the outlying Slieve Croob, with many hill summits above 500m AOD, up to 853m at Slieve Donard.

Volcanic Hills – Ring of Gullion (71): The distinctive and unique ring dyke system in South Armagh, comprising a series of peaks centred on Slieve Gullion rising from lowland farmland.

Coastal Dunes – Tyrella (86): An area of sandy coastline with extensive dunes, backed by farmland.

LCT and LCA naming

2014 Natural England guidance suggests that at a local level LCT names should comprise two or three words to convey a sense of the landscape based upon features such as landform, landcover and settlement, while LCAs require geographically unique names, an approach adopted in this assessment.

e.g. *Crossmaglen **Lowland Drumlin Farmland** (70)*

The numberings of the NILCA 2000 assessment are appended to the revised LCA names for reference.

Landscape character areas

The LCA review is undertaken for the part of each LCA falling within the Newry, Mourne and Down boundary, with the character descriptions and analysis updated **specific to the area falling within Newry, Mourne and Down**. This means that some characterisations may not apply to the wider LCA where extending significantly beyond the Newry, Mourne and Down boundary.

The review also considers whether or not the LCAs of the NILCA 2000 assessment are of a sufficiently uniform character to be considered single units of landscape character, or whether subdivision or amalgamation might be appropriate.

The review has found that the NILCA 2000 LCA boundaries generally provide appropriate subdivision of the landscape when considered at the local scale (1:50,000 approximately), although this review recommends the subdivision of one LCA (Newry Basin) into two areas. No amalgamations of LCAs are identified as necessary.

Landscape character is independent from administrative boundaries and there are circumstances where a very small part of a NILCA 2000 LCA falls within the Newry, Mourne and Down boundary, such as LCA 83 *Lower Slieve Croob Farmed Foothills*. Where there is no significant difference between the character of this minor part and a larger adjacent LCA located within the district, the NILCA 2000 boundary is retained, however the written descriptions are combined.

LCA boundaries

Given the dependency of planning policy and development management on existing LCAs, the wholesale changing of LCA boundaries was not considered desirable unless absolutely necessary.

This review identified the need for 2 boundary revisions where it was judged that a more accurate demarcation between landscape character areas could be provided.

Development management guidance

2002 guidance and common practice advocates an approach whereby landscape sensitivity, forces for change and development management guidance are provided by broad groupings of development type. This approach is adopted in the updated assessment, and therefore expands and updates the guidance of the original NILCA 2000 assessment which was provided under the heading 'Principles for Landscape Management' and 'Principles for Accommodating Landscape Change'. Development management guidance is provided under the headings of:

Agriculture;

Trees and woodland;

Development;

Minerals; and

Tall structures.

Guidance for tall structures includes the sensitivity assessments for wind energy development provided in the Supplementary Planning Guidance (SPG) *Wind Energy Development in Northern Ireland's Landscapes*, which accompanies Planning Policy Statement 18 'Renewable Energy'.⁹

⁹ *Wind Energy Development in Northern Ireland's Landscapes*, Supplementary Planning Guidance to Accompany Planning Policy Statement 18 'Renewable Energy' (2010, Northern Ireland Environment Agency)

By exception, where of particular relevance, sections on forces for change and development management guidance are provided under the headings of:

Roads;

Tourism and Recreation; and

Climate Change and Coastal Erosion.

Settlement assessments

Assessments are provided for the following towns identified by Newry, Mourne and Down District Council:

- Newry
- Downpatrick
- Newcastle
- Warrenpoint
- Kilkeel
- Ballynahinch
- Saintfield
- Killyleagh
- Castlewellan
- Crossmaglen

Assessments are updates to those provided in NILCA 2000. Towns are shown on Figure 8.

5.2 Specific Changes

Table 1 shows the relationship between the original NILCA 2000 LCAs and the revised LCAs, including their names and landscape character types. Notable changes include:

- A revised boundary between *Slieve Croob Rugged Uplands (87)* and the *Mourne and Slieve Croob Farmed Foothills (84)*, incorporating the northeast part of the former into the latter, to more accurately reflect the change from settled farmland to unenclosed uplands;
- The eastward extension of the *Strangford Loughs and Drumlins (94)* to incorporate the southern shoreline and offshore islands of Strangford Lough previously within *Portaferry and North Lecale (93)*;
- The sub-division of the *Newry Lowland Drumlin Farmland (69)* into two areas, reflecting notable variations in topography and patterns of settlement between the two areas;

- LCAs 76 *Ballyrone Basin* and 95 *Ballygowan Drumlins* have been renamed 76 *River Bann Lowland Drumlin Farmland* and 95 *Saintfield Elevated Drumlin Farmland* to better reflect their geographic location in relation to features within Newry, Mourne and Down;
- LCA 84 *Mourne Foothills* has been renamed *Mourne and Slieve Croob Farmed Foothills* as the LCA contains the foothills to both Slieve Croob and the Mourne Mountains.
- The *Ravarnet Valley (90)* has been renamed *Ravarnet River*, corresponding to the spelling of the Ravarnet River shown on OSNI 1:50k mapping.

Revised landscape character areas and types are shown in Figure 6, with those of the original assessment shown in Figure 5. Figure 7 provides an overlay of original NILCA 2000 LCA boundaries with revised LCAs to allow easier identification of changes.

Only a very small area of LCA 83 *Lower Slieve Croob Farmed Foothills* falls within Newry, Mourne and Down, and therefore the assessment and guidance for the adjacent LCA 84 *Mourne and Slieve Croob Farmed Foothills* also applies to LCA 83. However, the boundaries of LCA 83 are retained to avoid the creation of an artificial LCA boundary at the Newry, Mourne and Down border with Armagh City, Banbridge and Craigavon.

Table 1: NILCA 2000 and Revised Landscape Character Areas

| LANDSCAPE CHARACTER AREA (NILCA 2000) | REVISED LANDSCAPE CHARACTER AREA | LANDSCAPE CHARACTER TYPE |
|---------------------------------------|--|-----------------------------|
| 68 Carrigatuke Hills | Carrigatuke | Lowland Hills |
| 69 Newry Basin | Newry (divided into Newry North and Newry South) | Lowland Drumlin Farmland |
| 70 Crossmaglen Drumlins and Loughs | Crossmaglen | Lowland Drumlin Farmland |
| 71 Ring of Gullion | Ring of Gullion | Volcanic Hills |
| 72 Slieve Roosley | Slieve Roosley | Farmed Foothills |
| 73 Killeel Coast | Killeel | Coastal Plain |
| 74 The Kingdom of Mourne | The Kingdom of Mourne | Inclined Coastal Pastures |
| 75 Mourne Mountains | Mourne Mountains | Rugged Uplands |
| 76 Ballyrone Basin | River Bann | Lowland Drumlin Farmland |
| 83 Lower Slieve Croob Foothills | Lower Slieve Croob | Farmed Foothills |
| 84 Mourne Foothills | Mourne and Slieve Croob | Farmed Foothills |
| 85 Newcastle Valleys | Newcastle | Lowland Drumlin Farmland |
| 86 Tyrella Coastal Dunes | Tyrella | Coastal Dunes |
| 87 Slieve Croob Summits | Slieve Croob (boundary with LCA 84 adjusted) | Rugged Uplands |
| 88 Craggy Dromara Uplands | Dromara | Elevated Drumlin Farmland |
| 90 Ravarnet Valley | Ravarnet River | Lowland Drumlin Farmland |
| 91 Quoile Valley Lowlands | Quoile River | Lowland Drumlin Farmland |
| 92 Ballyquintin and Lecale Coast | Ballyquintin and Lecale | Coastal Plain |
| 93 Portaferry and North Lecale | North Lecale | Lowland Hills |
| 94 Strangford Drumlins and Islands | Strangford (boundary with LCA 93 adjusted) | Lowland Loughs and Drumlins |
| 95 Ballygowan Drumlins | Saintfield | Elevated Drumlin Farmland |
| 96 Castlereagh Plateau | Castlereagh Plateau | Elevated Drumlin Farmland |

Digital mapping data identifies the fragments of 3 other LCAs within the Newry, Mourne and Down boundary; LCA 66 Armagh *Drumlins*, LCA 67 *Armagh/ Banbridge Hills* and LCA 77 *Iveagh Slopes*. The location of these LCAs is shown on Figure 5. Close examination shows that the original NILCA 2000 boundaries were drawn to follow local government boundaries with Armagh and Banbridge, and therefore their inclusion within Newry, Mourne and Down is only a consequence of discrepancies between the digitised LCA and local government boundaries. These 3 LCAs are therefore excluded from the review.

5.3 Forces for Landscape Change

The landscape character review identifies change in the landscape, both in the past and that which may occur in the future and provides recommendations for accommodating landscape change while maintaining and enhancing distinctive characteristics.

Historical landscape change is not always easily observed, although comparison of the present day landscape with the descriptions of the NILCA 2000, aerial photography and the use of planning application data provides some basis for the identification of landscape change.

Identification of future landscape change is speculative; in some cases, it can be reasonably concluded that historical trends may continue on into the future, such as pressure for housing development in the countryside or development for tourism. However, unknowable factors, such as changes to farm subsidy regimes, environmental policies, economic conditions or natural factors such as tree diseases, may have a profound impact on the appearance of the landscape, how it is managed for agriculture or used alternatively, for example, for the production of renewable energy.

The following section provides a summary of the issues identified under the topic headings of agriculture, trees and woodland, development, roads, minerals, and tall structures. It describes likely drivers for landscape change, and the general landscape and development management principles which might enable landscape change to be accommodated while maintaining key landscape characteristics.

These headings correspond to those used for individual character area assessments of 'Forces for Change' and 'Landscape Planning and Management Guidance', with the exception of roads. In general, the development of new roads is a relatively infrequent occurrence in rural environments, and it is possible that many LCAs would not be subject to any such development in the foreseeable future. In the absence of specific road building proposals, guidance at the character area level is likely to be generic and speculative. However, general guidelines on the accommodation of road developments in the landscape are included below.

Agriculture

Agricultural practice has a fundamental impact on the character of lowland landscapes. The size of fields, their use, and the nature of their boundaries defines the pattern of a landscape, while farmhouses, barns and sheds are other characterising elements. The grazing of unenclosed uplands over centuries has contributed to their characteristically bare appearance, devoid of trees.

Changes in farming practice to achieve greater efficiency or accommodate different farming practices or larger farm machinery may result in changes such as the enlargement of fields, the use

of polytunnels, the removal of traditional field boundaries, or the construction of larger scale farm accesses and gates, all of which may result in changes to the farming landscape.

On the other hand, changing economic circumstances may result in the abandonment of traditional farming in more marginal uplands or on land which is uneconomical to drain. Pastures may revert to scrub, or there may be incentives to plant woodland. Farm diversification, for example for leisure and recreation, tourism or solar energy may also be a force for landscape change.

Within Newry, Mourne and Down, traditional smaller pastoral farming is predominant. Many of the lowland landscapes in the area are defined by a regular patchwork of small pastures, with hedgerow field boundaries accentuating the form of smoothly undulating drumlins.

Whether this model of small scale farming remains viable in the future is difficult to accurately predict, but traditional hedgerows, trees, and stone walls will remain important for retaining a coherent landscape structure. Loss of pastures to woodland may result in some change to landscape characteristics. However, this may not be an adverse change in lowland landscapes which often appear quite enclosed by trees, even if not having significant woodland cover.

More modern and larger styles of agricultural building are progressively replacing traditional stone white and red painted ones. The typically long and low form of newer buildings can be accommodated in the often undulating landscape where consideration is given to their siting and when including mitigation measures such as earth mounding and woodland planting. However, traditional well-maintained farm buildings contribute to a sense of local identity and provide links to the past, in contrast to more generic modern farm infrastructure, and efforts to retain these features are worthwhile.

Trees and Woodland

Newry, Mourne and Down has relatively low levels of woodland cover, with the largest concentrations of native woodland occurring in estate landscapes such as Castleward or Rowallane, while coniferous forestry predominates at Castlewellan and Tollymore. Nevertheless, trees and small woodlands contribute much to the fabric of the landscape, and lowland areas often have a well wooded appearance owing to frequent hedgerow trees and the small size of the enclosed fields. Stands of beech and Scots pine are found in lowland estates, but also form striking features in more exposed coastal and upland landscapes.

Trees and woodland are vulnerable to removal to accommodate new development, damage from browsing animals, and important wet woodland is vulnerable to drainage. The predominance of ash trees in hedgerows is a cause for significant concern with the onset of ash dieback (resulting from the *Chalara fraxinea* fungus). On the other hand, levels of woodland cover could increase in the future, either inadvertently through farm abandonment and reversion to scrub/ woodland, or deliberately through incentivising woodland planting schemes and as a means of mitigating the effects of development in the landscape.



Field boundaries, such as stone walling in the Kingdom of Mourne, are critical to the landscape pattern and structure.

The characterising influence of trees and woodland could be maintained through ensuring that new developments incorporate native woodland planting and tree stands, by encouraging land managers to retain hedgerow saplings, encouraging species diversity to mitigate against tree disease, and to resist the felling of existing trees and woodland to accommodate new development.

In more upland landscapes, coniferous forestry could be better accommodated if designed to integrate with landforms, mimicking natural patterns of woodland growth rather than geometrical forms aligned to land ownership boundaries, and if intermingled with native woodland planting.

Upland landscapes of the Mourne and Slieve Croob are characteristically unforested, and craggy skylines are generally vulnerable to the softening effects of blanket forestry. Upland 'rewilding' and the significant expansion of native woodland cover in upland areas, if possible, would undoubtedly be a significant change to the character of the upland landscape, and one which may not be perceived as beneficial by all. However, it is likely that expansion of native woodland in the lower hills slopes and enclosed valleys extending into upland areas would contribute positively to landscape character, with potential benefits to biodiversity, habitat creation and flood alleviation.



A mature beech tree is a characterful feature of the Mourne and Slieve Croob Farmed Foothills.



Traditional buildings in the Ring of Gullion

Development

Development in the context of this landscape character assessment typically refers to housing development and settlement expansion. The NILCA 2000 identified new housing development as a source of landscape change in many landscape areas, and this continues to be a critical issue.

Traditional rural dwellings appeared to be a relatively common feature of the landscape at the time of the NILCA 2000 assessment, while now they are relatively few in number. Traditional dwellings may be small, poorly sited, damp and badly insulated, and it is understandable that the construction of replacement modern dwellings may be preferred to the attempted modernisation of older ones.

Nevertheless, the sight of a derelict cottage close to a newly built one is familiar within the district and can adversely affect landscape qualities especially if seen in high numbers.

In addition to the abandonment and replacement of older rural buildings, there has been ongoing demand for new property development beyond settlement limits, particularly in locations around Newry, the Ring of Gullion and Kingdom of Mourne. It is commonly observed throughout the district that the design and scale of many new dwellings has little regard to landscape context, often adopting architectural styles more in keeping with urban environments. Together with large lawns and exotic garden planting, the cumulative effect of multiple developments can be suburbanising, with a loss of coherence to the rural landscape.



Newer rural housing development has become a characteristic of the Ring of Gullion countryside.

Levels of rural housing beyond settlement limits are typically much higher than in other parts of the UK, and this pattern of development is well established in many parts of Newry, Mourne and Down. However, efforts to retain the distinctiveness of the rural landscape through the avoidance of ribbon development, high housing concentrations and prominently sited dwellings remain beneficial to landscape character, particularly in the more open landscapes. The encouragement of rural housing developments which respond sympathetically to their landscape setting through their style, scale, materials and landscape treatments, such as native tree and shrub planting, is recommended.

Tourism and Recreation

The scenic value and recreational interest of much of the district results in considerable pressure for tourism development. Coastal caravan sites are an already intrusive feature of parts of the coastline; the more enclosed and small scale coast of Strangford Lough is particularly susceptible to larger scales of such development. The more expansive Lecale coast has perhaps a greater capacity for such development, yet the wild qualities of this landscape could easily be compromised by overly frequent or poorly sited caravan sites.

Tourism pressure at the coast, in upland landscapes and elsewhere is likely to lead to the ongoing demand for facilities including car parks, picnic sites, visitor centres and toilets. In all cases the choice of materials, appropriate siting, landscape treatments and designs in keeping with individual settings will be critical to their successful integration into the landscape.

The upland landscapes of the Mourne Mountains and Slieve Croob are easily accessible and subject to significant pressures from recreational access, with the Eastern Mournes the most widely accessed and intensely used of the upland areas. Many upland paths are well established desire lines, rather than formally constructed paths, and heavy use has, in places, resulted in loss of ground cover, soil erosion and habitat loss, with heavy rainfall contributing further to erosion and watercourse pollution. Managing the erosion of upland landscapes is likely to remain an ongoing challenge, with the impact of interventions to facilitate access and control erosion needing to be balanced against their potential effect on qualities of wildness.

Roads

Lowland rural landscapes in Northern Ireland, including those of Newry, Mourne and Down, are characterised by a dense network of minor roads which contribute strongly to the landscape pattern. Much of the road network is long established, having been in existence for centuries. The minor roads making up the vast majority of the road network tend to work with topography, often include traditional materials such as stone bridges and walling, are bounded by mature trees and hedgerows, and are less likely to include modern elements such as conspicuous road signage, concrete kerbs, and road markings. As a result, the traditional small scale road network can be perceived as a positive aspect of the rural landscape and integral to its character.

The more recently constructed parts of the main road network are designed to modern engineering standards which constrain road alignments to minimum criteria for factors such as gradients, bends and visibility. Such requirements often result in alignments which are incompatible with the smaller

scale landscape patterns of rural Northern Ireland and, as a result, modern roads tend to cut across the landscape with an apparent disregard for historical landscape patterns and natural topography.

However, through careful design, modern roads can be integrated into the landscape in a way which limits their effects, through measures such as:

- The identification of local characteristic features such as landforms, rock outcrops, water features, distinctive trees or key views which should be integrated into the road design;
- Sympathetic use of earthworks to reflect locally characteristic landforms;
- The creation of naturalistic rock cut features in favour of heavily engineered rock slope stabilisation;
- The careful design of SUDS to integrate them into the landscape naturalistically and to take advantage of opportunities for habitat creation.
- The inclusion of traditional building materials, e.g. for walls, the use of local vernacular building styles and bespoke designs, with attention to detailing.
- Reinforcing patterns of woodlands and hedgerows which may be subject to fragmentation or disconnection through engineering works; and
- Planting strategies which promote biodiversity and habitat creation, involving low maintenance inputs, and which are designed to mitigate landscape and visual effects.

Transport Scotland guidance on the integration of road schemes into the landscape is available, and while not adopted in Northern Ireland, its recommendations are considered equally relevant here.¹⁰ Such guidance may be relevant to the development of major road schemes proposed in Newry, Mourne and Down, including the Newry Southern Relief Road and the Ballynahinch Bypass.

At the smaller scale, the local minor road network, including B and C class roads, can be subject to improvements such as junction upgrades, widenings, bridge replacements and construction of accesses to adjacent properties. Their successful integration into the landscape can be achieved through the inclusion of appropriate boundary treatments, planting, materials, and the retention of characterful manmade and natural features. Where possible, the minimal use of more urban elements such as concrete kerbing and signage, can all assist with maintaining rural characteristics.

¹⁰ *Fitting Landscapes* (2014, Transport Scotland)



The modern A1 passing to the west of Newry.

Minerals

Minerals development is a feature of many parts of the district: the eastern Mournes has been quarried for centuries; sand and gravel extraction is a longstanding feature of the Kilkeel coast, and clay extraction and brick making were undertaken at Killough. Larger scaled hard rock quarries are dispersed throughout the district, usually extracting sandstone.

Given the availability of viable minerals resources, quarry development is likely to be an ongoing feature of the landscape. It is difficult to predict where pressure for such development may occur in the future, although historical quarrying locations and Geological Survey of Northern Ireland (GSNI) mapping provides some indication.

Much of the more recent minerals extraction has been undertaken within lowland landscapes. While such locations are in greater proximity to areas of settlement, it is often the case that mineral workings can be accommodated in the landscape with few widespread effects due to screening by the naturally undulating landform and the presence of hedgerows and small woodlands.

Hard rock extraction in more upland and exposed landforms is more difficult to accommodate successfully. This is exemplified by the quarry site at Drumalane, sited prominently on the steep valley side south of Newry, the successful restoration of which is likely to be difficult. As a result, the upland landscape of the district, and in particular those of Slieve Croob, the Mournes, Ring of

Gullion and Slieve Roosley are significantly constrained for minerals development in landscape terms, where exposed hill sides and craggy skylines are particularly susceptible to intrusion.

Mitigation measures including the incorporation of bunding and native woodland planting should be successful for integrating minerals workings into the landscape in most lowland locations. However, consideration should also be given to the effects of ancillary elements such as quarry infrastructure, parking, storage areas and gateways.

Restoration will be key to ensuring that the cumulative effects from expired mineral workings do not have a degrading effect on the landscape. In some cases, particularly for sand and gravel extraction sites, habitat creation may form part of a restoration scheme, with benefits both to landscape and biodiversity.

Climate Change

United Kingdom climate change projections, published in 2018 (UKCP18)¹¹ project that, under a scenario of 'high emissions', by 2070:

- Summers in central Northern Ireland may be up to 38% drier and 4.9° warmer;
- Winters in central Northern Ireland may be up to 25% wetter and 3.9° warmer;
- Sea levels may rise by up to 94cm at Belfast; and
- In general, there is likely to be more extreme weather, such as periods of intense rainfall or prolonged hot weather.

The Northern Ireland government identifies that as a result of climate change¹²:

- An increase of flooding and coastal wearing will put pressure on drainage, sewage, road and water habitat; and
- Increased temperature, increased pollution and poorer air quality may bring discomfort to the vulnerable and threaten species of animals and crops.

These trends are likely to have implications for landscape character, and while it is not possible to predict with certainty the degree to which the landscape will change, nor the timescales over which changes may occur, it is possible to identify some aspects of landscape character which may be affected.

A changing climate may result in conditions less favourable to some native or naturalised tree species which currently characterise the landscape, while conditions become more favourable to exotic non-native species. For example, beech trees, a characteristic feature of parts of the landscape, are susceptible to drought and potentially vulnerable to warmer and drier summers. It could be that the composition of woodlands, hedgerows and urban landscapes may change as a result of the deliberate introduction of non-native species more suited to a changed climate, or through natural changes in the range of native and non-native trees. A further concern is that a

¹¹ <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index>

¹² <https://www.nidirect.gov.uk/articles/climate-change#toc-3>

changing climate may provide favourable conditions for tree pathogens currently absent from the island of Ireland.

The distribution of other natural habitats such as bogs and wet woodlands may change as a result of drier summers, while there may be an increased incidence of fires affecting heath and moorlands.

Farming may adapt to a changing climate in a number of ways which have implications for landscape character. The types of crops grown may be different to those favoured today; the viability of more upland landscapes to more intensive forms of farming may increase; and the infrastructure requirements for successful farming, for example irrigation systems, reservoirs, farm buildings or polytunnels, may increase. Adaption of the farming landscape may result in the loss of more traditional patterns of farming which characterise the landscape today, along with the potential loss of characteristic elements such as stone walling and hedgerows.

The accommodation of intense rainfall may result in the alteration of river channels, either naturally or artificially as a means of protecting against flooding. Flood defence features such as embankments and flood plains may affect the settings of settlements. In parts of the landscape, periodic flooding and waterlogging may become more frequent because of high intensity rainfall events.

Climate change is likely to continue to drive the transition to renewable energy, and it can be expected that the prevalence of such schemes in the landscape, such as wind and solar, will increase over time.

Coastal Erosion

Rising sea levels and the likelihood of more intense storms as a result of climate change may have implications for the coastline of Newry, Mourne and Down, whether through increased and more frequent coastal flooding, or from the effects of coastal erosion. Northern Ireland lacks a legislative and policy framework to address coastal erosion, and there is currently no systematic collection of related data. However, DAERA and the Department for Infrastructure have utilised what data there is to undertake a high level assessment of coastline vulnerability in Northern Ireland¹³, and identified areas where coastal erosion may present a significant risk, based upon the likelihood of erosion and the presence of physical (i.e. man-made), historic and natural heritage assets. The study acknowledges the limitations of the exercise owing to the absence of data.

Within the district there are three broad coastal zones identified in the report; the rocky coastline north of Dundrum Bay (the Outer Ards Coast); the section including Dundrum Bay south to Cranfield Point at Carlingford Lough (the South Down Coast), a mixture of hard rock and soft glacial deposits; and Strangford Lough.

In general, the report highlights that much of the coast of the district is vulnerable to erosion due to its low-lying nature, and that beaches are often only a thin veneer of deposits on top of the underlying geology. However, the greatest extent of the district's coast susceptible to coastal

erosion is that from Dundrum Bay to Cranfield Point, with erosion reported to have occurred around Newcastle, possibly as a result of the construction of coastal defences, and at Kilkeel.

The National Trust is anticipating the impact of sea level rise at Strangford Lough. At Mount Stewart, located north of the district on the Ards Peninsula, the National Trust is planning for the long-term reconfiguration of parts of its grounds in anticipation of increased flooding, erosion, rising ground water levels and increased salinity. Beach narrowing is reported to have occurred within Strangford Lough because of coastal defences stopping erosion which provides their source of sediment¹⁴.



Exposed quarry workings to the south of Newry at Drumalane

Tall Structures

For the purposes of this assessment, tall structures refers to development types of a vertical scale significantly exceeding the horizontal, such as masts, towers or stacks. Tall structures can have particular effects on landscape character, distinct from other development types, for example where vertical manmade features contrast with wide horizons or skylines, diminish the scale of other tall natural landscape features, or are highly visible over long distances.

¹³ *Baseline Study and Gap Analysis of Coastal Erosion Risk Management NI* (2018, DAERA/ DfI)

¹⁴ *Ibid.*, p31

The height at which a tall structure may become a concern for landscape character varies depending on the nature of the landscape in question. Relatively short mobile phone masts or domestic scale wind turbines may be perceived as very dominant features in a small scale, enclosed landscape if, for example, sited upon a prominent landform. On the other hand, it may be possible to accommodate tall commercial wind turbines in a simple, large scaled, upland landscape without unacceptable effects to landscape character.

Wind turbines are amongst the most ubiquitous of tall structures seen in many landscapes today. Their movement and pale colouring tends to catch the eye from long distances in a way that other tall structures do not. Their height, rotor diameter and grouping all affect how they are perceived in the landscape. For the purposes of this report, 'small scale' wind energy development refers to single wind turbines, typically below 30m in height, associated with domestic properties or farm buildings. Larger scales of wind energy development include a range of typologies comprising medium to large sized turbines, typically at least 50m in height, either alone or grouped into arrays as a wind farm.

Radio masts and electricity transmission pylons can also have significant landscape and visual effects, but tend to be less conspicuous, and wind turbines have a greater potential for cumulative effects across wide areas of landscape.

Wind turbines are a relatively minor feature within Newry, Mourne and Down at present and there are no larger scale commercial wind farm developments in the area. In the more lowland drumlin landscapes, small scale turbines are often quite easily accommodated within the undulating landform, and it is only from higher vantage points on clear days that their frequency in the landscape can be appreciated.

Most lowland landscape and the lower foothills have some capacity for smaller scales of wind energy development when well sited and designed, avoiding prominent landforms and important skylines. However, their cumulative effect on the landscape requires careful management, especially as perceived from important viewpoints within the AONBs.

Some lowland landscapes have a greater sensitivity to wind energy of all scales. The openness of the Kingdom of Mourne and its proximity to the Mourne Mountains are significant constraints, while turbines can appear very prominently in flat coastal landscapes, interrupting important views.

Larger scaled wind turbines and wind farms are usually suited to simple larger scaled landscapes with few smaller scaled features against which turbines can be compared. Notwithstanding their AONB status, steep slopes and craggy skylines result in low suitability for wind energy in the Mournes and Slieve Croob, while those more upland areas of the Ring of Gullion are too small in scale and extent. While the simpler landform of Slieve Roosley has perhaps a greater inherent capacity for larger wind turbines, it is unlikely that any significant wind energy development could be accommodated here without compromising views to, or the setting of, the Mournes. It is only the more upland parts of the *Carrigatuke Lowland Hills* which may have capacity for larger forms of wind energy development, and the greater capacity seems to exist beyond the District Council boundary to the north.

Masts are a feature of some hill tops within the district, including Slieve Croob. Nevertheless, it is generally desirable to avoid the positioning of masts on the most distinctive hill tops, and the

clustering of masts is preferable to their proliferation on multiple summits. The impact of masts, pylons and other tall structures in flatter coastal landscapes should be controlled to avoid adverse cumulative effects of multiple vertical features in landscapes which are characterised by strong, wide horizons.



Wind turbines and other vertical structures can be prominent in exposed, flat coastal landscapes such as Tyrella.

5.4 General Development Management Guidance

The following section provides general principles for the accommodation of the preceding development types into the landscape, and for addressing likely forces for landscape change, while at the same time maintaining key landscape characteristics. This is a high level summary of the guidance provided for each landscape character area in Section 8. Guidance refers to the landscape character types and areas shown in Table 1.

Agriculture

The aspects of the farming landscape which most affect landscape character are the degree of enclosure, the scale and shape of enclosed fields, the nature of their boundaries, the land cover, and the design and siting of farm buildings. While some aspects do not fall within the remit of development management, the managing of farmland in a way which helps retain and enhance landscape characteristics can be assisted through, for example, agri-environmental schemes, grants and training. The following general guidelines apply.

- Newry, Mourne and Down comprises a diverse mix of upland and lowland landscape and of variable farming character and condition. All of the more upland landscape character types, such as the *Rugged Uplands* of Mourne and Slieve Croob, *Farmed Foothills*, the *Kingdom of*

Mourne, and *Lowland Hills* LCTs are characterised by stone walled field enclosure, the maintenance of which should be encouraged.

- The characteristics of the stone walling varies throughout the district, depending upon local geology and availability of stone; for example, the boulder stone walling of the Kingdom of Mourne is distinct from the finer grained, more irregular walling of the *Farmed Foothills* LCTs, and the blocky stone walling found in parts of the Kilkeel Coast. Development management should aim to maintain this local distinctiveness.
- Some parts of the more lowland landscapes are also part characterised by stone walling, such as the *Strangford Loughs and Drumlins* LCA, or where lowland landscapes transition to the uplands, for example in the Ring of Gullion. More productive lowland landscapes may be subject to greater pressure for change, but the retention of such walling, or its compensatory replacement where removal is necessary, should be encouraged.
- Hedgerow field boundaries are the features which most widely define the pattern of the farming landscape, particularly in the more lowland LCTs, providing habitat and contributing to biodiversity. Retention of existing hedgerows, their maintenance, and replacement where field boundaries are altered should be encouraged. Modern methods of hedge cutting often leads to the indiscriminate cutting back of tree saplings which may otherwise develop into hedgerow trees, and the protection of selected saplings to develop into future generations of hedgerow trees should be encouraged.
- The undulating lowland drumlin farmland typically allows modern farm buildings to be accommodated within the landscape with limited effects on its character. Nevertheless, careful siting and design should be encouraged to assist with their integration into the landscape, including measures such as the use of earth mounding and native tree planting, siting away from prominent landforms, and where possible the use of materials and colours sympathetic to traditional building styles and the landscape setting.
- New farm buildings in the more upland landscape types have the potential to be more prominent than those in lowland LCTs, often due to a lower tree cover or the absence of enclosing drumlin landforms. The guidelines described above apply, and the scale of development which can be successfully accommodated may be smaller than in the lowland landscapes.
- Traditional farm buildings, such as white walled and red or green roofed barns, are few in number but nevertheless are often characterful and their upkeep and retention should be encouraged wherever they occur throughout the district.
- Changing farming practices, particularly in more productive parts of the farming landscape, may involve the use of larger machinery. Where modifications are made to existing accesses, or where new access is required, attention should be paid to the integration of existing features such as hedgerows, trees and walling, or such features incorporated into the new farm infrastructure. New access should follow existing field boundaries where possible. Particular attention should be paid to roadside boundaries, where treatments such as hedge planting,

walling, trees, fencing and railing should be selected according to that traditionally prevalent in the landscape.

- The more marginal pastures, particularly towards the upland landscapes, may benefit from low intensity management to promote species diversity, where agri-environmental schemes allow. Valuable habitats such as bogs, fen, carr woodland and coastal habitats should be protected from drainage, and from impacts from adjacent farmland such polluting run-off or animal browsing.

Trees and Woodland

The following general development management guidance applies to trees, woodland and forestry throughout the district, recognising the positive contribution of single trees, small copses and woodlands to the fabric of the landscape, and the potential adverse effects of commercial forestry.

- The rugged, textured upland landscape of the *Farmed Foothills* and *Rugged Uplands* LCTs are susceptible to the blanketing effects of commercial forestry. The extension of commercial forestry into these areas should be avoided to ensure that rugged outlines and textured hill slopes are maintained. The smoother upland landform of the *Carrigatuke Lowland Hills* is less sensitive to afforestation.
- Where forestry is to extend into upland areas, such as the lower slopes of the Mournes, planting schemes should respond to the topography of the landscape, where possible mimicking natural patterns of woodland distribution.
- Forestry schemes would benefit from the inclusion of native species to soften the edges and break up the uniformity of plantations. Commercial plantations which include some diversity of tree species are preferable to those which are monocultural.
- Stands and specimens of Scots pine and beech are characteristic of many parts of the district, including the *Farmed Foothills* and *Lowland Drumlin Farmland* LCTs, and the *Strangford Loughs and Drumlins* LCA, with beech often associated with larger farms and estates. These often striking features should be retained and their succession planned for through the inclusion of replacement trees with new rural development schemes.
- Woodlands, copses and small tree clumps sheltering buildings should generally be encouraged within the lower lying landscapes such as the *Lowland Drumlin Farmland* LCT and the *Strangford Loughs and Drumlins* LCA where they contribute much to the fabric and character of the landscape.

Development

The following guidance applies generally to rural development, typically housing development, in the countryside beyond settlements. Guidance for the main settlements is provided in Section 9.0 of this report.

- As a general principle, it is beneficial for the maintenance of landscape character for new development to be associated with existing areas of settlement or farm complexes, rather than

set alone in the countryside. Applying this principle is particularly important to those parts of the landscape subject to the most development pressure, such as the Ring of Gullion, the Kingdom of Mourne and the southern part of the *Newry Lowland Drumlin Farmland* LCA.

- Building in association with existing development should not include the linear expansion of settlement along roads i.e. ribbon development, to help maintain the distinction between the rural and the urban landscape when travelling through it.
- The siting of new buildings in sheltered locations, utilising trees and/ or landforms as a backdrop, will allow their better integration into the landscape. The siting of new housing on prominent, exposed sites should be avoided.
- Rural housing development should follow traditional rural patterns which tend to be integrated into the landscape, rather than sub-urban layouts where views to front gardens and houses are prominent. This will require giving careful consideration to the siting of a building within a plot and its means of access. Access via existing tracks following field boundaries is preferable to the creation of driveways accessed from roads.
- Architectural styles of rural housing development should be carefully selected, taking cues from traditional buildings in terms of their design and materials selection. Elements such as lighting, walling and fencing should be selected so as to be sympathetic to a rural, rather than suburban, setting. The scale of new housing should be appropriate for its setting, and in general smaller scales of new housing, perhaps single or one and a half storey, being more suited to the more exposed upland landscapes, with larger houses better accommodated within drumlin farmland.
- Rural housing should be integrated into the landscape with the use of native tree planting and hedges, ideally linked to the existing pattern of hedgerows and woodlands. Species should typically be native, selected from those prevalent in the surrounding landscape.
- Opportunities should be sought for retaining or restoring the traditional cottages and houses that still remain in the landscape.

Tourism and Recreation

Tourism and recreation place significant pressures on parts of the district's landscapes, particularly in the eastern Mourne, Strangford Lough, and along parts of its coasts. The following general guidelines apply to associated development.

- The scale of coastal caravan parks should be proportionate to the scale of the landscapes and seascapes in which they are situated; the often enclosed, intimate character of parts of Strangford Lough is less suited to larger scales of such development in comparison to the more expansive coastline with the Irish Sea.

- Internal and external native tree planting, bunding and the avoidance of uniform layouts can assist with the integration of caravan developments into the landscape.
- The siting and design of visitor facilities at popular beaches beyond settlements should be in keeping with the wild qualities of the coast. This may require the siting of car parking, visitor centres or toilets inland from the coast. Consideration should be given to their sympathetic design and siting in the landscape.
- Access to the upland landscapes, particularly the eastern Mourne, requires the careful balancing of the need to manage erosion on the most heavily used sections of path, and the importance of maintaining the wildness of character of these landscapes. Path construction techniques applicable to upland landscapes should be adopted.¹⁵
- Car parks should be designed and sited with respect to their landscape settings. Car parks in more exposed upland landscapes may be better integrated if informal, rough surfaced, incorporating stone walling and carefully sited within more enclosed parts of the landscape. Within lowland landscapes, native trees and shrubs should be integrated into their design.

Climate Change and Coastal Erosion

Because of the uncertain implications of a changing climate on the landscape, the following guidance is necessarily general.

- The ongoing, long term monitoring of important habitats, including the health and distribution of native trees and woodland, is recommended to inform their management and to ensure their continued survival.
- In general, resilience against the effects of climate change will be enhanced through tree planting, for example as a means of slowing runoff in upland river catchments, providing shading to river corridors or providing shade and natural cooling to developments and urban areas.
- The integration of sustainable urban drainage systems, landscape frameworks and structure planting into future urban expansions will help mitigate against the effects of intense rainfall and hot weather.
- Coastal landscapes may be subject to significant change in the decades ahead and therefore it will be important to avoid damage and disturbance to natural coastal environments such as salt marsh or dunes which provide a natural resilience against winter storms and coastal flooding.
- Careful consideration should be given to the effects of any proposed coastal protection schemes to avoid adverse effects on other areas of coast.

¹⁵ The *Upland Pathwork Manual* (2015, Scottish Natural Heritage) provides a suite of guidance on the planning, design, construction and management of paths in uplands environments.

- Avoiding disturbance to the undeveloped parts of the coastline will assist in maintaining coastal landscape/ seascape character, help protect fragile coastal habitats, and guard against the effects of future sea level rises and coastal erosion. As a general principle, unless a coastal situation is an absolute necessity, further development at already developed coastlines should be focussed inland, rather than being allowed to spread along the coast.

Minerals

The following general guidance applies to minerals development within the district.

- The often undulating, wooded lowland landscape can generally accommodate mineral development, particularly where accompanied by appropriate native tree planting as mitigation. Nevertheless, minerals consents should be mindful of the impact of ancillary features such as plant, fencing and accesses on landscape and visual amenity.
- The more exposed upland landscapes of the *Farmed Foothills*, *Volcanic Hills* and *Lowland Hills* LCTs are more susceptible than lowland landscapes to the effects of minerals developments which may disturb distinctive skylines and landforms. The *Rugged Upland* landscapes are very sensitive to minerals development.
- The restoration of mineral workings to consented plans, secured through planning condition, should assist with the limiting of long-term landscape and visual effects.

Former sand and gravel extraction sites may be particularly well suited to restoration for habitat creation, for example wetlands, and open space provision, with benefits to wildlife and people.

Tall Structures

The following general guidance applies to tall structures, such as telecommunications masts, electricity transmission towers and wind turbines within the district.

- The guidance provided in the document *Wind Energy Development in Northern Ireland's Landscapes*, Supplementary Planning Guidance to Accompany Planning Policy Statement 18 'Renewable Energy' (Northern Ireland Environment Agency, 2010) should be applied to the siting and design of wind energy schemes in the LCAs of the district.
- The *Carrigatuke Lowland Hills* LCA is the only LCA in the district considered suited to the accommodation of larger scales of wind energy development. However, the greatest capacity for wind energy development would seem to lie beyond the district boundary to the northwest.
- The *Rugged Uplands* of the Mourne and Slieve Croob have no capacity for wind energy development; any such development would detract from their distinctive skylines and qualities of wildness.
- Other more upland landscapes, such as the *Farmed Foothills* LCT, the *Slieve Gullion Volcanic Hills* and the Kingdom of Mourne have very little capacity for wind energy development due to their exposed character. Wind energy development in these LCTs should be infrequent, of limited scale, and sited to avoid prominent hill tops.

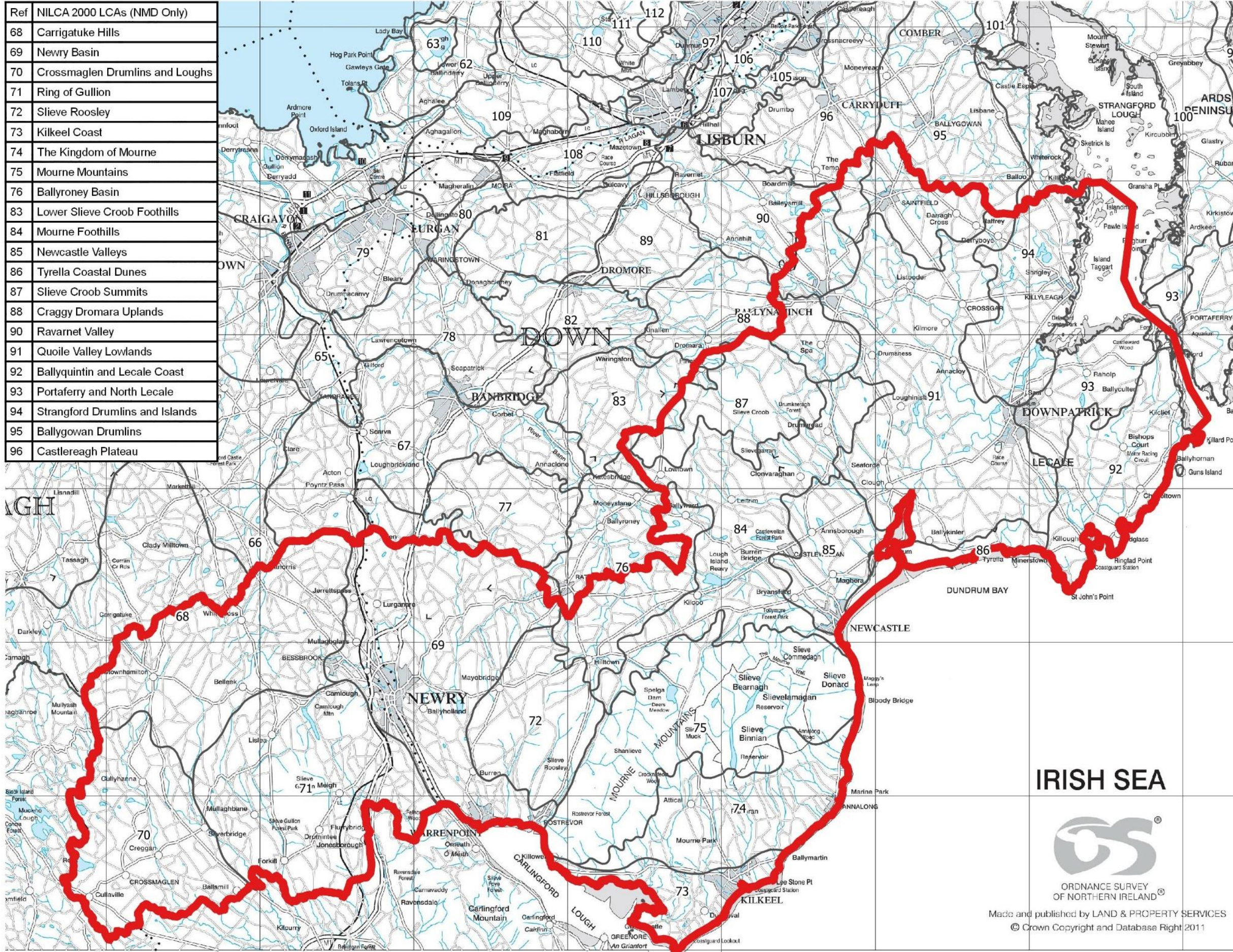
- The enclosed, undulating *Lowland Drumlin Farmland* LCTs have some capacity for accommodating smaller typologies of wind energy development, such as single turbines associated with domestic or farm properties. However, their capacity for accommodating turbine arrays, or larger commercial wind energy schemes is very low.
- Coastal landscapes, including those around Strangford Lough, have low capacity for wind energy development, with turbines likely to appear as exposed, prominent features, or potentially interrupting views along the coast to the Mourne.
- The hill tops of the *Rugged Uplands* should be kept free of masts and towers. In other landscape types, efforts should be made to cluster taller masts on a limited number of hill tops where possible. Shorter structures, such as mobile phone masts, can quite easily be absorbed into the undulating landforms of the *Lowland Drumlin Farmland*.
- The cumulative impact of relatively short vertical structures such as masts, poles or wind turbines should be taken into consideration in the more open lowland landscapes, such as those near the coast, which together may have an adverse effect on views featuring strong horizontal elements such as sea horizons or long coastlines.

Table 2: Sensitivity to Wind Energy Development (from *Wind Energy Development in Northern Ireland's Landscapes* (NIEA, 2010))

| LCA Reference | Sensitivity Assessment |
|--|-------------------------------|
| 68 Carrigatuke Lowland Hills | Medium |
| 69 Newry Lowland Drumlin Farmland | High to Medium |
| 70 Crossmaglen Lowland Drumlin Farmland | High to Medium |
| 71 Ring of Gullion Volcanic Hills | High |
| 72 Slieve Roosley Farmed Foothills | High |
| 73 Kilkeel Coastal Plain | High to Medium |
| 74 The Kingdom of Mourne Inclined Coastal Pastures | High |
| 75 Mourne Mountains Rugged Uplands | High |
| 76 River Bann Lowland Drumlin Farmland | High to Medium |
| 83 Lower Slieve Croob Farmed Foothills | High to Medium |
| 84 Mourne and Slieve Croob Farmed Foothills | High |
| 85 Newcastle Lowland Drumlin Farmland | High |
| 86 Tyrella Coastal Dunes | High |
| 87 Slieve Croob Rugged Uplands | High |
| 88 Dromara Elevated Drumlin Farmland | High |
| 90 Ravarnet Lowland Drumlin Farmland | High to Medium |
| 91 Quoile Lowland Drumlin Farmland | High |
| 92 Ballyquintin and Lecale Coastal Plain | High |
| 93 North Lecale Lowland Hills | High |
| 94 Strangford Lowland Loughs and Drumlins | High |
| 95 Saintfield Elevated Drumlin Farmland | High to Medium |
| 96 Castlereagh Plateau Elevated Drumlin Farmland | High to Medium |

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| Ref | NILCA 2000 LCAs (NMD Only) |
|-----|---------------------------------|
| 68 | Carrigatuke Hills |
| 69 | Newry Basin |
| 70 | Crossmaglen Drumlins and Loughs |
| 71 | Ring of Gullion |
| 72 | Slieve Roosley |
| 73 | Kilkeel Coast |
| 74 | The Kingdom of Mourne |
| 75 | Mourne Mountains |
| 76 | Ballyrone Basin |
| 83 | Lower Slieve Croob Foothills |
| 84 | Mourne Foothills |
| 85 | Newcastle Valleys |
| 86 | Tyrella Coastal Dunes |
| 87 | Slieve Croob Summits |
| 88 | Craggy Dromara Uplands |
| 90 | Ravarnet Valley |
| 91 | Quoile Valley Lowlands |
| 92 | Ballyquintin and Lecale Coast |
| 93 | Portaferry and North Lecale |
| 94 | Strangford Drumlins and Islands |
| 95 | Ballygowan Drumlins |
| 96 | Castlereagh Plateau |



Legend

- Local Authority Boundary
- NILCA 2000 LCAs



**Newry, Mourne and Down
Landscape Character Review**

IRISH SEA

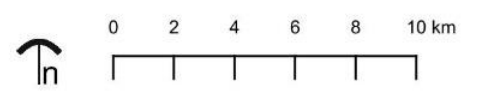


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Figure 5

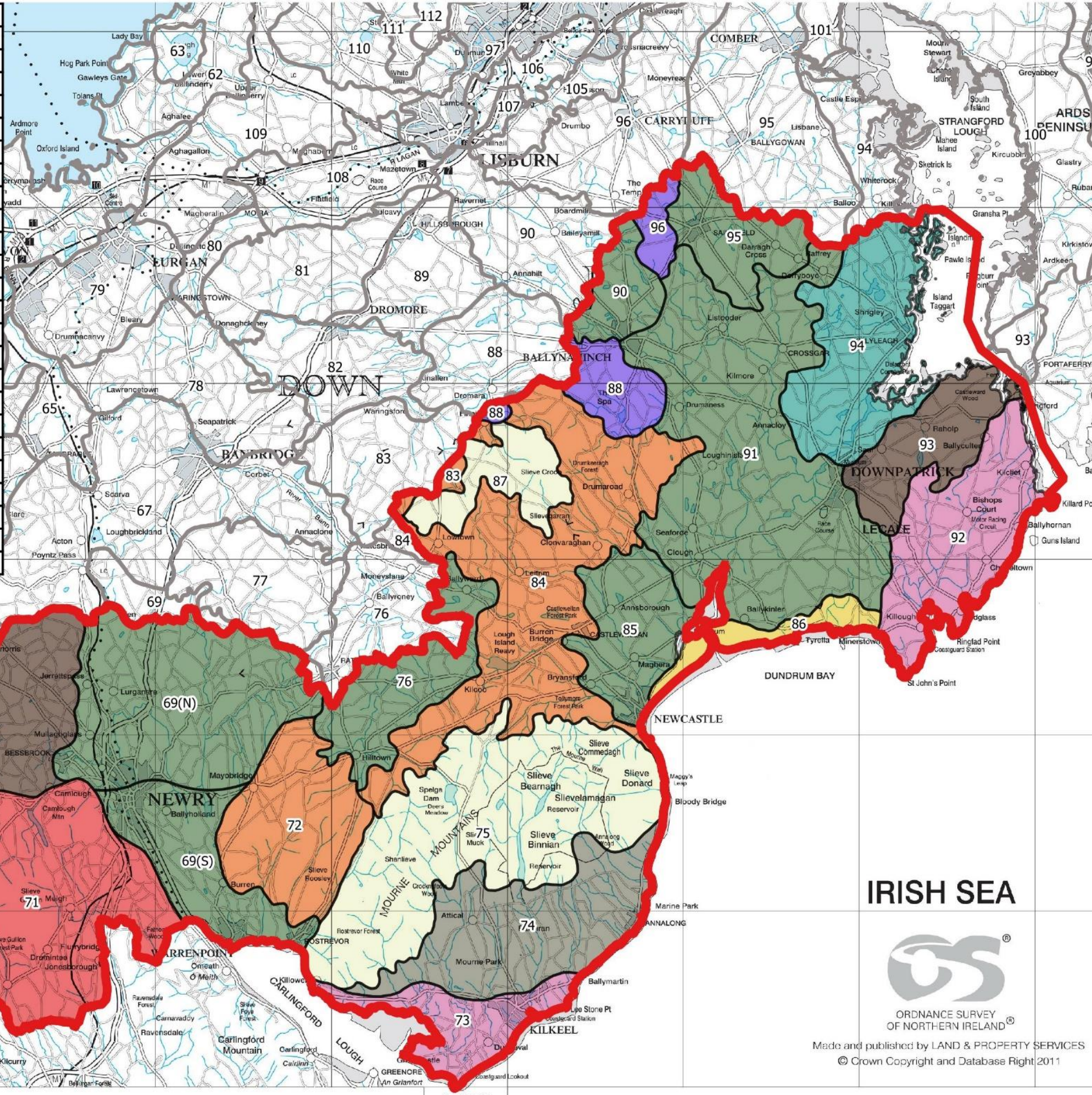
NILCA 2000 LCAs

October 2020



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| |
|--|
| Revised NMD LCAs |
| 68 Carrigatuke Lowland Hills |
| 69(N) Newry North Lowland Drumlin Farmland |
| 69(S) Newry South Lowland Drumlin Farmland |
| 70 Crossmaglen Lowland Drumlin Farmland |
| 71 Ring of Gullion Volcanic Hills |
| 72 Slieve Roosley Farmed Foothills |
| 73 Kilkeel Coastal Plain |
| 74 The Kingdom of Mourne Inclined Coastal Pastures |
| 75 Mourne Mountains Rugged Uplands |
| 76 River Bann Lowland Drumlin Farmland |
| 83 Lower Slieve Croob Farmed Foothills |
| 84 Mourne & Slieve Croob Farmed Foothills |
| 85 Newcastle Lowland Drumlin Farmland |
| 86 Tyrella Coastal Dunes |
| 87 Slieve Croob Rugged Uplands |
| 88 Dromara Elevated Drumlin Farmland |
| 90 Ravernet River Lowland Drumlin Farmland |
| 91 Quoile River Lowland Drumlin Farmland |
| 92 Ballyquintin and Lecale Coastal Plain |
| 93 North Lecale Lowland Hills |
| 94 Strangford Loughs and Drumlins |
| 95 Saintfield Lowland Drumlin Farmland |
| 96 Castlereagh Plateau Elevated Drumlin Farmland |



- Legend**
- Local Authority Boundary
 - NILCA 2000 Boundaries
- Landscape Character Types**
- Volcanic Hills
 - Rugged Uplands
 - Lowland Hills
 - Lowland Drumlin Farmland
 - Loughs and Drumlins
 - Inclined Coastal Pastures
 - Farmed Foothills
 - Elevated Drumlin Farmland
 - Coastal Plain
 - Coastal Dunes



IRISH SEA



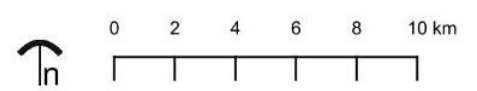
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**Newry, Mourne and Down
Landscape Character Review**

Figure 6

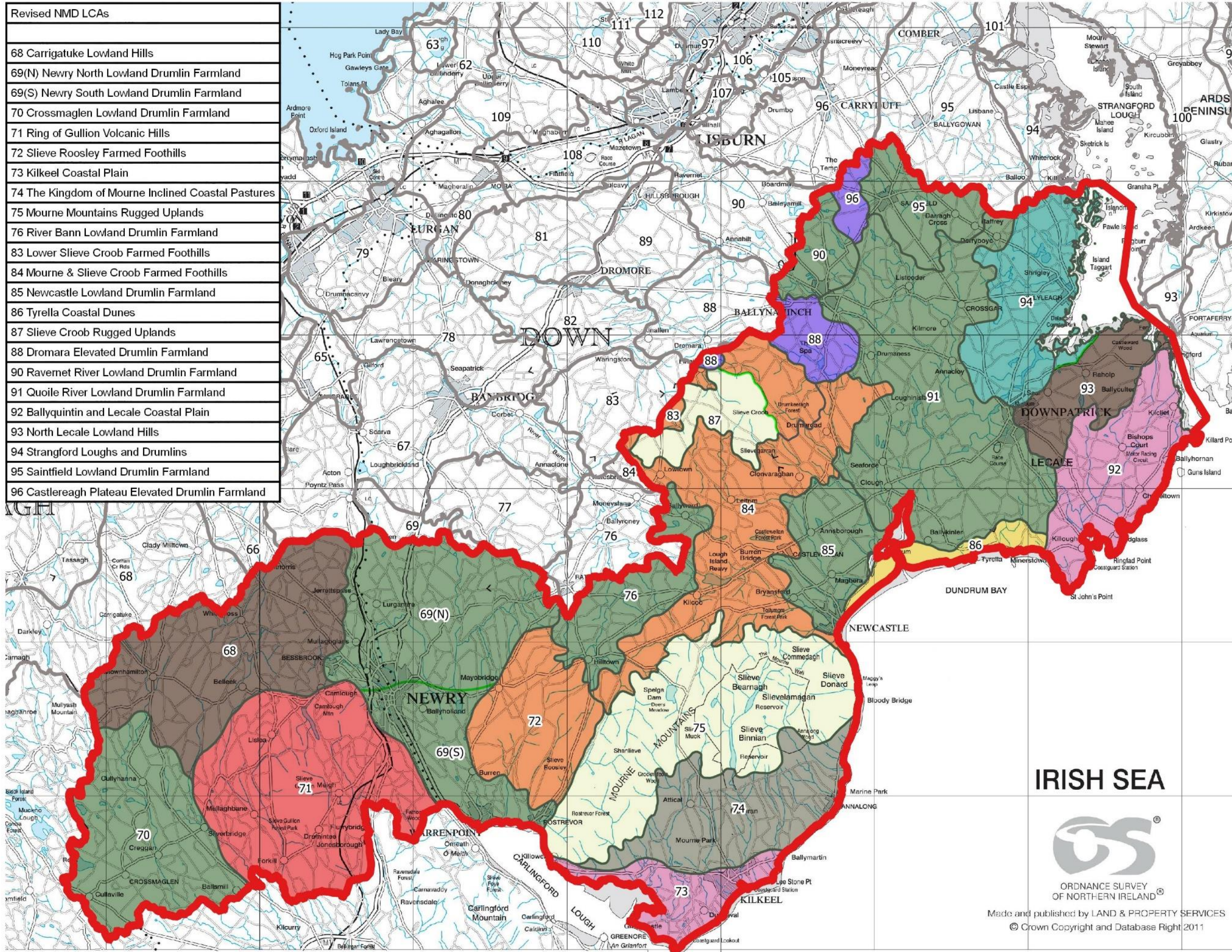
**Landscape Character Types and
Revised LCAs**

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| |
|--|
| Revised NMD LCAs |
| 68 Carrigatuke Lowland Hills |
| 69(N) Newry North Lowland Drumlin Farmland |
| 69(S) Newry South Lowland Drumlin Farmland |
| 70 Crossmaglen Lowland Drumlin Farmland |
| 71 Ring of Gullion Volcanic Hills |
| 72 Slieve Roosley Farmed Foothills |
| 73 Kilkeel Coastal Plain |
| 74 The Kingdom of Mourne Inclined Coastal Pastures |
| 75 Mourne Mountains Rugged Uplands |
| 76 River Bann Lowland Drumlin Farmland |
| 83 Lower Slieve Croob Farmed Foothills |
| 84 Mourne & Slieve Croob Farmed Foothills |
| 85 Newcastle Lowland Drumlin Farmland |
| 86 Tyrella Coastal Dunes |
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| 94 Strangford Loughs and Drumlins |
| 95 Saintfield Lowland Drumlin Farmland |
| 96 Castlereagh Plateau Elevated Drumlin Farmland |



- Legend
- Local Authority Boundary
 - NILCA 2000 Boundaries
 - Revised LCAs
 - Revised LCA Boundary



IRISH SEA



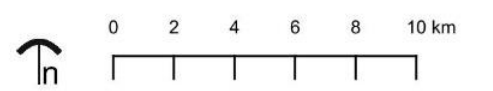
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**Newry, Mourne and Down
Landscape Character Review**

Figure 7

NILCA 2000 LCAs v Revised LCAs

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6.0 BIODIVERSITY PROFILE REVIEW

6.1 Introduction

Newry, Mourne and Down District Council (NMDDC) was established in 2015 following the amalgamation of Newry and Mourne District Council, Down District Council and the Ballyward area of Banbridge District Council. The council area is just over 1,680 square kilometres in size and has a population of around 181,000.

The Landscape Character Assessment (LCA) of Northern Ireland divided the Province into 130 landscape character areas based on landform, land use, geology, ecology and cultural features. Descriptions of each area were initially completed in 2000 and updated in 2006. As an aid to strategic planning, NMDDC have requested a review and update of the 25 LCAs that occur within the council area. As described in Section 2.3, three of these LCAs have a very small overlap with the council area, and therefore the review is carried out for 22 LCAs. This chapter reviews the biodiversity sections of the LCAs.

Priority species and habitats in this revision, relate to those listed and described within the NMDDC Local Biodiversity Action Plan 2017-2022 and they are shown in bold text – they are also priorities at a Northern Ireland level.

6.2 Process and remit

The review of the biodiversity element of LCA areas within NMDDC was entirely desk based, using information from a number of sources (see below). Overlaying LCAs onto the NMDDC boundary shows that most of the overlapping LCAs have all, or a high proportion, of their area within the district. Only two LCAs (numbers 83 and 96) having less than 25% of their area contained within the district (Table 3).

Table 3: Spatial information on LCA areas in relation to NMDDC area

| LCA number | LCA name | Total LCA area (ha) | Area in NMDDC (ha) | % in NMDDC |
|------------|-----------------------------------|---------------------|--------------------|------------|
| 68 | Carrigatuke | 25695 | 13287 | 52 |
| 69 | Newry (North and South) | 17971 | 16400 | 91 |
| 70 | Crossmaglen | 10034 | 10034 | 100 |
| 71 | Ring of Gullion | 14614 | 14614 | 100 |
| 72 | Slieve Roosley | 6533 | 6533 | 100 |
| 73 | Kilkeel | 3500 | 3500 | 100 |
| 74 | The Kingdom of Mourne | 8220 | 8220 | 100 |
| 75 | Mourne Mountains | 15545 | 15545 | 100 |
| 76 | River Bann | 8849 | 4701 | 53 |
| 83 | Lower Slieve Croob Foothills | 5045 | 533 | 11 |
| 84 | Mourne and Slieve Croob Foothills | 15283 | 14940 | 98 |
| 85 | Newcastle | 4473 | 4473 | 100 |
| 86 | Tyrella | 1717 | 1717 | 100 |
| 87 | Slieve Croob | 3018 | 2980 | 99 |
| 88 | Dromara | 6845 | 2334 | 34 |
| 90 | Ravernet River | 7429 | 2198 | 30 |
| 91 | Quoile River | 19059 | 19059 | 100 |
| 92 | Ballyquintin and Lecale | 10680 | 7133 | 67 |
| 93 | North Lecale | 4771 | 4076 | 85 |
| 94 | Strangford | 9750 | 7212 | 74 |

| LCA number | LCA name | Total LCA area (ha) | Area in NMDDC (ha) | % in NMDDC |
|------------|---------------------|---------------------|--------------------|------------|
| 95 | Saintfield | 13439 | 3564 | 27 |
| 96 | Castlereagh Plateau | 8118 | 962 | 12 |

Orthophotography (aerial photographic coverage) of the NMDDC area was available from five different years (2006, 2008, 2009, 2018 and 2019). Coverage varied in different years and no individual year had full coverage of the council area (Table 5). All orthophotography was added to the GIS project, which was further populated with boundary information, and available spatial datasets relating to biodiversity and natural heritage features within the NMDDC area. This included the location of designated sites, nature reserves, parks, woodlands, waterbodies and other relevant natural heritage features. In NMDDC areas where orthophotography was available from both pre- and post-2010, comparisons of broad habitat coverage between these two periods were sometimes possible. This analysis was aided by referring to Google Earth imagery.

Relevant original LCA documents from the 22 overlapping areas were reviewed and, where possible, statistics on the biodiversity resource within each LCA was updated to reflect the area of the LCA that lies within the NMDDC boundary.

6.3 Information sources

Information was sought from several organisations (Table 4) through direct consultation or by accessing webpages and online reports. A range of information sources were used to undertake the review (Table 5).

Table 4: Organisations contacted to obtain information on biodiversity in the LCA areas

| Organisation consulted | Form of consultation | Information received |
|--|---------------------------------------|---|
| Ulster Wildlife | Email, webpages | Information accessed on webpages. |
| Royal Society for the Protection of Birds (RSPB) | Email, webpages | Indicated no recent collated information available on bird populations. Information accessed on webpages. |
| Department of Agriculture, Environment and Rural Affairs (DAERA) | Email, webpages | Information on designated sites, rural land-use and agricultural statistics at council level were provided. |
| NMDDC | Email, webpages, phone call, meeting. | A range of datasets were provided. No recent survey/trend data available on species and habitats. |
| Mourne Mountain Landscape Partnership | Email, webpages | Information on key sites for biodiversity and ongoing projects. |
| National Trust | Email, webpages | Information on key sites and ongoing projects. |
| Ring of Gullion AONB | Email, webpages | Information accessed on webpages. |
| Northern Ireland Environment Link | Webpages | Information accessed on webpages |
| British Trust for Ornithology | Webpages | Information accessed on webpages |
| Wildfowl and Wetlands Trust | Webpages | Information accessed on webpages |
| Mammals, Amphibians & Reptiles of Northern Ireland | Webpages | Information accessed on webpages |
| Northern Ireland Bat Group | Webpages | Information accessed on webpages |
| Strangford Lough and Lecale Partnership | Webpages | Information accessed on webpages |
| National Biodiversity Network | Data request | Spatial dataset of species records from NMDDC area |
| CEDaR | Webpages | Information accessed on webpages |

Table 5: Information sources used in the review of biodiversity in LCA areas

| Information type | Data set/detail | Available information | Data source(s) |
|--------------------------------------|--|--|-------------------------------------|
| Boundaries | NMDDC boundary LCA boundaries | Spatial data on location and extent. | NMDDC |
| Mapping | OSNI digital maps of NI | OSNI 1:250,000 digital map of NI OSNI 1:50,000 digital map of NI OSNI 1:25,000 digital map (limited coverage) | Ordnance Survey of Northern Ireland |
| Aerial photography | High resolution georeferenced aerial photography | Coverage of NMDDC: 2006 – western area 2008 – far south and far north 2009 – majority of central area 2018 – far south and far north 2019 – limited area in west/centre | NMDDC |
| Designated nature conservation sites | Special Protection Area (SPA) Special Area of Conservation (SAC) Ramsar Site Area of Special Scientific Interest (ASSI) | Spatial data on location and extent. List of qualifying features. Site condition assessment. | DEARA |
| Local designations | Sites of Local Nature Conservation Importance (SLNCI) – some of these sites are assigned for their earth science interest | Spatial data on location and extent. | NMDDC |
| Nature reserves and parks | National Nature Reserves (NNR) Nature Reserves (NR) RSPB reserves | Spatial data on location. Description of key site features. | NMDDC DEARA RSPB |
| Priority habitats | Priority grassland, fen, peatland, heathland and woodland – data compiled by Northern Ireland Environment Agency from surveys and other sources. None of the datasets represent the entire extent of these habitats. | Spatial extent of habitat polygons. Grassland dataset shows National Vegetation Classification code for polygons. | DEARA |
| Woodland | Extent of woodland cover | Spatial data on location and extent. Woodland composition (broadleaf, conifer, mixed or unknown) | DEARA |
| Water bodies | Lake water bodies River water bodies Ground water bodies | Spatial data on location and extent (not comprehensive) | DEARA |
| Parks and gardens | Historic Parks and Gardens | Spatial data on location and extent. Description of key site features. | NMDDC |
| Agricultural data | Agricultural trends 2010 – 2015 - available at NMDCC level (not LCA specific). Agricultural trends 2006 – 2017 - available at NI level (not LCA specific). | Farm business – type, size, area and workforce. Crop and grass areas. Livestock numbers. | DEARA |
| Funded management availability | Agri-environment measures targeted at biodiversity and funded through Environmental Farming Scheme - available at NI level (not LCA specific). Woodland grants. | Description of management requirement, eligibility and payment information. | DEARA |
| Species occurrence | National Biodiversity Network (NBN) Atlas records for NMDDC priority species | Locations of species occurrence at various resolutions – includes CEDaR records | NBN |

| Information type | Data set/detail | Available information | Data source(s) |
|----------------------|---------------------|--|-------------------------------|
| Species distribution | NI-wide bird trends | Details of changes in bird abundance over a range of periods up to 2016. | British Trust for Ornithology |

6.4 Broad trends in the NMDDC area

Woodland

There appears to have been a slight overall increase in woodland cover in recent years, arising from new plantation woodlands on previously farmed land. Woodland cover in the NMDDC area currently stands at 5.15%, although the available woodland cover dataset did not include some smaller patches of woodland and scrub habitat. Nevertheless, the percentage of woodland cover is substantially lower than is found in the UK (13%) and also lower than the overall Northern Ireland total (8%).

Agricultural land

Spatial information on agricultural land use was not available at a resolution that allowed the quantification of the grassland and arable resource, or the identification of trends, within individual LCA areas. However, the absence of significant trends in different categories of agricultural statistics (see Table 5) within the NMDDC area as a whole between 2010 and 2015 and, for most categories, within Northern Ireland between 2006 and 2017, mean that the overall resource is likely to be broadly similar to that described in 2006.

An exception to this, is the decreasing trend in the area of farmed land classified as ‘hill or rough land’ between 2004 and 2018 at the Northern Ireland level, a trend which has been ongoing since these data were first published in 1981. This type of agricultural land is generally less heavily managed, with fewer inputs, less drainage and with lower grazing levels; hence, it probably supports relatively high biodiversity and the declining trend is likely to have affected wider populations of NI priority species such as breeding waders and marsh fritillary. However, although the overall percentage of rough grazing is lower in the NMDDC area than nationally (around 14%), it did increase as a percentage of the total area farmed from 6.8% in 2010 to 8.1% in 2015; this may benefit biodiversity.

However, changes in the spatial extent of agricultural areas that may support biodiversity are often less important than changes in farming practices, which tend to affect biodiversity to a greater degree and cannot be deduced from spatial statistics alone. One example is a shift in arable production from spring-sown cereals to autumn-sown cereals, which can reduce the suitability of fields for some breeding bird species.

Heath, bog, fen and wetland

The overall extent of heath and wetland habitat in the council area appears broadly unchanged, with many of the significant areas receiving some degree of protection through designation and sympathetic ownership.

Species

Data on species populations and trends within the council area were lacking. No targeted species conservation initiatives appear to be in place in the NMDDC area, although collation of data on occurrence does occur on an ad-hoc basis for species such as red squirrel, where local groups encourage sightings to be reported.

Bird population trends are likely to be broadly in line with the rest of NI, where nine commoner species have shown a statistically significant increase between 2006 and 2016 and ten species have shown a decline; those in decline across the province include species associated with grassland and mixed habitats, including linnet, lesser redpoll, goldfinch and skylark. Wader populations are also in decline across the wider area. Some wildfowl populations that occur within the NMDDC area, particularly light-bellied brent geese at Strangford Lough, are censused annually as part of wider monitoring initiatives; light-bellied brent geese show an increasing trend although the local population occurs inside and outside the council area.

Agri-environment and forestry grant schemes

Support to land-owners and managers through agri-environment schemes is currently provided via the Environmental Farming Scheme (EFS) which runs until 2020 and is administered by DAERA. There are a range of EFS options targeting biodiversity enhancement and the uptake of these measures, and future similar measures, should be encouraged.

7.0 GEOLOGICAL CHARACTERISTICS REVIEW

7.1 Introduction

The NILCA 2000 review includes an updating of the information presented in the original assessment pertaining to the geological characteristics of the Newry, Mourne and Down landscape.

The use of a cultural overlay in defining landscape character areas (LCAs) means that they frequently subdivide natural physiographic units. It is common therefore for significant geomorphological features to run across more than one LCA. It is also possible in turn, to group physiographic units into a smaller number of natural regions. These regions invariably reflect underlying geological, topographic and, often, visual continuities between their component physiographic units, and have generally formed the basis for defining landscape areas such as AONBs. It is essential therefore, that in considering the 'geodiversity' of an individual LCA, regard should be given to adjacent LCAs and to the larger regions within which they sit.

The Newry, Mourne and Down District Council (NMDDC) area is divided into 5 Regional Character Areas (RCA), which are further subdivided into 22 LCAs (Figures 1 and 2). A brief geological review at the regional scale is provided below, with a more thorough analysis provided to accompany each landscape character assessment.

At the time of writing this report, Newry, Mourne and Down District Council is moving forward with plans to establish a UNESCO Global Geopark in the three Areas of Outstanding Natural Beauty (AONB) of the district; Mourne, Ring of Gullion and Strangford & Lecale. If successful, the UNESCO Global Geopark brand will use the shared geological heritage of the three areas as a mechanism for sustainable tourism, generating economic benefits, providing recreational opportunities, and increasing awareness of the natural capital of the entire area. The Geopark, its significance, designation and the reasons for the application is discussed in Section 3.0 of this report.

7.2 Regional Geological Review

The NMDDC area is comprised of a faulted sedimentary basin (Silurian to Cretaceous) intruded by various igneous complexes. These igneous complexes are responsible for the majority of the post glacial relief in the region. Country rocks (the oldest / basal bedrock) in the region take the form of turbidites, sedimentary rocks comprising sands and muds, formed on the shelf of a fault bounded ocean. These turbidites are part of a larger geological system that stretches across the south of Scotland into Northern Ireland and beyond.

Following the closure of the ocean in which these turbidites were deposited, two dominant phases of igneous emplacement occurred. The earliest was the emplacement of the Newry igneous complex in the Late Palaeozoic circa 400 million year ago (Ma). This complex consists of 4 overlapping plutons created by several phases of magmatic pulsing within the crust. These plutons are emplaced in a belt consistent with the general strike of the country rock and former fault plane, north east to south west across the central area of the NMDDC area.

Three of the igneous plutons can be described as Grano-Diorites, with the oldest and smallest of the plutons being described as an ultramafic rock of low homogeneity (this pluton resides in the NE corner of the complex). The three Grano-Dioritic rocks are speciated by differences in both melt

composition and cooling patterns across the intrusions. Further detail on the emplacement of this igneous complex can be found in Appendix A.

The second phase of igneous activity took place much later in the Palaeogene. Two dominant igneous complexes emerged from this phase of activity both of which form prominent topographical features on the present landscape. The Slieve Gullion Complex resides in the south west of the region to the west of Newry. This complex is an example of a ring dyke emplacement. The ring dyke itself is 11km in diameter and is denoted by a circular chainage of hills centred on the mountain of Slieve Gullion. This feature is the result of some very complex geological processes, a summary of which can be found in Appendix A.

The second of the Palaeogene igneous complexes is the Mourne Mountains. These predominantly granitic intrusions were emplaced around 56 Ma. The mountains can be separated into several phases of emplacement and 5 distinct rock bodies. A detailed description of the formation of these mountains can be found in Appendix A.

The NMDDC area topography is typical of a post glacial landscape and contains many of the features commonly associated with glacial and post glacial ice advancement and retreat such as drumlins and kettle hole lakes. These features have come to define the landscape character in the region.

The geological characteristics of the 5 RCAs (see Figure 1 for RCA locations and Figure 3 for solid geology) are briefly described below:

Down Drumlins and Hollywood Hills RCA (22): The Down Drumlins and Hollywood Hills RCA is, as the name suggest, a landscape dominated by post glacial drumlins. The undulating terrain of the RCA, particularly within the NMDDC area, owes its character to the superficial drift deposits laid down as ice retreated from the landscape. Bedrock geology below the site takes the shape of Silurian turbidite deposits.

Newry Valley and Upper Bann (RCA 23): A large scale rolling drumlin landscape situated between the Ring of Gullion and the Mourne Mountains. Within the NMDDC area the geology of the region is described with a single assessment for the Newry basin (*Newry North and South Lowland Drumlin Farmland, LCA 69 N and S*).

Slieve Gullion and South Armagh Hills (RCA 24): This region is dominated by the Slieve Gullion igneous complex. This ring dyke formation takes the shape of a series of pronounced hills forming an 11km wide loop in the central and eastern areas of this RCA. These hills are the post glacial remnants of a ring dyke intrusion formed following the fault associated collapse of a volcano. In the centre of the ring dyke lies Slieve Gullion itself, a granitic layered intrusion that stands out from the surrounding land as a prominent mountain. The western and northern areas of the site are flatter and are underlain by the Silurian sedimentary rocks found throughout the NMDDC area.

Mourne and Slieve Croob (RCA 25): This RCA is dominated by two phases of Igneous activity. The earlier, Late Palaeozoic, intrusions of the Newry Igneous Complex and the intrusion of the Mourne Mountains in the Palaeogene. These two intrusions form topographic highs in the landscape. The Mourne mountains span 22km between Killowen and

Newcastle, and contains the highest mountains in Northern Ireland, including Slieve Donard (852m) Northern Ireland's highest peak.

Strangford Ards and Lecale (RCA 26): The landscape within this RCA is defined by drumlin swarms and undulating terrain. Geological mapping shows the area to be underlain by Silurian sandstone and greywacke rocks. Superficial mapping shows there to be a broad covering of glacial tills. This is typical of a post glacial landscape.

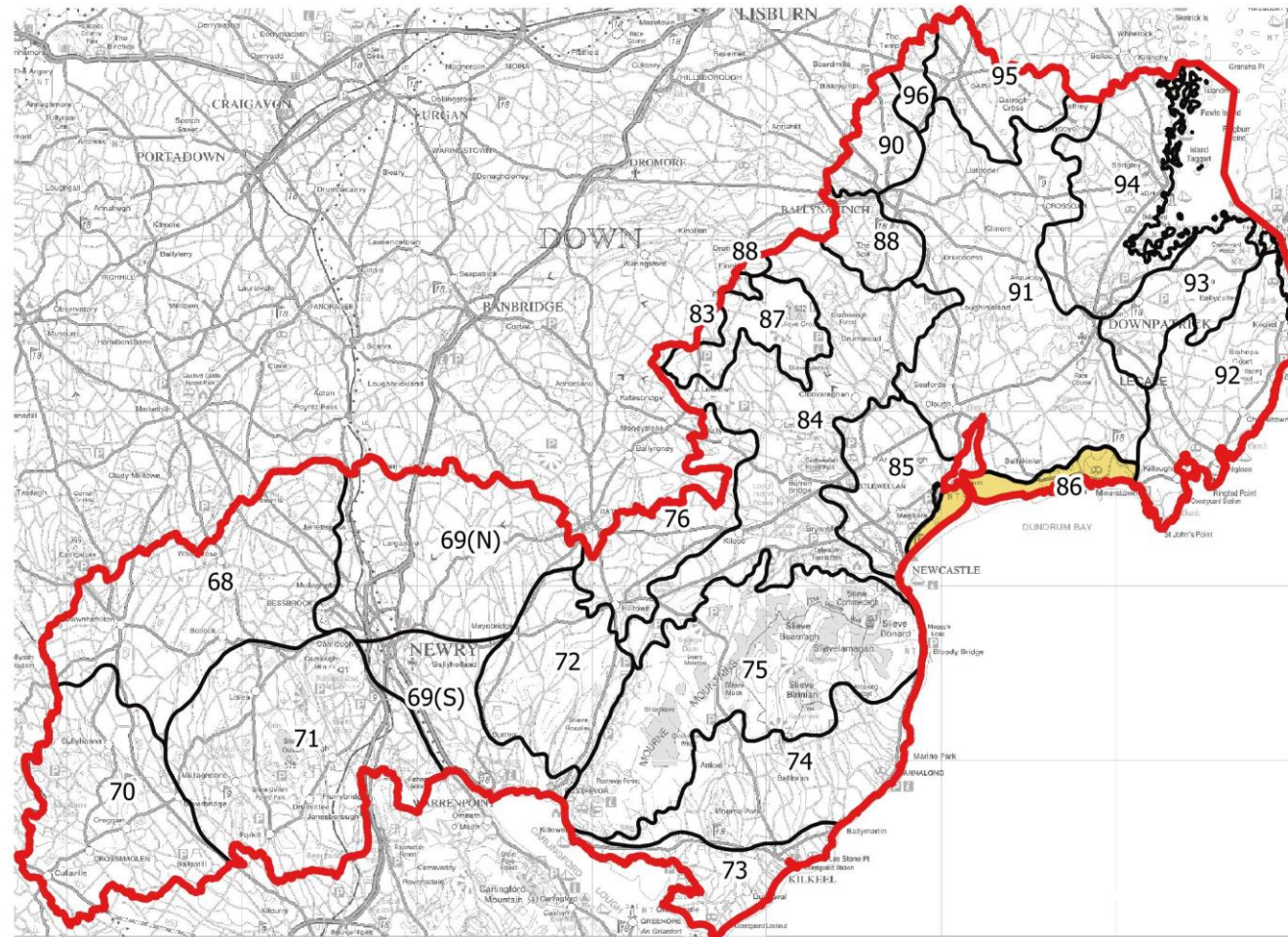
The detailed characteristics of each landscape character area are provided in Section 8 below.

8.0 LANDSCAPE CHARACTER TYPES AND AREAS

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| 3.1 DROMARA ELEVATED DRUMLIN FARMLAND (88) | 49 |
| 3.2 CASTLEREAGH ELEVATED DRUMLIN FARMLAND (96) | 54 |
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| | |
|--|------------|
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1. Coastal Dunes



Tyrella Coastal Dunes (86)

1.1 TYRELLA COASTAL DUNES (86)

Settlements: No settlements within LCA

Landscape Character

Key Characteristics

- Hummocky, grass covered coastal sand dunes backed by undulating, open farmland mostly of improved pasture.
- Long sandy beaches.
- Low, gappy hedgerows.
- Wind-swept and exposed landscape.
- Scattered modern housing and other development along the A2 coastal strip.
- Golf courses and caravan sites.
- Large conifer plantation at Ballykinler.

Landscape Description

Landform

The *Tyrella Coastal Dunes* is a strip of coastline which lies behind Dundrum (Outer) Bay on the south Down coast, between St John's Point in the east and Newcastle in the west. Inland, the area transitions from the undulating *Newcastle and Quoile River Lowland Drumlin Farmlands* to a flat and low lying coastal strip. Parts of the coast are dominated by sand dunes, some of which are vast and steep, while elsewhere pastures extend to the shore. A long sandy beach and the extensive mudflats at Dundrum Inner Bay together create a flat expanse which contrasts dramatically with the looming peaks of the Mourne Mountains. The beach becomes progressively stonier towards Newcastle. The flat coastal strip also contrasts with the undulating land of the *Quoile River and Newcastle Lowland Drumlin Farmlands* to the north and west.

Landcover

The hummocky forms of the dunes are predominantly covered in windswept Marram grass, inland of which are gorse, bracken and clumps of scrubby trees. To the rear of the dune systems, and in places extending to the coast is improved pasture and a significant amount of arable farmland. Fields are quite large, divided by low gappy hedges which in places have been replaced only by wire fencing.

There are generally few trees in this windswept coastal area, although clumps of pine characterise the dunes at Murlough, with woodland and coniferous forestry present around Murlough House and Abercorn barracks. The western part of the Murlough dunes is occupied by the Royal County Down golf course.

Settlement

Inland, farms and houses are well separated, with some substantial older farmhouses. The coastal area is the more developed part of the landscape. The main A2 road runs along the coast and is

bordered by a ribbon of housing and development. Close to Newcastle, caravan sites and industrial development add to housing of various modern styles which back the dunes. The greens of the Royal County Down golf course provide a further contrast in landscape character on the fringes of Newcastle. Abercorn barracks occupies a large site inland from the coast east of Dundrum Inner Bay. Clusters of telegraph poles and other vertical features stand out across the flat parts of the landscape near the coast.

Perception

This is an open landscape of wind pruned trees and hedges, with views to the sea and the Mourne Mountains, but one in which coastal development in places contributes to some fragmentation of landscape character.

Landscape Condition and Forces for Change

Landscape Condition

Much of the farmland appears to be of relatively good quality, supporting larger farms and some arable production. The condition of the landscape has been degraded by the spread of built development along the coastal road, the introduction of large static caravan parks, and the loss or degradation of field boundaries. Visitor facilities at Tyrella Beach are aging and not well integrated into the landscape, detracting from the natural character of the coastal dune system.

Forces for Change

Agriculture

The farming landscape appears productive and actively managed but susceptible to loss of structure through the loss or removal of hedgerows. Sensitive coastal habitats may be susceptible to effects from adjacent agriculture such as run-off or grazing.

Trees and Woodland

Small woodlands, tree clumps and stands of Scots pine are characteristic. The landscape would however be susceptible to non-native tree planting and the expansion of existing coniferous forestry.

Development

The area north of Newcastle may be subject to pressure for urban expansion and other development along the main A2 road corridor, with the potential for direct effects to the dune system or indirect effects to its setting.

Minerals

The landscape has not been subject to any large scale quarrying, and there is no evidence of pressure for such development in the future.

Tall Structures

The coastal landscape has been subject to some wind energy development, and pressure for such development may continue in the future. The open landscape is susceptible to intrusion from tall structures such as wind turbines.

Tourism and Recreation

The coastal area has been subject to significant pressure for recreational access and leisure development which may continue into the future.

Climate Change and Coastal Erosion

In the future this LCA may be particularly affected by climate change, with sea level rise and more intense storms potentially resulting in more frequent flooding, and with impacts to the important dune systems and other habitats. The general forces for landscape change relating to climate change and coastal erosion set out in Section 5.3, should also be referred to.

Landscape Management and Planning Guidelines

Key Sensitivities

Landscape sensitivity is increased by the visibility of this low coastal strip from the Mournes and the high ground which backs Dundrum Bay. The dunes are extremely sensitive to development and require careful management to avoid erosion and the loss of rare and interesting plants. The Murlough Nature Reserve and Murlough Area of Special Scientific Interest (ASSI), which includes heathland, lies within the 6,000-year-old sand dune system to the west of Dundrum. The sand dunes also fall within the Special Area of Conservation (SAC). The area to the west of Dundrum Bay is designated as part of the Mourne Area of Outstanding Natural Beauty (AONB), while the area to the east falls within the Lecale Coast AONB.

Guidance

Agriculture

- The conservation of hedgerows and other traditional features of the farming landscape such as walling and stone gateposts would help to reinforce the landscape pattern and character.
- Ensure that more intensive agricultural practices inland do not result in run-off which affects more sensitive coastal habitats.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.

Trees and Woodland

- The expansion of conifer plantations would lead to a change in landcover and landscape character. Plantations should be sited carefully, away from the dune systems.

- Existing areas of native woodland should be protected, while new native planting may assist with the integration of coastal development into the exposed landscape and should be encouraged.

Development

- Modern housing following the vernacular style of low, white-finished cottages would be easier to accommodate in the landscape than larger non-traditional housing types. Small, clustered settlements should be sought rather than infill along the coastal road which would lead to continuous ribbon development.
- Further development which intrudes into or compromises the remaining areas of dunes should be resisted, with further development concentrated inland from the coast.

Minerals

- Any level of quarrying development is likely to be highly intrusive in this exposed landscape, and there appears to be little capacity for the accommodation of such development.

Tall Structures

- SPG accompanying PPS18 assesses a high sensitivity to wind energy development.
- The open character, low height and small scale of landscape features results in capacity only for smaller wind turbines, of domestic or farm scale.
- Turbines would be best sited in the farmland inland from the coast, to avoid impacting upon views along the coastline.
- Turbines should be sited to avoid interruption of views to the Mourne Mountains from key viewpoints.
- Other tall structures such as masts and pylons have the potential to be very prominent, with the coastal strip most sensitive to this type of development, and siting of these features inland would be preferable.

Tourism and Recreation

- The design of coastal car parking areas should ensure they are well integrated into the landscape through their size, layout, the use of local materials, native planting and earth mounding.
- Caravan developments are an intrusive feature of parts of the coastal landscape, the future development of which should be carefully controlled to ensure they do not become a prevailing characteristic. Attention should be paid to landscape integration through appropriate siting, the use of earth mounding and planting, and the avoidance of uniform layouts where possible.
- Visitor facilities should be carefully designed to fit with the sensitive coastal landscape, and generally be small scale and unobtrusive to maintain the wild characteristics of the coastline.
- Further development for tourism and recreation should typically be sited inland from the coast.

Climate Change and Coastal Erosion

- It is likely that the sand dunes and salt marsh within this LCA will have an important role in countering the effects of climate change and sea level rise, protecting inland areas from flooding and storms. Maintaining the integrity of these natural systems, including protection from development, should be a priority.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- All 1,717 ha of the LCA is within the council boundary.
- grass and heath covered coastal sand dunes backed by flat, open farmland.
- wind-swept and exposed landscape with little woodland cover.
- few remnant patches of fen.

Key Sites

- SAC: Murlough
- ASSI: Murlough; Tyrella and Minerstown
- Nature Reserve: Murlough
- AONB: Mourne; Strangford and Lecale
- SLNCI: Ballyvaston; Rathmullan Point; Rathmullan West; and Tyrella/Minerstown



Dunes at Murlough National Nature Reserve near Newcastle.



Dunes at Tyrella Beach seen with visitor facilities.

Woodlands

Woodlands occupy around 3% of the land cover, comprising around 30 ha of broadleaved and mixed woodland, with the remaining 20 ha being conifer and woodlands of unknown composition. Woodland is present around Murlough Farm and Murlough House, and around the Mourneview Caravan Park, and there are several woodland blocks within the Ballykinler Barracks site and to the east of Scollogstown. At Murlough Farm and Murlough House, trees are present in blocks and along the avenue leading to the house. Species include Scots pine, Corsican pine, elm, lime, oak, beech and sycamore with rhododendron and blackberry forming an understorey.

Grassland and Arable

Improved pastures account for most of the land area behind the dune systems although there is a significant amount of arable. These habitats support limited biodiversity, indeed it is usually confined to the field hedges, however, hedges are generally poor in this windswept coastal LCA. These habitats may help support priority bird species such as **yellowhammer**.

Semi-natural grassland is rare and confined to small areas, for example along the cliffs of the raised beach to the east of Minerstown at Ballyvaston, and along embankments of the former railway (now the coastal path). Such sites have species-rich dry grassland with some locally rare species such as crested hair-grass and field madder. Some of these grasslands are notable for butterflies. (Grasslands also occupy dune systems - see below).

Heaths and Bogs

There are no lowland bogs remaining in the LCA.

Wetlands and Lakes

The largest area of **lowland fen**, to the south-east of Scollogstown at Rathmullan Lower-Ballynagallagh, shows evidence of very old cutting and some attempt at reclamation to give very wet pasture around the edge. Breeding lapwing have been recorded here as well as snipe. Elsewhere, small patches of reedbed and fen occur in the west of Rathmullan Lower and at Ballyvaston and have fringing carr.

Coastal

The LCA consists mainly of the largest and most important **coastal sand dune** system in Northern Ireland that stretches from Newcastle in the west to Minerstown in the east and includes the spits at Murlough and Ballylinler as well as the dunes at Tyrella. The mudflats and other habitats of Inner Dundrum Bay are also included.

The western third of the Murlough dunes is occupied by a golf course, and there are caravan parks along a section of the north eastern edge; the golf course has some small-scale mixed woodland planting, and most of the rough is of gorse and heather heath or dune grasses. The remaining dune habitat in the Murlough section receives protection by being part of the Murlough SAC and ASSI (it is also an NNR). The site is of international importance for its variety of dune habitats, comprises a

range of gravel ridges, a re-curved spit, dune systems, palaeosols and beach processes dating from between late glacial and modern times. There is an extensive range of coastal habitats, including scarce vegetation communities and rare plant species. In particular, the site shows a succession from strandline communities and bare sand, through dune grassland and heath to scrub and woodland.

Embryo and foredune communities are poorly presented here and there is a rapid transition behind the beach to semi-fixed and fixed dune grassland communities. Several notable plant species of the strandline and foredunes have, however, been recorded including yellow-horned poppy and sea bindweed. Scarce invertebrates, which are specialist of strandline situations, are recorded including the pill woodlouse, a small intertidal ground beetle, and a coastal carrion beetle. Ringed plover nest along the shoreline, although numbers have declined since the 1970s.

The dune grassland supports a good range of characteristic dune plants and includes a number of orchids including bee orchid and pyramidal orchid. Of particular note is a scarce plant association more normally found in southern Britain and characterised by an abundance of common restharrow, occasional wild thyme and bird's-foot trefoil. The Murlough dunes are the only known location for this association in Northern Ireland.

Inland the dune grasslands grade into extensive stands of mature heather heath. Much of this has become rather rank and invaded by bramble, bracken and an increasing amount of burnet rose due to a lack of grazing; this is being corrected through controlled grazing, including the use of ponies. Sea buckthorn is common, nevertheless it attracts nesting willow warblers and whitethroats and its berries provide food for wintering thrushes. Excellent lichen-rich heath is found in the dune hollows where underlying shingle ridges are exposed. The inland dune hollows and heathland areas support the **marsh fritillary butterfly** and a wide range of invertebrate species many of which are at the northern limits of their range.

The Ballykinler dunes have some similar plant communities to those of Murlough, but are less well researched. They are known to have rare species, including a woodlouse which at this location is near to its northern limit in Europe. In the past, Tyrella dunes had heavy recreational pressure which led to erosion of the dunes. Whereas pressures have not declined, NMDDC now manage the dunes; access from the road has been restricted and boardwalks enable people to walk through the dunes without eroding the vegetation cover, a similar strategy to that employed in the open access areas of Murlough.

A fringe of **coastal saltmarsh** communities is found on the shore of Dundrum Inner Bay. This supports a number of rare and locally rare species including lax-flowered lavender and parsley water-dropwort. However, near to Dundrum village, some saltmarsh has been lost to land-fill.

Dundrum Inner Bay has extensive **intertidal mudflats** and **subtidal sands and gravels**. The sediments are complex, but generally the south end differs from the northern end by a more pronounced freshwater influence and stonier sediment. This complexity gives rise to diversity of invertebrate species that provide an important food source for wintering birds. Dundrum Inner Bay is nationally important for wintering common scoter, greenshank and Brent geese.

East of Ballykinler, in addition to the beaches, rocky promontories and islands are also found which, with rock pools, have high floral and faunal diversity. They are also haul-outs for seals (**marine mammals**).

Key Issues

General actions for Priority Habitats and Priority Species are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: extremely low woodland cover of poor biodiversity value.

Actions:

- encourage planting of broadleaved woodlands through appropriate agri-environment and forestry grant schemes rather than shelterbelts that are of poor biodiversity and landscape value.
- improve biodiversity through relevant measures in agri-environment and forestry grant schemes to improve and extend the woodland cover; management plans for the woodlands around Murlough House and Murlough Farm should be directed toward their survival, through natural regrowth or planting of native broadleaf species.

GRASSLAND AND ARABLE

Issue: improved pastures and a considerable amount of arable land of low biodiversity value, with small areas of species-rich dry grassland.

Actions:

- maintain and improve field boundaries, especially hedgerows in more sheltered inland areas through relevant measures in agri-environment scheme, for example adoption of correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland and protect areas of species-rich dry grassland which support locally rare species.
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to farmland birds.

HEATHS AND BOGS

N/A

WETLANDS AND LAKES

Issue: the Priority Habitat lowland fen, fringed with carr, occurs at Ballynagallagh and Ballyvaston.

Actions:

- prevent further loss of fen through drainage, reclamation, land-fill and encroachment by scrub woodland; prevent dumping and fly-tipping and encourage removal of rubbish; divert the inflow of nutrient rich water from agricultural land into fens.
- promote and ensure compliance with existing good farming practices, guidelines and legislation so that water is not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip.
- monitor streams in relation to expansion of rural housing and associated septic tanks/sewage treatment plants.

COASTAL

Issue: this LCA contains the most important coastal sand dunes system in Northern Ireland, in addition to the Priority Habitats coastal saltmarsh, intertidal mudflats and subtidal sands and gravel.

Actions:

- management of Tyrella and Murlough coastal sand dunes should be directed toward protection from recreational pressures; restrict access from the road; provide boardwalks to prevent erosion of vegetation cover; exercise continued vigilance regarding the effects of trampling, erosion and expansion of facilities.
- protect heath from becoming rank and invaded through controlled grazing, including the use of ponies; reduce the extent of sea buckhorn.
- further research into the history and ecology of dune system communities, particularly at Ballykinler, as a key to future management.
- prevent loss of rare coastal saltmarsh communities from damaging activities such as land-fill and construction.
- protect intertidal mudflats from potential impacts of nutrient enrichment, land claim, coastal defences, dredging and human disturbance.
- protect subtidal sands and gravel from potential impacts of aggregate extraction, fisheries and physical disturbance.

Geological Characteristics**Overview**

This LCA lies within the region described in NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm'.

The *Tyrella Coastal Dunes* is a strip of coastline that lies behind Dundrum (Outer) Bay on the South Down coast, between St John's Point in the east and Newcastle in the west. The area is dominated by extensive sand dunes. Their hummocky forms are covered in windswept Marram grass backed by flat farmland which supports rough grazing. A long sandy beach and the extensive mudflats at Dundrum Inner Bay together create a flat expanse which contrasts dramatically with the looming peaks of the Mourne Mountains. The beach becomes progressively stonier towards Newcastle. Landscape sensitivity is increased by the visibility of this low coastal strip from the Mournes and the high ground which backs Dundrum Bay. The dunes are extremely sensitive to development and require careful management to avoid erosion and the loss of rare and interesting plants. A conservation area around Tyrella Beach controls public access, vehicular access, grazing pressure and recreational use of the dunes, ensuring that minimum damage is suffered. The Murlough National Nature Reserve and Murlough ASSI lies within the 6,000-year-old sand dune system to the west of Dundrum. The sand dunes also fall within a Special Area for Conservation (SAC). The area to the west of Dundrum Bay is designated as part of the Mourne Area of Outstanding Natural Beauty (AONB), while the area to the east falls within the Lecale Coast AONB.

Solid Geology

The area comprises 99% Lower Palaeozoic greywacke sandstones and shales, the remainder being Tertiary dykes and minor intrusives.

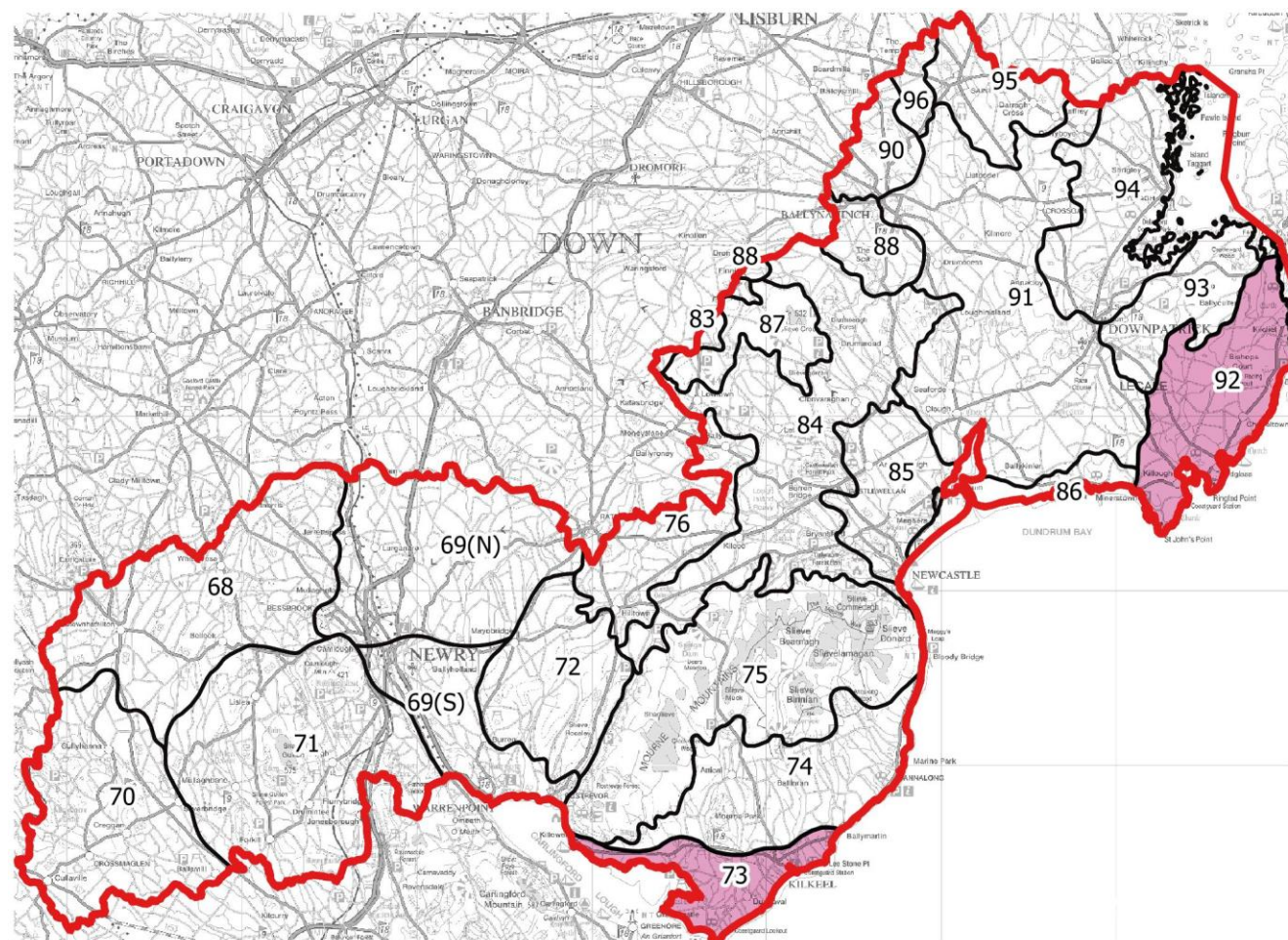
The greywackes vary from a few centimetres to a few metres in thickness with a large proportion of rock fragments and a fine-grained matrix. They are interbedded with thinner beds of siltstone or mudstone, commonly arranged as fining-up cycles.

Drift Geology

The coast of Dundrum Bay has been described by Orford (in Whalley et al. 1985) as the largest east coast post-Midlandian sediment sink. Navas and Malvarez (in Knight 2002) describe the bay system at Dundrum as comprising three units. The first of these is Dundrum inner bay, a back barrier environment with extensive tidal mud and sand flats. Outside of this is an extensive Holocene dune system that includes the Murlough and Ballykinler complexes separated by a tidal channel linking the inner and outer bays. The outer bay includes the beaches, intertidal and offshore areas, as well as an extensive ebb tide delta at the mouth of the outlet from the inner bay. Beneath the dunes are a series of parallel beach ridges that Orford (1985) suggested during the rapid Holocene transgression (10 000 - 6 000 years B.P.), when rising sea level rolled onshore around the bay a barrier of re-worked fluvial sediment. Recent work by Orford and Murdy (in Knight 2002) favours a model in whereby the gravel ridges and dune were built sequentially, as coupled units in which sand domination (a dissipative beach state) and gravel domination (a reflective beach state) alternated, rather than one in which the complete ridge system was deposited first and then covered by the dunes. The beach at Dundrum is also noted for its classic ridge and runnel morphology.

The drift geology map of the LCA highlights the extent of the sand dunes in the west of the area, and the presence of underlying raised beach deposits. In the east of the LCA there is a small extent of Late Midlandian till associated with ice that moved south eastwards across the region. The map also indicates a significant expanse of alluvial deposits on the coastal plain immediately inland of the Tyrella dune system.

2. Coastal Plain



Kilkeel Coastal Plain (73)
Ballyquintin and Lecale Coastal Plain (92)

2.1 KILKEEL COASTAL PLAIN (73)

Settlements: Dunnaval, Kilkeel, Killowen

Landscape Character

Key Characteristics

- Gently undulating, coastal lowland dissected by narrow rocky river valleys.
- Medium sized fields separated by hedgerows and occasionally distinctive granite stone walls.
- Open landscape with small woodlands and stands of trees associated with small coastal estates.
- Scattered mix of old cottages, farm complexes and new houses located along minor and main roads.
- Quarrying for sand and gravel has left many fields pitted with 'holes' and some more extensive (and prominent) areas of extraction.
- Coastal caravan parks.
- Open, expansive views across Carlingford Lough, and to the 'Kingdom of Mourne' and Mourne Mountains.

Landscape Description

Landform

The *Kilkeel Coastal Plain* extends from Killowen Point to Ballymartin. It comprises a gently undulating, coastal lowland between 0m and 30m Above Ordnance Datum (AOD). Towards the west the area comprises the narrow coastal strip between the steep sided Mourne Mountains and the sea, while to the east the transition from the 'Kingdom of Mourne' slopes is shallower. The land falls gently and flattens out towards the sandy coastline. The lowland is dissected by numerous rocky burns and by the larger Kilkeel River, White Water and Cassy Water. The rivers flow in deep, narrow channels strewn with rocks and boulders. They are not prominent in the wider landscape but are attractive local features.

Landcover

The steeper gullies, to the north of the character area, are often clothed with trees and scrubby vegetation. Medium sized pastures and occasional arable fields are separated by open banks, hedgerows and a few trees. In places there are distinctive, robust walls built from rounded granite boulders, but not so frequently as in the neighbouring Kingdom of Mourne, while towards the south walling stone is often blocky. The walls are often topped with hedges. There are small attractive areas of tall yellow reeds and marsh associated with the ponds and wetlands near to the mouth of the White Water and an extensive salt marsh at Mill Bay.

Development

There is a scattered mix of old cottages and more recent development along the A2 coastal road and numerous minor roads. Extensive ribbon development has blurred the fringes of Kilkeel and is

a prominent element in this open landscape. Sought after locations for new housing are those with views to the coast and hills, and new large houses are in places prominently sited to take advantage of views, while exotic garden planting is of a more urban than rural character. In less desirable locations, typically inland or close to the A2, there are occasionally derelict properties and fewer new houses.

Caravan sites are located along flat grassy headlands of the coastal fringe, including vast holiday parks at Cranfield Bay. Green Castle is a local landmark on Greencastle Point, and is one of a number of sites of archaeological interest in the area. The flat landscapes just inland from the coast are pitted with sand and gravel quarries, typically of a relatively small scale, many of which are disused. As ground level developments, their impact is limited by the undulating landscape, although fencing, machinery and quarry buildings can be unsightly.

Perception

There are open, expansive views across the coast, Carlingford Lough and mudflats, into the farmland of the 'Kingdom of Mourne' and the Mourne Mountains. Beyond the busy centre of Kilkeel, the caravan parks and away from the A2 corridor it is a peaceful rural landscape of calm lapping water, salty air and calling sea birds along muddy estuary sides.

Landscape Condition and Forces for Change

Landscape Condition

The landscape condition is mixed. Parts of the *Kilkeel Coastal Plain* are relatively degraded by ribbon development and by sand and gravel extraction. Caravan sites also have a significant landscape and visual impact, especially around Kilkeel and Cranfield Bay. The landscape condition improves in quality towards Greencastle. The farming landscape appears mostly well maintained, retaining a strong structure of hedges and distinctive stone walls.

Forces for Change

Agriculture

The farming landscape appears stable, however gradual changes to farming practices may result in the loss of traditional stone or hedged field boundaries as a result of field enlargements or lack of management. Sensitive coastal habitats may be susceptible to effects from adjacent agriculture such as runoff.

Trees and Woodland

Woodland cover within this landscape is very low, restricted to river corridors, former quarry sites or small clumps around farms and houses. It is unlikely that there would be pressure for significant commercial afforestation of this landscape due to the presence of relatively good quality farmland.

Development

The area has historically been subject to high levels of rural housing development. Access to the coast and an attractive setting with views to the Mournes and across Carlingford Lough may result in the continuation of this trend.

Minerals

The *Kilkeel Coastal Plain* includes numerous sand and gravel quarries, and there may be ongoing pressure for further minerals development here, including the degrading effect of poorly restored workings and views of derelict buildings and machinery.

Tall Structures

There are several existing and consented wind turbines in the LCA, and there may be further pressure for development owing to the coastal location of the LCA. The flat landscape is generally susceptible to intrusion from tall structures when interrupting views to the sea or the Mournes.

Tourism and Recreation

Coastal tourism development, particularly caravan parks, are a feature of the coastline of this LCA, with concentrations of caravans at Kilkeel and Cranfield. There may be continued pressure for such coastal tourism development.

Climate Change and Coastal Erosion

It is possible that this low lying coast will be subject to erosion and flooding in the future due to the effects of sea level rise and climate change, with implications for the numerous housing, tourism and other development types situated on or close to the coast. The general forces for landscape change relating to climate change and coastal erosion set out in Section 5.3, should also be referred to.

Landscape Management and Planning Guidelines

Key Sensitivities

The wetland and mudflat landscapes, the open coastal fringe, and the mouths of rivers are the most sensitive coastal landscapes. Inland, the narrow rocky river valleys are also sensitive to change, however the gently undulating farmland is generally able to accommodate housing and a level of minerals development where carefully integrated into the landscape.

Guidance

Agriculture

- Drainage of areas of fen and coastal mud-flats for agriculture and development should be discouraged in order to conserve these valuable habitats.

- Ensure that more intensive agricultural practices inland do not result in run-off which affects more sensitive coastal habitats.
- The management of hedgerows and stone walls is particularly important in this open landscape, where these elements provide valuable structure and a sense of enclosure.

Trees and Woodland

- Small scale native woodland planting to accommodate new housing or provide mitigation to existing or future minerals development would be appropriate in this landscape.

Development

- Existing ribbon development already detracts from local landscape character. Further development should be clustered in small coherent groups of buildings to reduce further intrusion and should be associated with tree planting.
- There is greater sensitivity to development at the coastal fringe, south of the A2, where views to Carlingford Lough would be adversely affected by frequent housing developments.
- New development and settlement growth should be directed inland, rather than along the coast.
- The area has a relatively high concentration of sites of cultural heritage significance including raths, tombs and religious sites, the settings of which should be considered in the siting of new development.

Minerals

- The restoration of abandoned sand and gravel pits, the removal of derelict plant and any fly tipping will provide new opportunities for recreation and habitat creation, or provide a positive setting for new development.
- The undulating landform has some capacity for further sand and gravel minerals developments, particularly if accommodated within bunding, woodland and if consideration is given to the design of entrances and the siting of quarry infrastructure.

Tall Structures

- SPG accompanying PPS18 assesses a high to medium sensitivity to wind energy development.
- The undulating landform would allow for a degree of small scale wind energy development.
- The more sensitive parts of the landscape are towards Carlingford Lough and close to the Mournes; there may be greater capacity for wind energy to the east of the LCA.
- Wind turbines and other tall structures should generally be sited inland to avoid intrusion to the more sensitive coastal landscape, sited to avoid views towards the Mournes from key viewpoints.

Tourism and Recreation

- Pressure from tourism including the continued expansion of caravan sites requires careful management to avoid detracting from the character of the coastline.

- The development of coastal sites for caravan development should be limited, with the development of inland locations likely to have less impact on landscape character.
- Strategic shelterbelts of tree planting, minor earth mounding and the avoidance of dense, uniform caravan layouts may assist with the integration of such developments into the landscape.

Climate Change and Coastal Erosion

- The protection of natural systems, such as the salt marsh at the mouth of the White Water River, is likely to contribute to resilience against coastal flooding.
- Limiting the amount of further coastal development will have benefits to landscape character and help mitigate against the possible effects of coastal erosion.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- All 3,500 ha of the LCA is within the council boundary.
- woodland scarce, less than 2% of the land cover, most of which is in parklands.
- grassland accounts for over 70% of the land cover, most in improved pastures.
- no heaths or bogs and few wetlands.
- coastal communities of major biodiversity value, in particular the mudflats and saltmarshes; internationally and nationally important bird populations in these coastal areas.

Key Sites

- SPA: Carlingford Lough
- ASSI: Carlingford Lough, White Water River
- Ramsar: Carlingford Lough
- AONB: Mourne
- SLNCI: Cassy Water; Mourne Park incorporating White Water River and Cranfield Moraine; South Down Coast; and Western Mournes Habitat and Geology incorporating Rocky Mountain



Coastal housing and tourist development near Kilkeel.



Views towards the Mourne mountains across coastal pastures.

Woodlands

Woodlands account for less than 2% of the land cover of the LCA. There are no coniferous forests and three-quarters of the woodland is in parklands; the remainder is mainly along the White Water.

Ballyedmond represents the most extensive example of parkland (**parkland and wood pasture**) and is divisible into distinct areas. The earlier eastern part of the park has mainly broadleaves scattered through it; these trees remain - particularly elm, beech and ash - together with an avenue of ash and sycamore. By the beginning of the twentieth century, the park had extended westward, but planting was mainly of conifers - principally Scots pine, larch, silver fir and Austrian pine. More recently the house and parkland have been restored and broadleaved trees planted along the northern edge. The diversity of the site is also increased by specimen trees around the house. Mourne Grange includes a mixture of nineteenth century planting that provides the core around the main house and boundary, recent planting within the extended grounds and semi-natural carr woodland. The core planting is a mix of broadleaves - that includes oak, beech, sycamore and elm - and conifers including Scots pine, Monterey cypress, Italian cypress, larch and western red cedar. Recent planting includes willow, alder and mixed plantations as well as individual trees. The carr woodland (**wet woodland**) is predominantly of willow with some birch, but on drier islands Scots pine, oak, ash and beech occur. Smaller parklands are located at Mount Loftus/Lisnacree House, Packolet near Kilkeel, and the present St Louis Convent; beech and Scots pine are most frequent.

Woodland along the White Water generally shows evidence of having been 'landscaped' - oak, elm, beech and sweet chestnut are found among the hazel, alder, ash and willow. The wet woodland along the White Water forms part of the White Water River ASSI.

Two areas of wet woodland on peat soil occur at Maghery (8 ha) and Newell's Cross (2 ha) that are dominated by willows (grey sallow and goat willow) with birch. These form a mix of tall trees and scrub.

Grassland and Arable

Grassland accounts for over 70% of the land cover of the LCA, the majority of which is in improved pastures. These have generally low biodiversity as a result of relatively intensive management. Some of the pastures are sown grasslands dominated by ryegrass and few other species - low biodiversity is in-built. Other grasslands have been converted to improved pastures through management. High levels of grazing or repeated cutting for silage, high inputs of fertilizers and slurry, and selective herbicides serve to reduce diversity of both flora and fauna. Arable land is scattered through the LCA, but is nowhere extensive.

Biodiversity in areas of improved pastures and arable is often concentrated in hedgerows. Indeed, they may be the most significant wildlife habitat over much of lowland Northern Ireland, especially where, as in this LCA, there are few wetland or woodland habitats. Hedgerows are a refuge for many woodland and farmland plants and animals. In this LCA **hedgerows** form the most common field boundary, although they are almost always reinforced with wire because they are for the most part unmanaged and gappy. Common hawthorn and whin are the most frequent species, but the number of woody species varies; many have only two shrub species whereas others may have four or five - perhaps indicating two periods of establishment - so that there is variation in biodiversity.

The number of treed hedges is relatively low, except near to the parklands (including Mourne Park in the adjacent LCA 74); ash, sycamore and alder are the most frequent species.

Rough grassland is scattered through the LCA, but particularly in the south, to the east of Kilkeel and near Greencastle. Some of this is associated with past history, for example, as former sand pit. An area of species-rich dry maritime grassland occurs at Greencastle Point. There are also patches of wet grassland that occur in low-lying land and generally associated with small fens or carr woodlands.

Heaths and Bogs

There are no areas of heath or bog in this LCA area.

Wetlands and Lakes

Wetlands are scarce in this LCA; apart from the carr woodland at Maghery and at Mourne Grange, there is a small fen-carr at Lisnacree and a fen at Drummanmore. There are also some small patches of reeds and wet grasslands alongside the lower White Water. However, these wetlands are of limited significance to biodiversity. The White Water **river** has records for **otter**, stream water-crowfoot and salmon.

Coastal

In the west, this LCA area overlooks Carlingford Lough in which several Priority Habitats are found - mud habitats in deep waters, **intertidal mudflats**, **coastal saltmarsh** and **lowland fen** around the mouth of the White Water as well as several sections of boulder coasts. The saltmarsh is of particular importance as Mill Bay supports the largest intact block of this rare habitat in Northern Ireland. Much of the lough therefore has conservation designations; Carlingford Lough ASSI affords protection to the area's habitats, marine invertebrates and bird life, with bird populations also safeguarded through the site's designation as an SPA and Ramsar site. Several small islands form part of an RSPB Reserve. Internationally important numbers of wintering light-bellied Brent geese occur within the SPA, and the site also supports internationally important numbers of breeding sandwich tern and common tern, although the tern populations have declined significantly in recent years; rosette terns have also bred here in the past. Nationally important numbers of great crested grebe, shelduck, scaup, red-breasted merganser, oystercatcher, redshank, greenshank, ringed plover, grey plover and dunlin have also been recorded in the winter.

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: maintenance and improvement of woodland diversity.

Actions:

- because most of the woodland is in parkland, enhance the biodiversity value of demesne/parkland woodland through control of grazing and felling; by encouraging planting of saplings of the standard trees; by preventing further loss of parkland; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna).
- further study of the history of demesne and other broadleaved woodlands particularly any ancient and long-established, as a key to future management.
- encourage control of grazing in broadleaved woodlands (along streams) to foster regeneration and if necessary, encourage replanting of canopy species.
- encourage new woodland planting (native broadleaves) through appropriate measures in agri-environment and forestry grant schemes, e.g. in field corners, areas reclaimed from sand pits.
- ensure that the few examples of wet woodland are retained and not lost through drainage or landfill.

GRASSLAND AND ARABLE

Issue: dominance of improved pastures of low biodiversity; hedgerows are poorly maintained.

Actions:

- maintain and improve field boundaries especially hedgerows. This may be achieved through adoption of relevant measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leaving saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilizers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- encourage adoption of less intensive management of pastures to allow reversion to more species-rich grassland and protect unsown areas of species-rich grassland.
- leave stubble over winter, rather than autumn ploughing, to increase food resources for farmland birds; spring sown cereals also encourage breeding birds.

HEATHS AND BOGS

N/A

WETLANDS AND LAKES

Issue: maintenance of water quality of rivers.

Actions:

- rivers and streams in this area flow through land predominantly in improved pastures; promote and ensure compliance with existing good farming practices, guidelines and legislation so that streams are not polluted by run-off from agricultural land or seepage from silage pits.
- continued monitoring of streams below industrial plants, including sand pits.
- monitor streams in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants.

COASTAL

Issue: LCA includes important coastal communities with national and internationally significant bird populations.

Action:

- ensure that recreational activities, including those associated with extensive caravan parks, do not lead to disturbance of coastal communities and bird life.

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm' (see Appendix B for information on drumlins).

The Kilkeel Coast is a gently undulating, coastal lowland dissected by narrow rocky river valleys that extends from Killowen Point to Ballymartin. It comprises gently undulating, coastal lowland between sea level and 30 m AOD. The land falls gently and flattens out towards the shallow, sandy coastline. The lowland is dissected by numerous rocky burns and by the larger Kilkeel River, White Water and Cassy Water. The rivers flow in deep, narrow channels strewn with rocks and boulders. They are not prominent in the wider landscape but are attractive local features. The steep gullies are often lined with trees and scrubby vegetation. Glaciofluvial deposits of the Mourne Plain and Cranfield complexes dominate the landscape. From an aesthetic point of view, the complexes add considerable topographic diversity within a small altitudinal range, accentuated by the drainage pattern which exploits inter-ridge depressions and dissects some of the ridges. The pockmarked landscape resulting from opencast pit abandonment detracts from the aesthetic appeal of the area. The extent of aggregate extraction indicates the high importance of the deposits as an economically valuable mineral resource.

The eastern coast of the LCA has been described by Orford (in Whalley et al. 1985) as typically characterised by coastal cliffs cut into till exposing a wave cut platform. Sub-aerial erosion of the cliffs supplies sediment to fringing sand and gravel beaches of no great extent as much of the sediment is too fine to remain in the beach system. Shoreline retreat rates are the highest for Northern Ireland and have a mean of ca 0.3m/y. Where a moraine axis crops out in the longshore cliff section, lag boulder beaches occur, though boulder armouring of the wave cut platform is common. Variations in the planform of the cliffs appear to be related to refraction controls imposed by variability in the composition of the glaciogenic material. For example, boulder lags can leave

remnant shoals that influence longshore beach development. Within Carlingford Lough, the coastal environment is described as a low energy estuary filling a structurally controlled (NW-SE fault), glacially scoured depression. The estuary mouth is shallow due to a ridge of carboniferous limestone which allows wave focusing of south westerly storms onto the northern shoreline where erosion of the glaciogenic Kilkeel plain has left several bays dominated by gravel beaches.

Solid Geology

Lower Palaeozoic greywacke sandstones and shales of the Hawick Group comprise over 90% of the area with 10% made up of Carboniferous Carlingford Group limestones and Tertiary dykes. The greywackes are commonly quarried as a source of aggregate; they are interbedded with thinner beds of red silty mudstone, commonly arranged as fining- up cycles, deposited in a deep marine trench. The southwestern tip of the area comprises Carboniferous Carlingford Limestone Group. These are typical Carboniferous limestones in being bedded and fossiliferous, and the stratigraphy is unique: ASSI 103.

Drift Geology

The drift geology of this LCA is dominated by elements of two major deglacial complexes that are important scientifically and for their sand and gravel resources.

The Mourne Plain Complex, 7.5km² in the east of the LCA, is located on the coastal belt between Killowen, Ballymartin and Cranfield Point, south of the Mourne massif. The relatively flat lying, undulating plain extends for 16 km along the coastal lowlands, with a maximum width of c5.5 km. The entire area is overlain by thick glaciogenic deposits of Late Midlandian age. Coastal cliff exposures reveal a minimum drift thickness of 15m. Deposits include elongate, arcuate morainic ridges which record ice margins during the last deglacial cycle ca15kyr B.P. Most of the Complex lies to the north in LCA 74.

The Cranfield Moraine (8.5km² in area in the centre and west of the LCA) is a conspicuous, round-crested ridge or nested set of ridges that forms a shallow, eastward curving arc between Cranfield Point and the lower slopes of the Western Mourne Mountains. Its arcuate form means that it is visible for a considerable distance and from many directions. In the northern part of the moraine the ridge flank slopes precipitously from the ridge crest, which lies 70m above the local topography immediately to the west. The moraine also extends northwards into LCA 74, with a very minor element in LCA 75.

The Drift Geology map for the LCA also highlights the significance of post-glacial raised beach deposits at the mouth of the Cassy Water, west of Cranfield Point and east of Kilkeel. Those west of Cranfield extend well inland and are fronted on their seaward margin by blown sand.

2.2 BALLYQUINTIN AND LECALÉ COASTAL PLAIN (92)

Settlements: Ardglass, Ballyhornan, Chapelstown, Killclief, Killough

Landscape Character**Key Characteristics**

- Open, exposed and windswept rocky shoreline.
- Gently undulating farmland with a flat coastal edge.
- Patches of gorse scrub and stone walls.
- Extensive sheep and cattle grazing.
- Numerous archaeological remains and a strong sense of history.
- Uninhibited views of the sea.

Landscape Description**Landform**

The *Ballyquintin and Lecale Coastal Plain* landscape character area is underlain by sedimentary rocks which have numerous Dolerite dykes aligned in a NE direction. The wider character area extends northwards from Newry, Mourne and Down onto the Ards Peninsula south of Cloughey. This is a predominantly low coastal landscape and its character is influenced by its extremely windswept position. The coastal topography varies from flat to gently undulating, until meeting the Lecale Hills towards the north. The low drumlins are less pronounced than many of the more inland drumlin dominated landscapes, and the wide inter-drumlin hollows often include minor watercourses, wetlands and small loughs. At the coast is a low, rocky shoreline with occasional small sandy beaches, rocky headlands and bays, including those at Ardglass and Killough.

Landcover

The landcover comprises improved pastures grazed by cattle and sheep and significant amounts of arable farmland, concentrated mostly towards the centre of the LCA. The fields of the more favourable farmland are larger than the more marginal pastures in the damper, poorly drained parts of the landscape. The farming landscape is relatively open, with low gappy hedges often containing gorse towards the coast, and wind pruned trees. Woodland cover is low, with occasional polygons of deciduous woodland, clumps of gorse and tree clusters. There is a small amount of coniferous and mixed woodland towards the south.

Development

The LCA includes a series of small settlements all of which are on or close to the coast strung along the A2; Ardglass is the largest. Bungalows, houses and farms are scattered across the landscape along the network of roads crossing the area, with visibility promoted by the open, relatively flat landscape. Houses in coastal areas are quite frequent, and they are sometimes prominently sited at the coastline. There is a mix of traditional farms and cottages, newer houses, frequent bungalows and occasional derelict stone buildings. The St John's Point lighthouse is a prominent feature of the coastline.

Perception

This is an open, windswept landscape with a remote character and sense of wildness. Visible heritage features including coastal fortifications, windmill stumps and churches contribute to a sense of history. There are extensive views out to sea from the coastal fringe, and distant views to the Mourne.

Landscape Condition and Forces for Change***Landscape Condition***

The farming landscape is in good condition, although in places field boundaries are poorly defined. The frequency of visible modern bungalow developments detracts from rural characteristics. Much of the area is within the Strangford Lough and Lecale Coast AONBs. The presence of landmarks, such as ancient graves, castles and windmill stumps make this a special landscape, worthy of conservation.

Forces for Change**Agriculture**

The farming landscape is mostly of good quality. There may be pressure for ongoing agricultural improvements resulting in the loss of traditional field boundaries or their replacement with wire fencing. Sensitive coastal habitats may be susceptible to effects from adjacent agriculture such as run-off or overgrazing.

Trees and Woodland

Trees and woodland are a minor landscape component. It is unlikely that the area would be subject to significant afforestation given the presence of good quality farmland.

Development

Pressure for housing and other development in the areas is relatively low, although the openness of the landscape tends to promote the visibility of houses and bungalows. There may be pressure for future housing development, and holiday or caravan developments in coastal locations taking advantage of sea views.

Minerals

Killough has historically been the site of clay extraction and a brick works, however much of this area is now designated as the Killough Bay and Strand Lough ASSI. No significant minerals development has been undertaken elsewhere in the LCA and there is no evidence to suggest pressure for future minerals related developments.

Tall Structures

The coastal location and good wind resource may result in ongoing pressure for wind turbine developments in this sensitive location. The flat, open landscape is sensitive to intrusion from tall structures.

Climate Change and Coastal Erosion

While the coastline is quite rocky, studies indicate that parts of the coastline may be susceptible to erosion, with the potential to impact upon the settlements and numerous properties situated close to the coastline. The general forces for landscape change relating to climate change and coastal erosion set out in Section 5.3, should also be referred to.

Landscape Management and Planning Guidelines

Key Sensitivities

Landscape management and planning should aim to retain the qualities of wildness and remoteness of this landscape and ensure the settings to various important natural and cultural heritage sites are retained through the careful control of housing and other development. The openness of the landscape means that the capacity to accommodate most types of development is quite low.

Guidance

Agriculture

- Traditional hedged field boundaries should be retained and their replacement with wire fencing discouraged.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.

Trees and Woodland

- Small copses, woodland polygons and planting of native woodland around farmhouses would enhance landscape character and assist with integrating development into the landscape.

Development

- The settings of archaeological features should be conserved and public access provided and managed to help prevent damage to the monuments or their settings.
- The architectural style and finish of any new buildings and their siting is of utmost importance in such a sensitive rural landscape. Modern housing following the vernacular style of low, white-finished cottages would be easier to accommodate in the landscape than larger non-traditional housing types.
- Coastal leisure and tourism related developments, particularly caravan sites, should be carefully integrated into the landscape with bunding and woodland planting, and caravans

sited unobtrusively. Large scales of such development may be difficult to accommodate in this open landscape.

- The coastal area is susceptible to overdevelopment of houses. Adequate separation should be maintained between any new housing developments to ensure there is no suburbanisation of the coastal fringe. New development and settlement growth should be directed inland, rather than along the coast.

Minerals

- The open character of this landscape is susceptible to intrusion from minerals development, but there may be greater capacity inland away from the coastal zone, where landform undulations and the addition of tree planting may provide effective mitigation. However, any large or tall structures associated with mineral workings are likely to be prominent.

Tall Structures

- SPG accompanying PPS18 assesses a high sensitivity to wind energy development.
- The landscape only has capacity for smaller scale domestic or farm scale wind turbines; large turbines would overwhelm the smaller scale features of this landscape.
- Turbines should appear as well separated and infrequent features of the landscape.
- Wind turbines would be best sited inland to avoid the interruption to views along the coast.
- The siting of turbines should give consideration to the effect of views to more distant features such as the Mournes from key viewpoints.
- Other tall structures such as masts and pylons have the potential to be very prominent in this landscape, with the coastal strip most sensitive to this type of development.
- Tall structures should be sited so as not to compete with features of historical importance such as St John's lighthouse.

Climate Change and Coastal Erosion

- Limiting the amount of further development between the A2 and the coast will have benefits to coastal character and help mitigate against the possible effects of coastal erosion.



The exposed Lecale coastline.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- In total, 7,133 ha (67%) of the LCA area is within the council boundary that occupies the southern tip of the Ards Peninsula below Cloghy and the east coast of Down District.
- flat to gently undulating coastal landform becomes more undulating and with scattered drumlins inland towards Downpatrick and the North Lecale Hills.
- large, flat areas between drumlins often have small loughs and wet pastures
- largely devoid of woodland.
- land cover is dominated by an intimate mix of arable and pasture fields.

Key Sites

- SPA: Strangford Lough; Killough Bay; and Outer Ards
- SAC: Strangford Lough; Lecale Fens; and Murlough

- ASSI: Tyrella and Minerstown; St. John's Point; Ballycam; Killough Bay and Strand Lough; Sheepland Coast; Killard; Strangford Lough Part 2; Loughkeelan; Ballynagross Lower; Tieveshilly; and Outer Ards.
- Ramsar: Killough Bay; Strangford Lough; and Outer Ards.
- NNR: Killard; and Ballyquintin.
- NR: Cloghy Rocks; and Granagh Bay.
- AONB: Strangford and Lecale
- SLNCl: Ardglass Bay; Ardglass – Cloghan Head; Ardglass – Ringfad Point; Ballybeg Fen; Ballymenagh Fen; Lecale Coast; Ringawaddy Reedbed; Sandy Point; St. John's Point; and Tyrella/Minerstown.

Woodlands

The LCA area has little woodland cover, with only around 1.5% of the area forested, including a few small patches around farmhouses. The largest blocks comprise recent planting of mixed and broadleaved woodland just to the northwest of Ardglass and south of Ballyculter.

Grassland and Arable

Grassland and arable fields are the most dominant land covers in the LCA and together occupy the majority of the land area. Most of this is an intimate mix of arable and pasture fields, but purely arable land is quite extensive in the centre stretching from Ardglass to Corbally. Also, in this central region there are extensive areas with only pasture fields; these are improved pastures of high productivity, but of low biodiversity. Drained wetland areas are common inland of Killough and Ardglass and north of Corbally; however, despite drainage they are still wet with rush-pasture fields northwest of Strand Lough classified as priority grasslands (**purple moor grass and rush pastures**) and forming part of the Killough Bay and Strand Lough ASSI. Other important, natural grasslands in the LCA include areas of maritime grassland at Benboy Hill and north of Phennick Point, which form part of the Sheepland Coast ASSI.

At least one farming enterprise in the Ballyhornan area introduced targeted measures to improve conditions for farmland passerines such as **yellowhammer** and linnets, resulting in increased breeding populations.

Heaths and Bogs

There is no peat bog left in the LCA area.

Wetlands and Lakes

There are several small patches of **lowland fen** remaining in the LCA; many former fens have been drained and converted into grassland, although some of this remains wet and has rushes (see above). To the west of Killough, three areas of wetland occur, comprising two wetlands with scattered scrub and, south of here, the Callycam ASSI, which is also part of the Lecale Fens SAC; this site contains several fen communities including one that is found nowhere else in Northern Ireland. Also, between Ballyalton and Bishops Court, several wetland areas occur, including

Ballynagross Lower ASSI, which includes diverse fen communities and a rich invertebrate assemblage. An area of fen west of Craigmalady forms part of the Sheepland Coast ASSI.

Open water and lakes are rare. The brackish Strand Lough is one of the few **saline lagoons** in Northern Ireland and forms part of the Killough Bay and Strand Lough ASSI; it supports grey club-rush and sea club-rush, both of which are of limited occurrence in Northern Ireland and are evidence of the saline influence. It is also important for over-wintering waterfowl, especially light-bellied brent geese, for which the Killough Bay SPA is designated. Most of the Loughkeelan ASSI is within the northern part of the LCA area. This site is also part of the Lecale Fens SAC and comprises a calcicolous fen surrounding a eutrophic, calcium-rich lough (**eutrophic standing water**) supporting interesting flora including extensive stonewort cover with soft hornwort also present.

Coastal

LCA 92 is characterised by its coastal position and there are significant areas with a relatively high biodiversity some of which are designated as Nature Reserves, National Nature Reserves, Areas of Special Scientific Interest, Special Protection Areas and Special Areas of Conservation. These include Killard ASSI and NNR, also part of the Strangford Lough SAC and SPA, where there are many plants uncommon or rare in Northern Ireland; particularly noteworthy is the display of orchids in early summer. The reserve is also notable for its butterflies such as meadow browns and common blues and the NI Priority Species wall Brown. Notable birds at this reserve include fulmar, sand martin, **yellowhammer**, curlew and snipe (**breeding waders**), with curlew and yellowhammer Red Listed as species of conservation concern in Ireland. Small pockets of **coastal saltmarsh** and grassland are also found at St. John's Point ASSI. Cloghy Rocks NNR is noteworthy for its populations of common and grey seals (**marine mammals**) as well as for its rich variety of shoreline birds.

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: exceptionally low woodland cover.

Actions:

- enhance biodiversity through appropriate measures in agri-environment and forestry grant schemes to extend woodland cover; management plans for woodland around farmhouses should be directed toward their survival, through natural regrowth or planting of native broadleaf species.
- enhance the biodiversity value of farmland woodlands by discouraging any further felling or pollarding; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna); ensure that any hazel scrub is not cleared.

GRASSLAND AND ARABLE

Issue: improved grassland and extensive areas of purely arable land dominate land cover in this LCA, particularly in the central region, but are of low biodiversity value.

Actions:

- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland and protect any unsown areas of grassland.
- maintain and enhance damp grassland by where, possible, restricting field or arterial drainage.
- maintain and improve field boundaries, especially hedgerows where they occur through adoption of relevant measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to farmland birds.
- ensure that further clearance of boulders does not occur on pastoral or arable land.

HEATHS AND BOGS

N/A

WETLANDS AND LAKES

Issue: a small number of Priority Habitat lowland fens and saline lagoons remain and require protection; Strand Lough features rare species of rush.

Actions:

- prevent further loss of fen through drainage, reclamation, land-fill and encroachment by scrub woodland; prevent dumping and fly-tipping and encourage removal of rubbish; care should be taken to divert the flow of nutrient rich water from agricultural land away from fens, so that sites do not become damaged by a change in species composition.
- carefully assess any proposals for arterial and field drainage near to fens so that the water table is not lowered to the extent that fens are affected.
- promote and ensure compliance with good farming practices, guidelines and legislation so that lakes and saline lagoons are not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip; ensure that further eutrophication does not occur as a result of nutrient-rich surface waters from surrounding farmland.
- monitor streams in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants; monitor effects of recreation, including fishing, on shoreline communities (reedbeds, fens etc.).

COASTAL

Issue: significant coastal areas of high biodiversity value are reflected in a number of national and international designated sites, National Nature Reserves and National Trust properties; the Priority Habitat coastal saltmarsh is also featured in this LCA.

Actions:

- ensure that NI Priority Species, rare plants and Red List Species are protected from factors such as new development, erosion, waste tipping and pollution e.g. at Killard NNR.
- cliff areas are vulnerable to development which may cause erosion - any new development needs to be carefully considered.
- protect rare coastal saltmarsh communities from sources of pollution and waste tipping in addition to damaging activities such as land-fill and construction.

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm'.

The *Ballyquintin and Lecale Coastal Plain* landscape character area is underlain by sedimentary rocks with numerous Dolerite dykes aligned in a NE direction. It occupies the southern tip of the Ards Peninsula below Cloghy and the eastern section of Down District. This is a predominantly coastal landscape and its character is influenced by its extremely windswept position. The flat coastal topography becomes gently undulating towards Downpatrick where it meets the North Lecale Hills. Throughout the area, there are low drumlins with wide open inter-drumlin hollows, often with fen and wetland. Much of the area is within the Strangford Lough and Lecale Coast AONBs. Geomorphologically, the most important element in the landscape is the Killard Moraine. This is a discontinuous belt of flat lying to undulating topography that runs for 10 km approximately parallel to the coast east of Co. Down south-westwards from Tara Fort, on the Ards Peninsula, to Killard Point and Ardglass. The ice-contact, glaciomarine apron occurs 1km to the southeast (seaward) of the Co. Down drumlin swarm that dominates the regional topography. The landscape is largely undisturbed by excavation or construction and is located in a largely rural area. The morainic belt and raised beach complex which truncates the gravel deposits occurs along the coastal zone. The subdued, undulating topography contrasts with the strong lineation of the drumlin swarm to the northwest and forms a stark topographic contrast with the rock outcrops that form an irregular framework along the coast.

The extension of the Outer Ards coastline in the north of the LCA has been described by Orford (in Whalley et al. 1985) as a series of crenelated bays hinging on eroding drumlins or Tertiary dykes that normally open to the north. A number of sediment cells can be recognised along the coast defined by littoral drift reversals related to shifts in wave energy. Good examples of swash ridge welding under fair weather conditions can be seen in the bays. The Silurian basement crops out along the nearshore and acts as a 'reef' type barrier to wave attack. A number of sites, such as the raised beaches on the headland at Ballyquintin Point, have been used to understand post-glacial sea level fluctuations. In the area to the south of The Narrows, Orford (1985) has described glacial sediment along the length of the coastline as the only barrier to the marine extension of Dundrum Bay into Strangford Lough. There are few drumlins along the coast and the numerous low cliffs are cut into glaciomarine till. The cliff sections often show basal exposures of an ice-moulded abrasion platform cut into the underlying Palaeozoic strata.

Solid Geology

Predominantly Lower Palaeozoic greywackes and shales with numerous minor igneous intrusions. 99% of the LCA comprises Lower Palaeozoic (Silurian) Hawick Group with Moffat Shale inliers: the northern 10% of the LCA comprises Gala Group, the remainder being Tertiary intrusives.

Tieveishilly ASSI (099) comprises a graptolite-bearing succession of shales that span the late Ordovician to early Silurian. The Tara Sandstone Formation and Kearney Siltstone Formation occur above. Exposures of siltstone and deformed lamprophyre occur at Kearney Point (ESCR Site 423).

The greywackes vary from a few centimetres to a few metres in thickness with a large proportion of rock fragments and a fine-grained matrix. They are interbedded with thinner beds of siltstone or mudstone, commonly arranged as fining-up cycles. The Hawick Group also have numerous NE-SW faults. In the central fault zone, there occur slivers of the predominantly Ordovician (and thus older) Moffat Shale Group. The NE -SW strike of the beds at outcrop is produced by faulting and belies the fact that minor folds occur within each fault tract. The greywackes are of sandstone grade and vary from a few centimetres to a few metres in thickness with a large proportion of rock fragments and a fine-grained matrix. The greywackes are commonly quarried as a source of aggregate.

A Tertiary age (55 million years) basaltic dyke swarm is exposed at St. John's Point (ESCR Site 86).

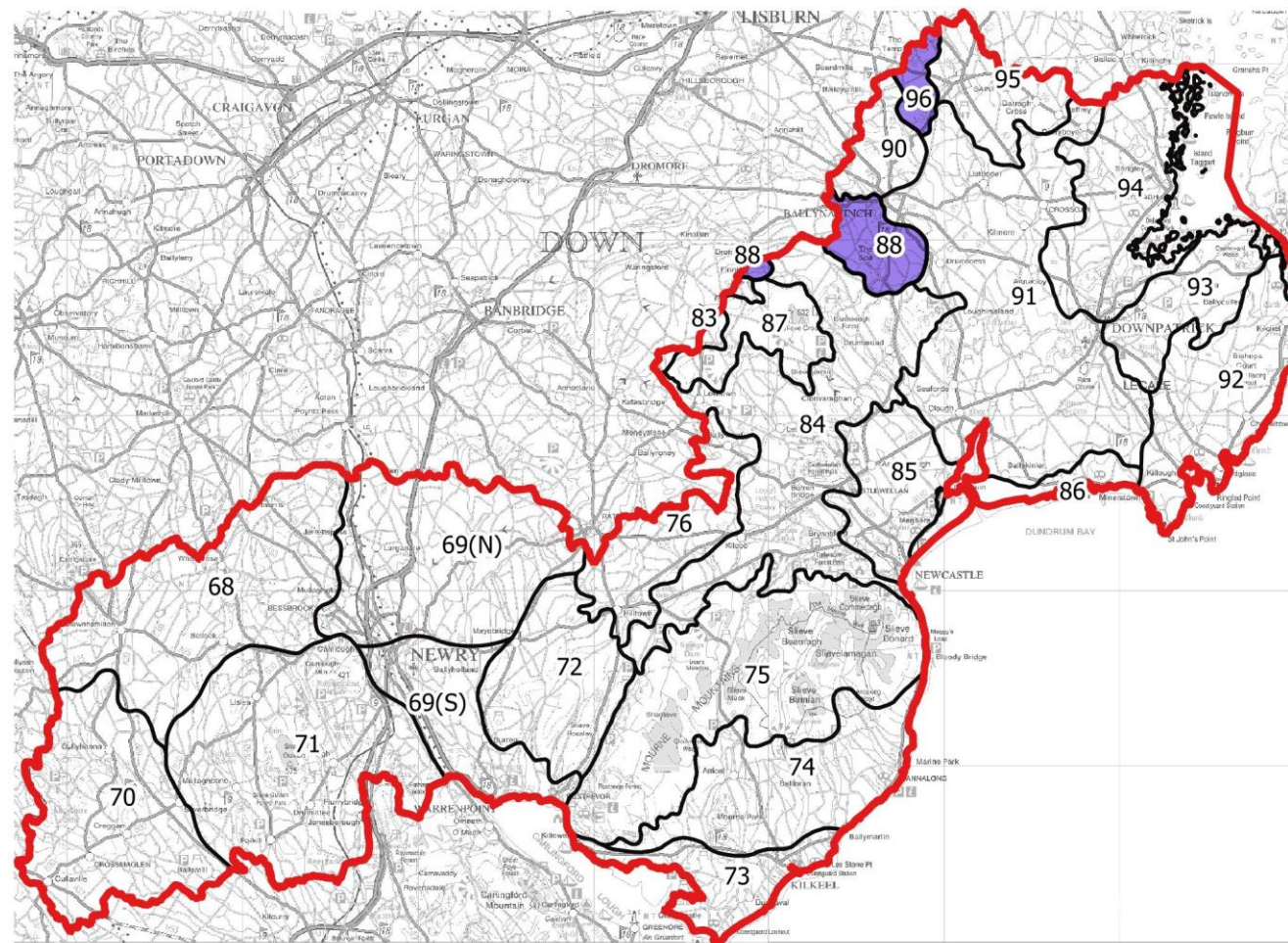
Drift Geology

The drift geology map for this LCA shows it to be predominantly underlain by Late Midlandian till associated with the large ice mass that was centred on the Lough Neagh Basin. This ice flowed south eastwards from an ice divide that lay approximately SW-NE along the line of the north Belfast Hills. Evidence for this flow direction is found in the orientation of the numerous drumlins that make up much of the landscape in the west of the LCA. However, within the LCA there are also significant outcrops of drift free bedrock that were scoured by the overriding ice. McCabe and Knight (in Knight 2002) have suggested that this area, and much of central Co. Down, was the site of an ice stream during the Drumlin Readvance that delivered a high sediment flux to the ice margin at areas such as the Lecale Coast to the southeast. This may go some way to explain the partial drift cover in the

region and the widespread occurrence of rock cored drumlins. Further information drumlins and inter drumlin hollows is provided in Appendix B.

The drift geology map highlights the presence along the coastal margin of the LCA, of a major deglacial complex either side of the entrance to Strangford Lough that is important scientifically and for its sand and gravel resources. The Killard point Moraine (13.5km²) illustrates the internal geometry of a coarse-grained, glaciomarine apron which fronts the drumlin swarms of east Co. Down. The deposits indicate a high subglacial sediment flux associated with drumlinisation and variability in the processes that operated at a grounded, tidewater ice front. It demonstrates that deglaciation of the Irish Sea basin was influenced by fast ice flow, marine drawdown of the lowland ice sheet over north-central Ireland during the last glacial cycle and tidewater processes. High relative sea level at this time is associated with deep isostatic deflection in the northern part of the Irish Sea basin. Dating of red marine muds interbedded in the outwash sequence indicates that these events occurred around 15 kyr B.P.

3. Elevated Drumlin Farmland



Dromara Elevated Drumlin Farmland (88)
 Castlereagh Elevated Drumlin Farmland (96)

3.1 DROMARA ELEVATED DRUMLIN FARMLAND (88)

Settlements: The Spa

The majority of this LCA lies within the Lisburn and Castlereagh City Council area. This assessment concentrates on those parts within Newry, Mourne and Down only.

Landscape Character

Key Characteristics

- Rolling, upland of larger scale uneven drumlins.
- Pastures of varied shapes and sizes enclosed by bushy hedgerows.
- The uplands of Slieve Croob providing a backdrop to views.
- Patches of scrub, clumps of gorse and marshy land provide contrasts in texture and character.
- Derelict farmsteads juxtaposed with recent dispersed development along straight roads on the lower slopes.

Landscape Description

Landform

The wider character area, including areas beyond the District Council boundary, is an elevated drumlin landscape to the east of Dromara with a rugged, relatively wild character and a rough and rocky texture. The summits are separated by a rolling plateau of marginal farmland and the rounded drumlin landform is broken by numerous rocky outcrops and clumps of gorse. Within the boundaries of Newry, Mourne and Down the landscape is lower with a smoother undulating landform, and forms a transition from the lower lying *Quoile River Lowland Drumlin Farmland* to the east, and the more rugged parts of this LCA further west.

Landcover

Pastures are of varied shapes and sizes and within Newry, Mourne and Down are mostly enclosed by full hedgerows. Trees in hedgerows and in clumps are common, contributing to a relatively enclosed character particularly at lower elevations, while there is a more exposed quality to the higher ground. There is patchy deciduous woodland, with the largest concentrations at Monalto House, Ballynahinch.

Development

Occasional derelict farmsteads and cottages are often juxtaposed with more recent bungalow development along principal roads, such as the B175 and A24. Occasional traditional white and red painted stone farmsteads remain. The small settlement of Spa is nestled amongst steep drumlins at the centre of the LCA falling within the District Council boundary. At lower elevations the wooded, undulating landscape serves to integrate new housing development into the landscape relatively well.

Perception

This is attractive, peaceful farmland, the qualities of which are enhanced through views to the more upland landscape of Slieve Croob towards the south.

Landscape Condition and Forces for Change

Landscape Condition

The wider Dromara uplands, beyond the District Council boundary, is mostly an area of relatively poor quality farmland, however within Newry, Mourne and Down the landscape condition is better, with higher quality pastures and intact traditional field boundaries.

Forces for Change

Agriculture

The farming landscape is productive and actively managed, but susceptible to loss of structure through the removal or neglect of hedgerows.

Trees and Woodland

Hedgerow trees and small woodland clumps contribute to landscape character. Ongoing development, farming practices or neglect may result in the loss of these important landscape features.

Development

This landscape has experienced a moderate demand for new rural housing development, and there is the risk that future developments risk undermining landscape qualities if too frequently sited along roads or inappropriately designed for its rural context.

Minerals

The landscape has not been subject to any large scale quarrying within Newry, Mourne and Down, but the presence of mineral resources potentially suitable for high specification aggregates, as indicated on GSNI mapping, may result in pressure for minerals development in the future.

Tall Structures

Wind turbines are a minor feature of the landscape, however there may be further pressure for domestic or farm scale wind energy developments.

Landscape Management and Planning Guidelines

Key Sensitivities

The more exposed part of the landscape to the north west is generally more sensitive to development than the more enclosed parts to the east. Views and protection of the neighbouring uplands of Slieve Croob is a feature of the landscape which should be a consideration in the siting of new development.

Guidance

Agriculture

- Reinstatement of hedgerows and hedgerow trees would enhance the landscape condition. Holly and rowan are characteristic species in local hedgerows. Priority should be given to the conservation and restoration of hedgerows and hedgerow trees which are prominent on local skylines.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.
- Waterlogged areas between drumlins and on fringes of loughs are vulnerable to drainage or runoff from adjacent farmland; agri-environmental schemes may encourage the conservation of these landscape features.

Trees and Woodland

- Small woodlands, stands of trees and shelterbelts should be maintained as features of the landscape.
- Woodland at McAuley Lake, a short distance south of the Spa, and its associated watercourses should be retained and enhanced for its contribution to habitat diversity and landscape character.

Development

- The use of native planting on the boundaries of developments and use of a limited range of building materials, for garden fences and walls, as well as for the buildings themselves, will improve the unity and integration of buildings within the countryside.
- Sensitive expansion of the settlement of Spa which maintains its drumlin setting may be preferable to the proliferation of new housing in the countryside.
- The siting of new housing on prominent drumlin tops and exposed slopes should be avoided.

Minerals

- The undulating landform could potentially accommodate a level of quarry development, however such development should not be sited on the upper parts of higher ridges due to their prominence and potentially degrading effect on landscape character.

- The effects of minerals related development should be mitigated through the inclusion of bunding and native woodland planting, with consideration given to the effects from gateways, views to plant and other ancillary elements.

Tall Structures

- SPG accompanying PPS18 assesses a high sensitivity to wind energy development.
- The landscape could accommodate a low level of smaller scale domestic or farm scale wind energy development where turbines can benefit from some screening by topography and trees.
- The siting of turbines on more prominent drumlin tops should be avoided.
- Turbines should be sited so as not to affect key views towards Slieve Croob or the more distant Mournes, and avoid impacts to craggy skylines.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- In total, 2,334 ha (34.1%) of the LCA area is within the council boundary.
- little woodland cover; largest area at Montalto House otherwise woodland consists of scrub and carr.
- Very little rough grassland mixed with some small patches of gorse.
- few lakes; but eutrophic standing waters represented.
- Little fen left, with small areas adjacent to waterbodies.

Key Sites

- AONB: Mourne
- SLNCI: McAuley's Lake

Woodlands

In general, there is little woodland cover in this LCA. The largest area of woodland is found at Montalto House. This large estate comprises several areas of conifer plantation, broadleaf and mixed woodland, with broadleaf and mixed woodland dominant. The estate woodland includes priority habitat **parkland and wood pasture**. The diversity of species includes Scots pine, beech, sycamore, oak, larch and cypress. The Priority Species **red squirrel** is recorded. Other small areas of woodland are scattered across this LCA, associated with other landscape features such as river channels, farms and golf courses.



Views to Slieve Croob from the more elevated and exposed parts of the landscape.



View across the Dromara Elevated Drumlin Farmland at its boundary with the Mourne and Slieve Croob Farmed Foothills.

Grassland and Arable

Improved grassland covers most of this LCA, with large areas of land used for agriculture. Arable land is also found within the LCA, around Ballymacarn to the south west of Ballynahinch, and some land on the Montalto Estate. Grassland provides important habitat for priority species, with records of lapwing and golden plover within this LCA. Irish hare which is a protected species has also been recorded.

Three small areas of priority grassland habitat are found within the LCA: one small area (0.77 ha) of mesotrophic grassland south-west of Ballynahinch and two adjacent areas south-east of Dromara, one of rush pasture (1.98 ha) and one of mesotrophic grassland (0.85 ha).

Farmland is an important habitat for wildlife especially decreasing farmland birds such as the **yellowhammer**, tree sparrow and linnet.

Heaths and Bogs

There are no areas of heath or bog in the LCA.

Wetlands and Lakes

There are two loughs in this LCA. McAuley's Lake is eutrophic (**eutrophic standing waters**) and is an important area for many species of ducks, also attracting wintering mute swans and occasionally whooper swans. There is also an area of predominantly ash and hazel woodland associated with this lake with a good range of shrubs and ground flora. There are several other loughs in this LCA which are not of great biodiversity interest due to a high degree of nutrient enrichment. Dunbeg Lough is partly within the LCA area and is fringed by **wet woodland**.

There are few areas of **lowland fen** left in this LCA; most have now developed into carr woodland. The small fens represent examples of a relatively rare complex of habitats that are under threat and have declined over the recent past. The source of the River Lagan lies just to the south of this LCA on the slopes of Slieve Croob near Dromara, and the **river** flows through a small area of the LCA. This section of the River Lagan has experienced some previous modification but has largely been unaffected by engineering and attracts grey wagtails, dippers and herons.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: low woodland cover of variable biodiversity value, but supports the Priority Habitat parkland and wood pasture and Priority Species red squirrel.

Actions:

- enhance the biodiversity value of demesne woodlands by discouraging felling; halt any further felling or pollarding; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna).
- encourage control of grazing in demesne woodlands to foster herb layer and regeneration and if necessary, encourage replanting of canopy species.
- further study of the history and ecology of demesne woodlands within the LCA, particularly any ancient and long-established, as a key to future management.
- enhance biodiversity through measures to improve and extend the woodland cover in relevant agri-environment and forestry grant schemes; management plans for demesne woodland should be directed toward their survival, through natural regrowth or planting of native broadleaf species.

GRASSLAND AND ARABLE

Issue: intensively managed pastoral and arable land of low biodiversity value dominates this LCA.

Actions:

- maintain and improve field boundaries, especially hedgerows, by following guidance and management measures in relevant agri-environment schemes, for example adoption of correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland and protect areas of rough grassland.
- maintain and enhance damp grassland which is important for breeding waders, by restricting field or arterial drainage.
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to farmland birds.
- ensure that further clearance of boulders does not occur on pastoral or arable land.

HEATHS AND BOGS

N/A

WETLANDS AND LAKES

Issue: this LCA features several Priority Habitat eutrophic standing waters, in addition to the River Lagan.

Actions:

- promote and ensure compliance with existing good farming practices, guidelines and legislation so that rivers and lakes are not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip.
- monitor streams in relation to expansion of rural housing and associated septic tanks/sewage treatment plants.

COASTAL

N/A

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region.

This LCA comprises an elevated drumlin landscape to the east of Dromara with a rugged, relatively wild character and a rough texture. The summits within the area are separated by a rolling plateau of marginal farmland, and the rounded drumlin landform is broken by numerous rocky outcrops and clumps of gorse.

Solid Geology

Lower Palaeozoic greywacke sandstones and shales compose 99% of the LCA, the remainder being Tertiary intrusives. The greywackes are of sandstone grade and vary from a few centimetres to a few metres in thickness with a large proportion of rock fragments and a fine-grained matrix. The greywackes are commonly quarried as a source of aggregate; they are interbedded with thinner beds of siltstone or mudstone, commonly arranged as fining-up cycles. Minor conglomerates and volcanic ash-beds (or bentonites) occur.

Drift Geology

The drift geology for this LCA shows it to be predominantly underlain by Late Midlandian till associated with the large ice mass that was centred on the Lough Neagh Basin. This ice flowed south-eastwards from an ice divide that lay on an approximately SW-NE axis along the line of the north Belfast Hills. Evidence for this flow direction is found in the orientation of the numerous drumlins that make up much of the landscape. However, within the LCA there are also significant outcrops of drift free bedrock that were scoured by the overriding ice. McCabe and Knight (in Knight 2002) have suggested that this area, and much of central Co. Down, was the site of an ice stream during the Drumlin Readvance that delivered a high sediment flux to the ice margin at areas such as the Lecale Coast to the southeast. This may go some way to explain the partial drift cover in the region and the widespread occurrence of rock cored drumlins. Further information on drumlins and inter drumlin hollows can be found in Appendix B.

The drift geology map also highlights the alluvial deposits associated with the small streams that form the headwaters of the Lagan in the west of the LCA. Peat deposits can also be found within the LCA to the east of Dromara.

3.2 CASTLEREAGH ELEVATED DRUMLIN FARMLAND (96)

Settlements: No settlements within LCA

The majority of this LCA lies within the Lisburn and Castlereagh City Council area. This assessment concentrates on the part within Newry, Mourne and Down only.

Landscape Character**Key Characteristics**

- Varied quality, from lush, improved pasture to marginal rough grazing.
- Small fields enclosed by hedges and stone walls create a pronounced landscape structure and texture.
- Pockets of scrubby woodland and rush marshland break up the uniformity of pasture.
- Houses and bungalows widely scattered throughout, often in prominent hilltop locations.
- The apparent scale of the landscape varies with the elevation of views; large scale derives from raised, long distance hilltop views; small and medium scale derives from low-lying views within a compact landform amid hedges and trees.

Landscape Description**Landform**

The wider *Castlereagh Plateau* is an extensive, elevated drumlin plateau extending northwards to Carryduff, Dundonald and the Castlereagh escarpment south of Belfast. A relatively small part of the LCA extends into Newry, Mourne and Down to the west of Saintfield, comprising a somewhat more elevated intrusion between the drumlins of the lower lying Ravernet River valley to the west and *Saintfield Lowland Drumlin Farmland* to the east. Close to the Newry, Mourne and Down boundary, north of the B6, the landform is of regular, smoothly undulating drumlins, however further south the landform becomes rougher and more irregular, with the low hill at Hillcrest the main topographic feature.

Landcover

Small fields are partitioned by hedges which rise and fall across the landscape, emphasising its contours. Stone walling is present in the rougher, central parts of the landscape. The hedges, although often unmanaged and gappy, imbue the landscape with a prominent structure and texture, occasionally enhanced by hedgerow trees. To the centre of the area within Newry, Mourne and Down this structure breaks down in an area of gorsy marginal pasture. Woodland cover throughout the character area is low.

Development

Houses and small to medium sized farms are scattered throughout the character area, but are typically quite well spaced, with trees, woodland and the undulating terrain helping to integrate such developments into the landscape. Roads, including the main A21 and B6Plot direct courses across the landscape, deviating around the larger drumlins where necessary. A high voltage power line cuts

across the landscape from north to south, however its routing away from the highest parts of the landscape helps reduce its prominence.

Perception

A quiet, rural landscape, the perception of which varies, from the enclosed lush and undulating pastures of the north to a more exposed rougher landscape to the south.

Landscape Condition and Forces for Change***Landscape Condition***

The area still provides a productive agricultural resource but neglect of hedgerows, woods and stone walling will impoverish the diversity and structure of the landscape. Overall the landscape retains an attractive rural character.

Forces for Change**Agriculture**

Robust hedgerows provide a good landscape structure to much of the LCA, however neglect or agricultural improvements may result in the loss of characteristic stone walling to wire fencing in the rockier parts of the landscape.

Trees and Woodland

Woodland cover in the LCA is very low, and loss of existing small copses and woodland clumps would adversely affect landscape character.

Development

The area has historically been subject to a relatively low level of demand for new housing, being quite remote from large population centres and more scenic landscape areas.

Minerals

There are no significant minerals developments within the LCA falling within Newry, Mourne and Down, however quarrying is present in parts of the wider *Castlereagh Plateau*, and future minerals development within the District Council area is a possibility.

Tall Structures

There is a very low level of existing/ consented wind energy development within the LCA, but there may be ongoing pressure for small domestic or farm scale schemes.

Landscape Management and Planning Guidelines

Key Sensitivities

The complexity of the landform presents opportunities for siting new developments unobtrusively, especially in combination with sensitive landscape planting. However, the desire for prominent locations for housing may result in conspicuous developments which cumulatively detract substantially from rural character. The maintenance of a robust field structure will assist with the integration of most development types.

Guidance

Agriculture

- The conservation of traditional farm structures and features, such as hedgerows, woodlands and farm buildings, will reinforce local landscape identity.
- Traditional stone walled boundaries typically found to the centre of the LCA within Newry, Mourne and Down should be retained and rebuilt where possible.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.
- Areas of rough grazing and scrub add some visual and habitat diversity to the landscape, and their retention could be encouraged through agri-environmental schemes.

Trees and Woodland

- An increase in woodland planting in less productive farmland, especially in low-lying areas, will improve the diversity and visual structure of the plateau landscape.

Development

- The use of native planting on the boundaries of developments and use of a limited range of building materials, for garden fences and walls, as well as for the buildings themselves, will improve the unity and integration of buildings within the countryside.

Minerals

- The landscape character is not highly susceptible to intrusion from minerals development, however any such development should be carefully integrated into the landscape with native woodland planting and take advantage of screening provided by the undulating terrain. Consideration should be given to the effects of gateways, views to plant and other ancillary elements.

Tall Structures

- SPG accompanying PPS18 assesses a high to medium sensitivity to wind energy development.

- The landscape has some capacity for smaller scales of domestic or farm scale wind turbine development if appropriately spaced and sited to avoid more prominent landforms.



The LCA viewed from the south of Saintfield.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- In total, 962 ha (11.8%) of the LCA is within the council boundary.
- undulating terrain, mostly over 100m in altitude, with drumlins and large, open inter-drumlin areas.
- improved pasture dominates the land use.
- woodlands are scarce, but fields are bounded by hedgerows.
- gorse (whin) scrub occurs as small pockets on higher ground.

Key Sites

- SLNCI: Brookvale Bog and Lough west of Saintfield; and Creevy Rocks and Loughs south west of Saintfield

Woodlands

Small areas of woodland are scattered across this LCA, with broadleaf, coniferous and mixed woodland present.

Grassland and Arable

Grassland dominates the LCA and occupies most of the land. The majority of this is improved pasture in extensive and continuous areas. These grasslands, used for dairy cattle and silage, offer little biodiversity of either flora or fauna; this can be found largely in the hedgerows around these fields. Grassland is an important habitat for **lapwing**, a priority species for which there are records within the LCA.

Large areas of intensively managed arable land occur in the south and north of the LCA. Higher ground runs in a belt across the centre of the LCA, between Lisbane and Saintfield, and is important for farmland birds with currently decreasing populations such as the **yellowhammer** and tree sparrow.

Heaths and Bogs

There are no examples of **lowland raised bog** remaining in the LCA; all have either been cut-over and colonized by trees, drained for agriculture or used as refuse tips.

Wetlands and Lakes

A few scattered wetlands remain in the LCA, including small loughs, fens and carr woodlands (**wet woodlands**). These habitats are often mixed at one site, which makes them some of the most important in the LCA in relation to biodiversity. Most of the **lowland fens** and carr woodlands occupy cut-over bogs. However, because of their small size these wetlands are vulnerable to drainage for agriculture and, being near to built-up areas and quarries, use as landfill sites.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: extremely limited woodland cover.

Actions:

- enhance the biodiversity value of all woodlands by discouraging any further felling or pollarding; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna); ensure that hazel scrub is not cleared
- encourage control of grazing in broadleaved woodlands to foster herb layer and regeneration and if necessary, encourage replanting of canopy species
- enhance biodiversity through appropriate measures in agri-environment and forestry grant schemes to improve and extend woodland cover
- management plans for remnant woodland should be directed toward their survival, through natural regrowth or planting of native broadleaf species

GRASSLAND AND ARABLE

Issue: improved pastures and arable land of low biodiversity value due to intensive farming practices.

Actions:

- encourage (through participation in agri-environmental schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland and protect unsown areas of grassland.
- maintain and enhance damp inter-drumlin areas by, where possible, restricting field or arterial drainage.
- maintain and improve field boundaries, especially hedgerows, through adoption of appropriate measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- leave stubble over winter, rather than autumn ploughing, to increase food resources for farmland birds: spring-sown cereals are beneficial to farmland birds.
- ensure that further clearance of boulders does not occur on pastoral or arable land.

HEATHS AND BOGS

Issue: all previous lowland raised bogs in this LCA have been lost to extraction, drainage or through use as refuse tips.

Actions:

- consider restoration of lowland raised bog habitats through appropriate water level management, removal of individual colonising trees and phasing out peat cutting – this applies particularly to formerly intact bogs affected by recent mechanical cutting.
- monitor use of cut-over lowland raised bogs to ensure that important micro-habitats are not lost, that the large tracts of land required by predator birds are not broken up by planting and other uses, and that the needs of over-wintering and breeding wetland birds are met.

WETLANDS AND LAKES

Issue: this LCA retains a few scattered wetlands, including Priority Habitats wet woodlands and lowland fens.

Actions:

- ensure conservation of wet woodlands by allowing succession to take place and installing fencing to prevent trampling; ensure that loss does not occur through drainage, reclamation, landfill or dumping/tipping.
- prevent further loss of fens through drainage, reclamation, land-fill, new woodland planting and encroachment by scrub woodland; prevent dumping and fly-tipping and encourage removal of rubbish; care should be taken to divert the flow of nutrient rich water from agricultural land away from fens so that sites do not become damaged by a change in species composition.
- carefully assess any proposals for arterial and field drainage near to fens so that the water table is not lowered to the extent that fens are affected.
- promote and ensure compliance with good farming practices, guidelines and legislation so that wetlands are not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip; ensure that further eutrophication does not occur as a result of nutrient-rich surface waters from surrounding farmland.
- monitor streams in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants.

COASTAL

N/A

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm' (see Appendix B for information on drumlins).

The *Castlereagh Elevated Drumlin Farmland* landscape character area occupies much of Castlereagh District and extends into adjacent areas to the west and south. The area is underlain by Silurian sedimentary rocks, but its geomorphology has been strongly influenced by glaciation which has created a compact rolling landform of small hummocks and narrow valleys. Its fertile soils create rich pasture which is the predominant land use of the area. Occasional areas of marsh also

help to break up the impression of uniform pasture. The elevation of the area allows views of the sea to the east and southeast and to Slieve Croob to the southwest.

Solid Geology

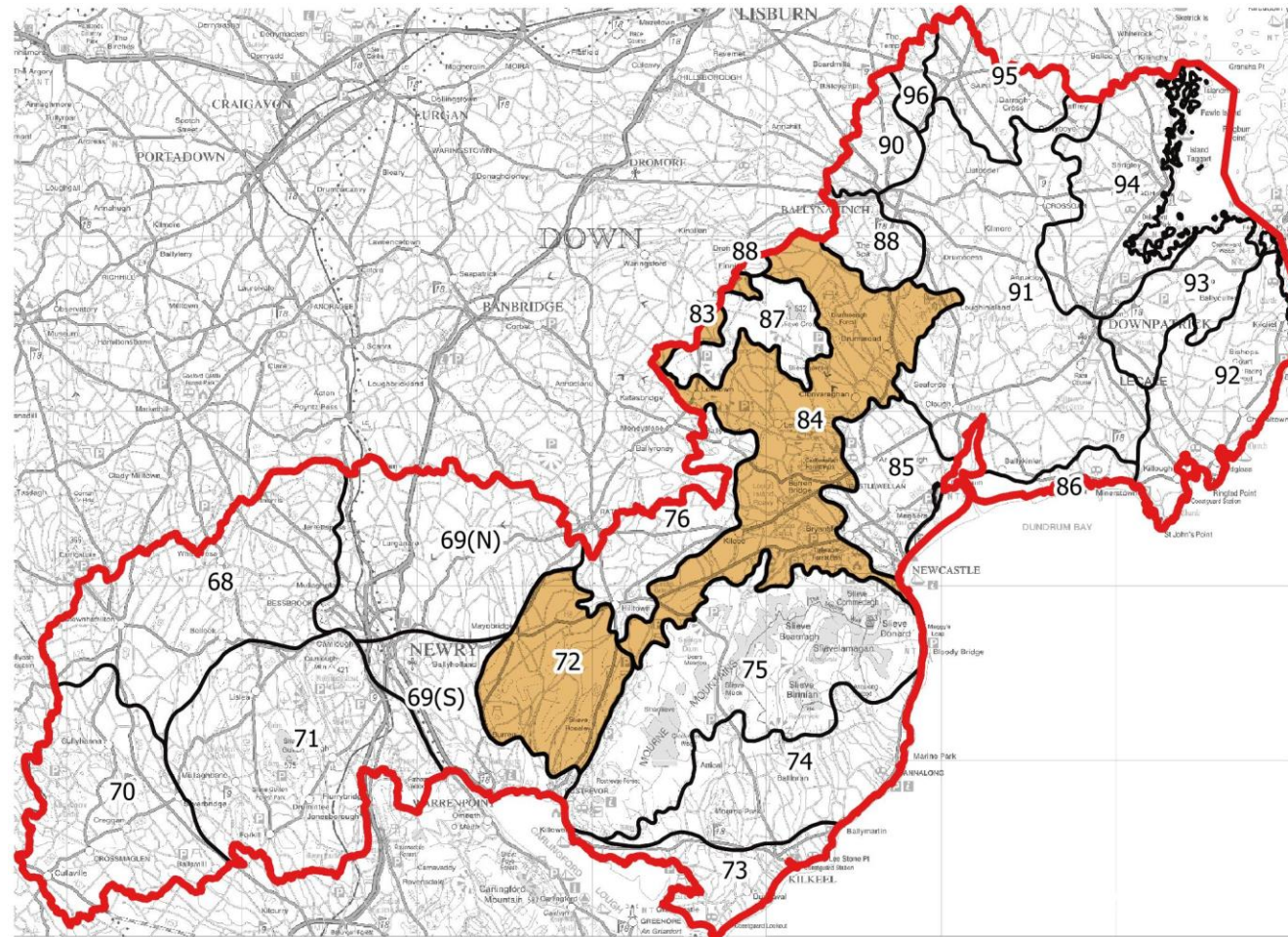
Lower Palaeozoic greywackes (sandstones) and shales with numerous minor igneous intrusions occur throughout the area. The LCA comprises Lower Palaeozoic (predominantly Ordovician Gala Group) greywacke sandstones and shales, Lower Palaeozoic Gilnahirk Group sandstones occur in the northern part, the remainder being Tertiary intrusives.

The greywackes are of sandstone grade and vary from a few centimetres to a few metres in thickness with a large proportion of rock fragments and a fine-grained matrix. The greywackes are commonly quarried as a source of aggregate; they are interbedded with thinner beds of siltstone or mudstone, commonly arranged as fining-up cycles. Minor conglomerates and ash-beds (or bentonites) occur. Within the fault zones, slivers of Moffat Shale (stratigraphically equivalent to Gala Group) have been brought into juxtaposition. One such NE-SW striking fault in the north of the LCA has brought Gilnahirk Group sandstones (also of Ordovician age but considered to be older than Gala Group) to the surface. The topmost formation of the Gilnahirk (Lessans Formation) and basal Strangford (Gala) crop out at ESCR Site 457, Yate's Corner.

Drift Geology

The drift geology map for this LCA shows it to be predominantly underlain by Late Midlandian till associated with the large ice mass that was centred on the Lough Neagh Basin. This ice flowed south-eastwards from an ice divide that lay approximately SW-NE along the line of the north Belfast Hills. Evidence for this flow direction is found in the orientation of the numerous drumlins that make up much of the landscape (further information on drumlins can be found in Appendix B).

4. Farmed Foothills



Slieve Roosley Farmed Foothills (72)
 Lower Slieve Croob Farmed Foothills (83)
 Mourne and Slieve Croob Farmed Foothills (84)

4.1 SLIEVE ROOSLEY FARMED FOOTHILLS (72)

Settlements: Mayobridge

Landscape Character

Key Characteristics

- An attractive, open landscape of windswept hilltops and more intimate valleys and footslopes.
- Rough, unfenced sheep-grazed moorland pastures on upper slopes; stone wall enclosed pastures below.
- Occasional trees in hedgerows on footslopes and in glens; treeless hilltops.
- Scattered small scale settlement around the edges of the hills and along the glens; a mixture of old cottages and farms.
- Long, open, panoramic views across hilltops to the dramatic horizon of the Mourne Mountains.
- The area is rich in archaeological remains such as raths, standing stones, graves and earthworks.
- Scenic qualities and importance to the setting of the Mournes is recognised through AONB designation covering most of the LCA.

Landscape Description

Landform

Between Newry and the Mourne Mountains the Slieve Roosley landscape comprises a group of open, exposed hills. These rise to 364m at Slieve Roe and, extending toward the south, the higher hills take the form of elongated ridges divided by steep sided river valleys, rising from the surrounding lowlands. The Rostrevor Glen and Kilbroney River together form a marked feature along the eastern boundary of the area, which is underlain by a complex geology of igneous and sedimentary rocks.

Landcover

The higher hills are used for sheep grazing and are characterised by rough, open, unfenced pastures of moorland grasses, gorse, bracken and sedges. The unenclosed tops contrast with a regular pattern of enclosed improved and semi-improved pastures on the lower hill slopes and foothills, with small fields enclosed by hedgerows and stone walls. In the more marginal locations, hedgerows become gappy and gorsy and the quality of pastures deteriorates with areas of scrub and rush pasture. There are small trees in hedgerows and tree clumps on the footslopes and in the glens but few trees on the hilltops. Coniferous forestry clothes the upper flanks of Thunders Hill, a short distance north of Rostrevor, and Crotlieve Mountain further to the north east, while narrow linear woodlands follow the rivers in the valley bottoms.

Development

Mayobridge is the main settlement while small and medium sized farms, cottages and houses are scattered around the lower foothills, typically occupying the tops of low ridges or hill sides to avoid the wetter valley bottoms, and consequently can appear quite prominently in the relatively open

landscape. Narrow roads are unfenced on the hilltops and enclosed by stone walls at lower elevations. They connect settlements and wind across the hills providing long, open, panoramic views to the dramatic horizon of the Mourne Mountains and into the intricate patchwork of the valleys below. Wind energy is a minor feature of some parts of the landscape, while quarry related development is prominent at Leode to the north east of Mayobridge.

Perception

This is an attractive open landscape of windswept, textured, wild hilltops and more intimate valleys and footslopes. The area is rich in archaeological remains such as raths, standing stones, graves and earthworks. On the upper slopes, historical townland boundaries are prominent in areas enclosed during the potato famine, adding interest and diversity to the landscape. The scenic qualities of the landscape, including its importance as part of the setting to the Mournes, is recognised through its inclusion within the Mourne AONB designation.

Landscape Condition and Forces for Change

Landscape Condition

The landscape condition varies, with areas of better quality pasture contrasting with the more degraded appearance of the lower hill slopes resulting from the relatively poor condition of the dry-stone walls and the presence of rush infested abandoned pastures. Quarry development in the northern parts of the LCA is a degrading feature.

Forces for Change

Agriculture

The strong contrast between the small enclosed lowland pastures and the unenclosed uplands is characteristic of this landscape, and would be affected by field boundary removals or their falling into disrepair. More marginal farmland may revert to scrub should traditional farming become unviable.

Trees and Woodland

There may be further pressure for commercial forestry on the more marginal farmland of the upper hill slopes, potentially affecting their upland characteristics and distinctive skylines.

Development

There may be ongoing pressure for new rural housing development at lower elevations. Housing developments can appear particularly prominent in this open landscape when sited on ridge tops and exposed slopes.

Minerals

Minerals extraction has been undertaken at the outer foothills of the LCA, and there may be further pressure for quarry expansion or minerals development elsewhere, which has the potential to be prominent in the more exposed parts of the landscape.

Tall Structures

The upland area may be an attractive location for wind energy development, or hill summits may prove suitable locations for radio and telecommunications masts.

Landscape Management and Planning Guidelines

Key Sensitivities

The whole area would be highly sensitive to change because of its openness, its valuable archaeological heritage, its importance as part of the setting to the Mournes, and the potential impact of development on views to the Mournes. The most sensitive areas are the hilltops and local skylines which should be retained free from wind turbines, tall structures, and blanket commercial forestry.

Guidance

Agriculture

- The restoration of field boundaries and stone walls as they fall into disrepair would prevent their permanent disappearance from the landscape.
- Monitoring and management of grazing may be beneficial to promote the ecological value of moorland and to ensure that it does not become degraded.

Trees and Woodland

- The planting of commercial forestry plantations on the open hill tops should be discouraged as it would be detrimental to the rugged landform and may mask the subtle transition between the upland grazing and stone-wall enclosed pastures below.
- Woodland along river corridors and glens contributes to habitat diversity and landscape character and should be retained and strengthened.

Development

- New house building would be better concentrated around existing areas of settlement at Mayobridge, Hilltown or Burren rather than allowing its further proliferation in rural locations.
- Native tree planting should be incorporated into new rural developments where sited on the more prominent hilltop or hill side locations.
- Modern housing following the vernacular style of low, white-finished cottages would be easier to accommodate in the landscape than larger non-traditional housing types.

- The open settings to archaeological features on hillsides should be conserved and the impact of any proposed change in land use or development requires careful consideration.
- The restoration of derelict stone cottages would help conserve traditional buildings within the area.

Minerals

- Quarry developments should be sited and designed to avoid disruption to skyline views, including views to quarry plant, or views to quarries on exposed hill slopes.
- Developments on lower hill slopes should incorporate native woodland planting to mitigate landscape and visual effects.

Tall Structures

- SPG accompanying PPS18 assesses a high sensitivity to wind energy development.
- Radio masts are a threat to the open summits and should be kept to a minimum. The clustering of masts may be preferable to their proliferation on multiple hill tops.
- The landscape is of too small a scale for significant commercial scale wind energy developments.
- A level of smaller scale wind turbine development could be accommodated on outlying hills and the lower hill slopes, benefitting from backclothing provided by higher hills from key viewpoints, and with sufficient spacing between developments.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier

Key Characteristics

- All 6,532 6,533 ha of the LCA is within the council boundary.
- woodlands cover about 4% of the LCA, predominantly in coniferous state forest.
- although broadleaved woodland is scarce, concentrations along the river valleys are of importance to biodiversity, particularly examples of oak woodlands.
- improved grasslands cover around 56% of the LCA area; these have low biodiversity value.
- upland grasslands occupy about 25% of the LCA area; these too are generally of low biodiversity.
- upland heathland, a rare habitat in Northern Ireland, has a significant presence in the LCA but is under threat.
- there are no significant bogs or wetlands in the LCA.



Looking to the higher uplands from the lower lying pastures in the northern part of the LCA.



Farming, housing and wind energy development in the upper parts of the Moygannon River valley.

Key Sites

- AONB: Mourne
- SLNCI: Aughnagon Quarry; Burren Lowlands incorporating Donaghaguy Reservoir; Carrickbawn Wood; Ghann River; Rostrevor River; Tamary; and Western Mourne Habitat and Geology incorporating Rocky Mountain

Woodlands

Woodlands cover around 4% of the LCA; 75% of this is in two parts of Rostrevor Forest. Ballymoney Wood in the south is predominantly a mix of Scots pine and Douglas fir although there are smaller areas of larch and lodgepole pine. At the southern end, adjoining Carrickbawn Wood (see LCA 69), beech dominates. On the western side of Crotlieve Mountain, Sitka spruce is dominant throughout. The eastern side, which comprised lodgepole pine and Scots pine has recently been felled. Outside of the state forest, coniferous plantations are scattered through the LCA on hill-and valley sides. These plantations are generally small, less than 0.5ha, and most frequently of larch.

Broadleaved woodland occurs mainly in the steep-sided valleys of the Kilbroney/Rostrevor, Ghan and Moygannon Rivers and some of their tributaries. Although many of these riverine woodlands appear natural, the mix of species suggests that they have been planted or modified; indeed some are associated with nearby parklands and large houses. For example, above Kilbroney House the riverside woodland has a diversity of tree species including ash, oak, sycamore, birch and alder, but also a dominance of beech, some Scots pine and Turkey oak that reveal a planted origin or 'landscaping'.

Along a tributary of the Moygannon above Ballyvally bridge is an oak woodland (**akwoods**), although ash and beech are scattered throughout and increase in frequency in the downstream section. The beech suggests that the woodland has been modified or was planted, but it has been largely undisturbed and has an abundance of mosses, liverworts, lichens and fungi. A similar oak wood is found further south along another tributary. There are also examples of **mixed ashwoods**. Some of these are natural mature hazel-ash woodlands or ash-alder-sycamore on meander scars whereas others are developing from scrub.

There are two relatively large parklands remaining in the LCA (**parkland and wood pasture**). Knockbarragh Park is around 13ha; the trees are concentrated in roadside fringes which variously comprise Scots pine, Austrian pine, a wide beech/oak 'plantation' on the eastern side merging into conifers around the house, and mixed oak, beech and pines. The park at Tamnaharry House is dominated by beech around its margins with birch, weeping ash and lime scattered through the lawns; elm, sycamore and ash line the river. Elsewhere parklands are small and tend to be located in the valley bottoms of the three main rivers. As described, the influence of the large houses has extended into the surrounding country, particularly the valleys. Beech is the most frequent species, but lime, horse chestnut, sycamore and ash are common together with more occasional conifers. Parts of the parklands were present in the 1830s and may represent long-established woodlands; however, some parklands have been reduced in size or lost.

There are recent records of **red squirrel** in woodlands within the LCA area, including on Crotlieve Mountain, and at Kilbroney and Leitrim Lodge.

Grassland and Arable

Grasslands occupy over three quarters of the LCA; of this about one third is in some form of rough grassland and almost all of that is upland grassland – a relatively high proportion for Northern Ireland. Much of the upland rough grassland is developed over quite shallow, humic soils with abundant boulders and rock outcrops. Whereas some of the grassland may be semi-natural, following clearance of woodlands many centuries ago, much is the product of management in the more recent past and present. For example, overgrazing and grazing at the wrong time of year has reduced former heather heath to a community of coarse grasses and sedges that is of generally low biodiversity. Sharp distinctions between heath and coarse grassland can be seen along some land ownership boundaries.

Improved pastures, two-thirds of the grassland cover of the LCA, have generally low biodiversity as a result of relatively intensive management. Some of the pastures are sown grasslands dominated by ryegrass and few other species – low biodiversity is in-built. Other grasslands have been converted to improved pastures through management. High levels of grazing or repeated cutting for silage, high inputs of fertilizers and slurry, and selective herbicides serve to reduce diversity of both flora and fauna.

Land classed as arable is scattered through the LCA, and has expanded in area in recent years as a result of increases in grass re-seeding in grazing fields- this has lowered biodiversity still further in areas of pasture.

Biodiversity in areas of improved pastures and arable is often concentrated in **hedgerows**. Indeed, they may be the most significant wildlife habitat over much of lowland Northern Ireland, especially where, as in this LCA, there are few wetland habitats. Hedgerows are a refuge for many woodland and farmland plants and animals. However, in this LCA stone walls are the dominant field boundaries in the middle and upper sections of the main river valleys and in the upper margins of the agricultural land. Hedges are more frequent in the lower sections of the main river valleys and in the north of the LCA. Hawthorn is the most common species, but in the mid-section of the main valleys rowan and hazel are important constituents both as shrubs and as trees. Hedges in the south have more woody species than those elsewhere in the LCA, but throughout there is a lack of management so that hedges are gappy. There is also evidence of field amalgamation.

Heaths and Bogs

There are no examples of lowland raised bog in this LCA and only a few remnants of thin, cut-over **blanket bog**; these are located on a fairly flat area south of Carmeen and on the summit of Slieve Roosley.

In contrast, **upland heathland** is more widespread although there have been small declines in its extent, and it is of varied type and quality. On the upper surfaces of the hills this heather dominated community tends to be wetter and denser whereas on the slopes the community is more open, partly in response to increased drainage and partly to heavier grazing. The different land ownerships and histories of grazing have led to some patchiness in the distribution of heath (see above). In its optimum condition, upland heath is of international importance because it is largely confined within Europe to the British Isles and the western seaboard of mainland Europe; it is relatively rare in Northern Ireland. It can be home to a diverse invertebrate fauna and to birds of prey as well as rare

mosses and liverworts; however, in this LCA there are only historic records of Priority Species like **curllew** from Wee Roosley, and no known recent occurrences.

Wetlands and Lakes

There are no wetlands or lakes of significance to biodiversity in the LCA. Apart from **otter**, there are no Priority Species recorded from the **rivers** even though water quality is generally good. Most of the rivers flow through land dominated by agriculture; many fields have additions of fertilizers and slurry and may be sprayed with herbicides and pesticides. Farms may also have silage pits. There are also some small industrial plants alongside the rivers.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: low woodland cover outside of State Forests and of varied biodiversity value.

Actions:

- enhance the biodiversity of demesne/parkland woodland through control of grazing and felling; by encouraging planting of saplings of the standard trees; by preventing further loss of parkland; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna).
- further study of the history of demesne and other broadleaved woodlands, particularly any ancient and long-established, as a key to future management.
- encourage control of grazing in broadleaved woodlands along streams to foster regeneration and if necessary, encourage replanting of canopy species.
- encourage planting of broadleaved trees through agri-environment and forestry grant schemes rather than the small conifer plantations which are of poor biodiversity and landscape value.

GRASSLAND AND ARABLE

Issue: low biodiversity of farmland; hedgerows poorly maintained.

Actions:

- maintain and improve field boundaries, especially hedgerows. This may be achieved through adoption of relevant measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leaving saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilizers, slurry, herbicides and pesticides;

provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.

- encourage (through participation in agri-environmental schemes) adoption of less-intensive management of pastures to allow reversion to more species-rich grasslands and protect known areas of species-rich grassland.

HEATH AND BOGS

Issue: loss of upland heathland and decline in its biodiversity.

Actions:

- promote membership of agri-environmental schemes through consultation with farmers and thereby.
- control grazing intensity on existing heathland to encourage development of heathland and of heather of different ages.
- control grazing intensity on some upland grassland to promote return to heathland.
- discourage 'reclamation' to pasture fields around the heathland margins.
- discourage afforestation.

WETLANDS AND LAKES

Issue: maintain good water quality in streams and rivers.

Actions:

- promote and ensure compliance with existing good farming practices, guidelines and legislation so that streams are not polluted by run-off from agricultural land or seepage from silage pits.
- continued monitoring of streams below industrial plants.

COASTAL

N/A

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm' (see Appendix B for information on drumlins).

Between Newry and the Mourne Mountains, the *Slieve Roosley Farmed Foothills* landscape comprises a group of open, exposed hills with a rugged profile. These rise to 364m at Slieve Roe and include the surrounding farmed foot slopes, which are dissected by river valleys. The Rostrevor Glen and Kilbroney River together form a marked feature along the eastern boundary of the area, which is underlain by a complex geology of igneous and sedimentary rocks. Key geomorphological elements in the east of the LCA are the glaciofluvial deposits of the Western Mourne complex. The moraines of this complex add topographic diversity to an area where the visual dominance of the Mourne mountains decreases rapidly westward and the drumlins around Rostrevor continue the trend of declining hilltop altitude towards the west and south, their clustered pattern and streamlined morphology contrasting with the isolated valley divides of bedrock highs. Glaciofluvial landforms in the rural, pasture-dominated landscape are generally intact and there are few excavations.

Solid Geology

The area is to the east of Newry and comprises 60% Lower Palaeozoic, 20% Mourne Granite, 10% Newry Complex Granodiorites. The remainder is made up of Tertiary dykes. Lower Palaeozoic greywacke sandstones were deposited in a deep marine environment and may have volcanic ash beds and conglomerates within. The western boundary of LCA 72 comprises an elongate outcrop (up to 1km wide) of Caledonian (probably Devonian - GSNI, 1997) Newry Granodiorite. The first and second phases of intrusion are present. The contact with metamorphosed Silurian is seen at Aughnagon Quarry (ESCR Site 419). Tertiary-aged dolerite and felsite dykes occur throughout the area: most strike NW-SE within the Lower Palaeozoic succession. Far fewer dolerite dykes are observed cutting the Mourne granites, suggesting that the main emplacement of the Tertiary dykes was pre-granite.

Mourne Granites (Tertiary): These Tertiary granites are known to have been intruded in five phases. G4 and G5 are present on the eastern edge of LCA 72 as the area borders the Mourne Mountains. The G4 - G5 contact can be seen at the possible ASSI of Kilbroney River (ESCR Site 105).

Drift Geology

The drift geology map for this LCA shows a mix of drift free uplands dissected by a series of rivers draining south-westwards towards Carlingford Lough. The drift map for the area shows the lowlands to be underlain by ice of a late-glacial readvance that was deflected westwards around the flank of the Mourne Massif before swinging eastwards to pass down Carlingford Lough. However, more recent fieldwork sponsored by the Department of the Environment (NI) has identified a series of important moraine ridges within the southwest draining valleys. These form part of the Western Mourne Moraine and Drumlin Complex that occupies the valleys of the Ghann, Moygannon and Kilbroney Rivers, as well as the Glen River and the upper Shanky's River. All contain recessional moraines associated with Late Midlandian ice retreat. They stand above the lowlands southwest of the Mourne Mountains that are characterized by south eastward trending drumlins. These are related to Late Midlandian fast ice flow into Carlingford Lough, through the western valleys of the Mourne Mountains and

across the lowlands to the ice limit at Cranfield Point. This probably indicates rapid drawdown of marine-based ice. Chaotically distributed hummocks and occasional kettle holes on the lower slopes of the drumlins and in inter-drumlin areas record local ice stagnation. Other areas of the Complex occur in LCAs 69, 75 and 84.

4.2 MOURNE AND SLIEVE CROOB (84) and LOWER SLIEVE CROOB (83) FARMED FOOTHILLS

Settlements: Castlewellan, Clonvaraghan, Drumaroad, Kilcoo, Leitrim

This assessment and guidance also applies to the small areas of the Lower Slieve Croob Farmed Foothills (83) within the Newry, Mourne and Down District area

Landscape Character

Key Characteristics

- Higher area of undulating foothills on the fringes of Slieve Croob and the Mourne Mountains.
- Strong geometric field pattern reinforced by stone walls and gorsy hedges.
- Sheep grazing dominates.
- Stands of beech and pine.
- Patches of gorse.
- Small farms and traditional stone or whitewashed cottages alongside newer housing.
- Roads form strong lines in the landscape.

Landscape Description

Landform

The *Mourne and Slieve Croob Farmed Foothills* wrap around the northern fringes of the massive summits of Slieve Croob and the Mourne Mountains. The area includes the town of Castlewellan which lies between these two major upland areas at a height of 100m above sea level. The characteristic rugged scenery, which includes some distinctive hill summits, rocky outcrops and patches of gorse, has been moulded from intrusive igneous rocks, primarily granites.

Landcover

There is a strong landscape pattern of geometric pastures. In some locations this is reinforced by sturdy stone walls, while elsewhere are hedgerows, often with gorse, and becoming gappy at higher elevations. Stands of wind-blown pines, patches of woodland, scrub and gorse add further texture to the landscape. Sheep grazing dominates, especially on upper slopes. Large conifer plantations clothe the lower slopes of the Mournes in this area. They include the Castlewellan and Tollymore Forest Parks and the plantations on the slopes above Newcastle.

Development

Traditional scattered whitewashed dwellings, new housing, farms and red painted outbuildings stand out clearly against the greens and browns of the landscape. The traditional buildings are small in scale and are well integrated within the upland landscape while newer buildings are often larger and more prominent. There are relatively high numbers of derelict stone buildings.

Settlement is distributed densely across the valley sides, linked by a network of small roads, which follow local ridge-lines and valleys. Quarries are present, both working and disused, and

4.2 MOURNE AND SLIEVE CROOB (84) and LOWER SLIEVE CROOB (83) FARMED FOOTHILLS

archaeological remains are commonplace including cashels, raths, forts and the famous Legananny Dolmen. Wind turbines are a feature of the landscape, often prominently sited on low hilltops.

Perception

Numerous elevated viewpoints give dramatic views over the surrounding lowland landscapes of the *Newcastle and Quoile River Lowland Drumlin Farmlands*. The landscape has high scenic qualities, with the smaller scale, rugged and textured landscape contrasting with the simpler large scale surrounding uplands of the Mournes and Slieve Croob. Most of the LCA is included within the Mourne AONB.

Landscape Condition and Forces for Change

Landscape Condition

The landscape is in good condition and much of it is designated as an Area of Outstanding Natural Beauty in recognition of its scenic importance. Stone walls are mostly in good repair, although field boundaries tend to deteriorate with higher elevation. However, the proliferation of large modern dwellings and abandonment of traditional cottages poses a threat to landscape character. The Forest Parks absorb many visitors but there is pressure on roads, pedestrian routes, car parks, hostels, educational centres and caravan sites during summer months.

Forces for Change

Agriculture

Rough grazing and scrub provides diversity of habitat and contributes to the characteristic textured landscape. Loss of these areas to improved pastures would detract from landscape character, as would loss of the dense pattern of stone walls and hedges. More marginal farmland may revert to scrub should traditional farming become unviable.

Trees and Woodland

Commercial forestry is a feature of the landscape at Tollymore and Castlewellan. Marginal upland pastures may be subject to pressure for commercial forestry, adversely affecting the rugged character of these areas. Small tree clumps and specimen trees are important features potentially susceptible to loss.

Development

The area is subject to moderate pressure for housing development. Rural housing is not yet overly prevalent in the landscape, but this may change with increased levels of development in what is a relatively open and exposed landscape.

4.2 MOURNE AND SLIEVE CROOB (84) and LOWER SLIEVE CROOB (83) FARMED FOOTHILLS

Minerals

Historically the landscape has been subject to relatively small scale quarrying activity, while some larger scale quarrying has been undertaken at Edendarriff. The exposed, craggy landscape is generally susceptible to disturbance and intrusion from quarrying.

Tall Structures

Wind turbines are seen quite frequently, and can be prominent when sited on exposed parts of the landscape such as small hill tops and ridges. Important skylines, the open landscape and relatively small landscape scale are susceptible to further intrusion from wind turbines and other tall structures.

Tourism and Recreation

The landscape is subject to some pressures for leisure and tourism development, particularly towards the south closest to the Mourne which includes Tollymore Forest Park, and at Castlewellan which includes purpose-built mountain biking trails. There may be ongoing demand for tourist facilities and holiday accommodation.

Landscape Management and Planning Guidelines

Key Sensitivities

Landscape sensitivity is high; the area forms the immediate setting to the uplands of Slieve Croob and the Mourne and is part of the Mourne AONB. Field boundaries are a critical component of the landscape pattern and merit conservation, while development should be in keeping with the relatively small scale of this exposed, rugged landscape.

Guidance

Agriculture

- The existing pattern of field boundaries should be maintained and replacement by wire fencing alone avoided.
- Larger styles of farm building have the potential to be visually intrusive in this open landscape, and should be of an appropriate scale, with effects mitigated by native woodland planting.
- The less intense management of more marginal pastures could be encouraged through agri-environmental schemes.

Trees and Woodland

- There appears to be little capacity for significant expansion of commercial forestry in the area. Commercial forestry would be more suited to valleys, hollows and lower hill slopes rather than affecting the craggy, textured, upper slopes.

- The edges of upland forestry could be enhanced by irregular planting of deciduous and coniferous species to create varied edge and age profiles.
- Stands of beech and Scots pine are features of the landscape which should be retained and their eventual replacement should be planned.

Development

- Modern housing following the vernacular style of low, white-finished cottages would be easier to accommodate in the landscape than larger non-traditional housing types.
- Further new developments would be best sited at existing concentrations of settlement rather than being allowed to proliferate in the countryside.
- New rural houses should be sited so as to limit their impact on the various scenic viewpoints available within this landscape area.
- Stands of beech, Scots pine, and other native species should be used to assist with integrating new developments into the relatively exposed landscape.

Minerals

- Any quarrying activity would be best accommodated on the lower hill slopes only, well-integrated into the landscape with native woodland planting, and with due consideration to views to plant, equipment, gateways and other ancillary features.

Tall Structures

- SPG accompanying PPS18 assesses a high to medium sensitivity to wind energy development.
- Wind energy developments should be small scaled and well-spaced so as not to appear as prevalent features of the landscape.
- Turbines should be sited to avoid impacts to key views towards the Mourne and Slieve Croob.
- Eastern parts of the LCA, close to the *Quoile River Lowland Drumlin Farmland*, have a greater capacity for wind turbines in comparison to the more scenic parts of the landscape between Slieve Croob and the Mourne.
- The low hills of the LCA may be identified as sites for the siting of telecommunications masts. The scale of the landscape is suited only to smaller masts, which should not be allowed to proliferate on hill tops.

Tourism and Recreation

- Tourism developments, such as caravan parks, should not be sited in exposed locations, and should be well integrated into the landscape with native woodland.
- The design of facilities for tourism should respond to the upland characteristics of the landscape, being of relatively small scale and using materials and building designs which integrate with the rugged, semi-upland landscape character.



The Farmed Foothills landscape seen with the backdrop of the Mournes to the south.



View south west along the valley of the Shimna River.

Biodiversity Profile

Biodiversity profiles for LCA 84 Mourne and Slieve Croob Farmed Foothills and LCA 83 Lower Slieve Croob are provided separately below.

LCA 84 Mourne and Slieve Croob Farmed Foothills

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- In total, 14,940 ha of the LCA is within the council boundary.
- a topographically diverse area with drumlins, isolated rocky hill masses, flat-floored valleys and the lower northern slopes of the Mournes.
- lowlands dominated by improved pasture with a few small fens.
- hill masses with acid grassland intermixed with patches of gorse; slopes of Mournes with mix of acid grass and heather and some gorse.
- forests dominate the eastern border of the LCA in Bohill, Castlewellan and Tollymore – Donard.
- significant contribution of former estate woodland and parkland to these forests.

Key Sites

- SAC: Eastern Mournes
- ASSI: Shimna River; Castlewellan Lake; Ardglass; Black Lough (Down); and Western Mournes and Kilfeaghan Upper
- Nature Reserve: Bohill Forest
- AONB: Mourne
- SLNCl: Altnadua Lough; Altnadua Lough; Annesley Demesne; Ardglass; Ballymagreehan Quarry; Bohill Grasslands; Burren, Shimna and Trassey Rivers; Loughran's Lane; Moneycarragh River; Seaconnell; Tannaghmore Reservoir; Tullyree; and Western Mournes Habitat and Geology incorporating Rocky Mountain

Woodlands

Around 9.5% of the LCA area has woodland cover. Outside of the major forests, there is little broadleaved semi-natural woodland in this LCA. Bohill Forest NNR has a tiny area of deciduous woodland, comprising holly, oak, birch, rowan and hazel that have regenerated since the site was clear felled in the past. This small NNR was established to protect the Holly Blue butterfly, once considered rare in County Down but now known to be more widespread. Management provides the sunny clearings that the butterfly favours. Approximately 40 ha of the forest has been selected for restoration as an ancient woodland site and is classified as **oakwood**, a NI Priority Habitat.

4.2 MOURNE AND SLIEVE CROOB (84) and LOWER SLIEVE CROOB (83) FARMED FOOTHILLS

Other areas of semi-natural broadleaved woodland are confined to a few patches of willow and alder carr on fen (**wet woodland**) and of hazel coppice on rocky areas or stream sides, such as around Dunmore Mountain, including areas within the Black Lough (Down) ASSI.

At Castlewellan Forest there is a great diversity of woodland habitats; the modern plantations are an intricate mix of small plantings of species (stands of conifers and of mixed hardwoods) rather than large sweeps and there are remnants of plantations pre-dating state acquisition in 1967. In addition, there are long-established woods and parkland trees (**parkland and wood pasture**) - at the western end of the lake there are stands of oak, beech and ash; open grown oak at the north end of the lake; and some of the parkland trees date from 1740-60. Castlewellan is also the site of the National Arboretum.

Tollymore Forest also has areas of broadleaves and parkland. Here too, the modern planting is a complex of small plantings of conifers (larch, Douglas fir, lodgepole pine and Sitka spruce) and of mixed hardwoods (beech, ash, sycamore and oak), but there are also remnants of the former estate planting, especially around the present car parks and along the river (oaks, beech, sycamore, sweet chestnut). There is also an arboretum and trial plots. Tollymore thus has a great diversity of tree species and woodland habitats.

Castlewellan and Tollymore Forests are extensive and include a range of habitats so they also have a number of records for Priority Species; these include **bats**, **red squirrel**, **otter**, and the **marsh fritillary butterfly**.

On the eastern edge of the LCA at Castlewellan and to the north of the town, there are a number of smaller estates and parklands with a diversity of tree species including broadleaves (oak, ash, elm, lime, beech, sycamore and horse chestnut) and conifers (including Scots pine, Monterey cypress, Wellingtonia and firs). Whereas some of these parklands are well maintained and have regeneration of trees, others have a general air of neglect, are not regenerating and indeed there has been felling.

Coniferous forest accounts for two-thirds of the woodland in the LCA. Castlewellan and Tollymore Forests are very diverse in conifer species, as is the state forest at Bohill, although Corsican pine is a clear dominant in the Tievenadarragh part of Bohill Forest. The LCA area includes the northern section of Drumkeeragh Forest where Sitka spruce is dominant and accompanied by Scots pine, Norway spruce, lodgepole pine and other more occasional conifers. This woodland is largely unsuitable for broadleaved trees and it is entering its second rotation as a productive conifer woodland. However, some areas have been planted with birch and rowan. In addition, the LCA area includes the lowest part of Donard Forest; there are some mature broadleaves, including oaks, from the former estate/parkland and modern mixed broadleaved planting, but the majority of the forest here is Douglas fir, Corsican pine, Scots pine and larch.

Elsewhere in the LCA, private coniferous plantations are small, around half a hectare, and of larch, Sitka spruce and Scots pine; they are often planted adjacent to farmsteads.

Grassland and Arable

Grasslands account for over three-quarters of the land cover, two-thirds of which is in improved pasture. Land classed as arable, including grass re-seeds, has increased in area in recent years, and is widely scattered. However, in damper areas, for example in reclaimed wetlands and in upland

margins, pastures have a high rush cover; nevertheless, improved pastures are intensively managed and have low biodiversity. **Hedgerows** can provide some biodiversity to improved pastures and arable land; however, in this LCA field boundaries formed by hedges are poorly maintained, often extremely gappy and with few trees. In many parts of the LCA, for example south of Castlewellan, the field boundaries are stone walls.

Rough grazing is found in three main parts of the LCA area. Along the southern border altitude increases at the foot of the northern slopes of the Mourne. Here soils become more humic and some slopes are rocky; acid grasslands intermix with heather partly in response to physical conditions but also related to the past grazing intensity - more heavily grazed areas have less heather. Through the centre of the LCA area, from Carrivmoragh Mountain in the north to Tullynasoo Mountain in the south, there is another belt of acid grasslands intermixed with patches of gorse on rocky uplands with thin humic soils. Thirdly, in the northeast, rough grassland is particularly associated with damp valley floors between drumlins, although species rich dry grassland occurs alongside Bohill NNR and on nearby Bishop's Mountain to the east of here, where it occurs within gorse scrub. Throughout the LCA, individual fields of rough grazing occur as a result of low levels of management, and provide rare examples of **lowland meadows**, of both dry and damp types; an example is at Knocksticken. A former fen meadow at Upper Tullyree has recently been lost to development to the north of Tullyree Hill. There are small areas of enclosed priority acid grassland habitats, for example small fields either side of Drumboy Road near Loughrans Lane Ends.

Heath and Bogs

There are no remaining peat bogs in the LCA, all have been cut-over and have developed into fen/fen-carr, or have been drained and converted into grazing, or have been used as land-fill sites. Keenans Bog and Bighouse Bog are two small examples of cut-over bog which have developed into scrub of birch, alder and willow.

Wetlands and Lakes

Small **lowland fens** are scattered through the LCA, including in flat valley floors, as for example along the stream flowing west from Dunbeg Lough and adjacent to some small loughs. Black Lough (Down) ASSI is a large, site with a diversity of habitats including not only fen and open water but also rough grassland, some of which is species rich, and heath. The fen has developed in an elongated valley and consists of areas of open water, bottle sedge swamp, fen dominated by bogbean and other areas of more diverse fen that support rare vegetation communities and species. Priority species include **marsh fritillary butterfly**. Some fens are gradually being colonised by willow trees, as at Drumboy Hill. Ballydrumman Fen has various habitats from dry grassland to species rich fen, although there appears to have been a loss of rushy areas in recent years. There are notable species of sedges and bog mosses.

There are several man-made lakes and reservoirs in the LCA, but these are of low biodiversity interest. Altnadua Lake (**mesotrophic lakes**) is an exception; it is an unspoilt example of a mid-altitude lake with alternate leaved water milfoil, reddish pondweed and white water lily - all species that are sensitive to nutrient enrichment. Water lobelia, a rare species usually confined to upland lakes is also recorded here. Swamps, fens and marshes surrounding the lake are generally narrow, but also unspoilt; species include many-stalked spike rush another more typically upland species,

and a stand of great fen-sedge which is unusual in this part of Northern Ireland. There has been some land-fill of carr woodland nearby. Castlewellan Lake supports intensive angling and other amenity activities, but retains its unspoilt upland character. Large amounts of quillwort, a species threatened in Northern Ireland by nutrient enrichment, are found in deeper water. The rare upland species water lobelia has also recently been recorded.

Rivers and streams in the area flow through an LCA dominated by improved pasture - there are few records of Priority Species

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: woodland is predominantly coniferous cover of low biodiversity value, however, there are valuable areas of Priority Habitat wet woodland, oakwoods, and parkland and wood pasture with associated Priority Species.

Actions:

- enhance the biodiversity value of broadleaved woodlands by discouraging felling; halt any further felling or pollarding; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna).
- encourage control of grazing to foster herb layer and regeneration and if necessary, encourage replanting of canopy species.
- further study of the history and ecology of broadleaved woodlands within the LCA, particularly any ancient and long-established, as a key to future management.
- ensure conservation of wet woodlands by allowing succession to take place and installing fencing to prevent trampling; ensure that they are not lost through drainage, reclamation, landfill or dumping/tipping.
- improve biodiversity through measures in agri-environment and forestry grant schemes to improve and extend the woodland cover; management plans for demesne woodland should be directed toward their survival, through natural regrowth or planting of native broadleaf species.

GRASSLAND AND ARABLE

Issue: low biodiversity value of improved grasslands and arable, however areas of rough grazing provide rare examples of the Priority Habitat lowland meadows; hedgerows are poorly maintained.

Actions:

4.2 MOURNE AND SLIEVE CROOB (84) and LOWER SLIEVE CROOB (83) FARMED FOOTHILLS

- maintain and improve field boundaries, especially hedgerows where they occur through relevant measures in agri-environment schemes, for example adoption of correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland and protect unsown areas of grassland.
- maintain and enhance damp lowland meadows by, where, possible, restricting field or arterial drainage.
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to farmland birds.

HEATHS AND BOGS

There are no remaining peat bogs in the LCA.

WETLANDS AND LAKES

Issue: potential loss of the Priority Habitats lowland fens and mesotrophic lakes due to a range of threats. Black Lough (Down) ASSI features a number of Priority Species.

Actions:

- promote and ensure compliance with existing good farming practices, guidelines and legislation so that water quality is not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip.
- monitor water quality in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants; recognise that monitoring of water quality in relation to forestry and other operations upstream may be important.
- prevent further loss of fens, such as Black Lough (Down) ASSI, through drainage, reclamation, land-fill and encroachment by scrub woodland; prevent dumping and fly-tipping and encourage removal of rubbish; divert the inflow of nutrient rich water from agricultural land into fens; allow natural conversion to wet woodland to continue.

COASTAL

N/A

LCA 83 Lower Slieve Croob Farmed Foothills

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- In total, 533 ha (11%) of the LCA area is within the council boundary, in three separate sections.
- low ridges and intervening valleys, some with flat floors in which fens may occur.
- several fens drained and converted to large pasture fields, but some in rough grassland with abundant rushes.
- woodland largely absent, groups of trees confined to shelterbelts around farmhouses, alongside streams and on fens.
- grassland dominates the land cover.

Key Sites

- AONB: Mourne
- SLNCI: Slievenaboley Road

Woodlands

There are no significant areas of woodland in this part of the LCA, and woodland occupies less than 0.5% of the area. Small patches of trees occur as shelterbelts around farms, alongside streams and as conifer plantations. There is scope for enhancing the woodland cover of this LCA area.

Grassland and Arable

Grassland covers most of the LCA area, with the majority in improved pastures. Rough grassland occurs in damp valley bottoms, and there is some rush cover on damper ground. Two small areas of priority grassland habitat occur adjacent to each other at Slievenaboley, comprising 3.7 ha of mesotrophic grassland and 4 ha of rush pasture.

Heaths and Bogs

There are no areas of heath or bog in the LCA.

Wetlands and Lakes

There are no wetland areas or lakes within these parts of the LCA area.

Apart from **otter**, there are no records of Priority Species in the streams, but the water quality of these can also be affected by agricultural activities. Adoption of best practice measures will assist in the avoidance of pollution incidents (from fertilizers, slurry, herbicides, pesticides and silage effluent). With the spread of rural dwellings increasing, the effects of septic tanks on water quality also needs to be monitored.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: no significant areas of woodland, but some scope for enhancing woodland cover.

Actions:

- encourage planting of broadleaved woodlands rather than the conifer plantations and shelterbelts that are of poor biodiversity and landscape value; ensure that existing native woodland and scrub is not cleared.
- improve biodiversity through measures to improve and extend the woodland cover through appropriate measures in agri-environment and forestry grant schemes.
- enhance the biodiversity value of existing broadleaved woodlands by discouraging felling; halt any further felling or pollarding; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna).
- encourage control of grazing to foster herb layer and regeneration and if necessary, encourage replanting of canopy species.

GRASSLAND AND ARABLE

Issue: improved pastures of low biodiversity value, but including patches of rough grassland.

Actions:

- maintain and improve field boundaries, especially hedgerows where they occur through adoption of relevant measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland.
- protect, maintain and enhance damp grassland by where, possible, restricting field or arterial drainage.

COASTAL

N/A

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm'.

The Mourne Foothills landscape wraps around the northern fringes of the massive summits of Slieve Croob and the Mourne Mountains. The area includes the town of Castlewellsan which lies between these two major upland areas at a height of 100 m above sea level. The characteristic rugged scenery, which includes some distinctive hill summits, rocky outcrops and patches of gorse, has been moulded from intrusive igneous rocks, primarily granites. Quarries are present, both working and disused, and elevated points, such as White Hill, give dramatic views over the surrounding lowland landscapes of the Newcastle and Quoile River *Lowland Drumlin Farmlands*. The landscape is in particularly good condition and much of it is designated as an Area of Outstanding Natural Beauty in recognition of its scenic importance. In the south of the LCA, the landscape contains significant glaciofluvial deposits of the Northeast Mourne Complex that has produced an undulating landscape typical of the rolling moraine and drumlin dominated topography of lowland County Down. The moraine ridges have been little scarred by quarrying. The few pits in the area are no longer worked, are mostly overgrown, and are well hidden from casual view. This area is considered to have a good aesthetic rating and the upper limits of the area contrast with the heather bedrock and boulder deposits of the lower slopes of the Mourne massif.

Solid Geology

The area has Slieve Croob at its northern end with a strip to the coast of Dundrum Bay in the southeast. The area comprises 60% Gala and Hawick groups (Lower Palaeozoic), 30% Mourne granite and the remainder being a variety of Caledonian and Tertiary intrusives.

Lower Palaeozoic greywacke sandstones and shales dominate the south-eastern part of the area with one outcrop in the northwest. The greywackes are of sandstone grade and vary from a few centimetres to a few metres in thickness with a large proportion of rock fragments. The greywackes are commonly quarried as a source of aggregate; they are interbedded with thinner beds of siltstone or mudstone, commonly arranged as fining-up cycles. Minor conglomerates and volcanic ash-beds (or bentonites) occur.

Slieve Croob, in the northern part of LCA 84, is composed of Caledonian (probably Devonian age) Newry Complex diorite. Foliated granodiorites are exposed at Ballymagrehan Quarry (ESCR Site 416). This is a unique exposure by virtue of location and rock age. The eastern outcrop contact between Gala Group greywackes and Slieve Croob diorites has formed hornfels metamorphism of

the country rock greywackes. The Newry succession is also exposed in this LCA at of Ardglass (ESCR Site 413).

Tertiary-aged dolerite and felsite dykes occur throughout the area. The Mourne Granites were emplaced in successive injections at two centres: LCA 84 covers the first granite (G1) of the eastern centre with a small part over the later, western centre to the south. In the south of LCA 84 pink outer granites (G4) enclose a later, fine-grained microgranite or granophyre (G5).

A cone-sheet extends in an arc through the Hawick Group exposure on the southern edge of LCA 84. This was a late intrusion, forming as the granite solidified, cooled and the overlying ground collapsed and cracked in a crater-like manner, allowing late molten rock to inject in a thin sheet.

Drift Geology

The drift geology map for this LCA shows it to be predominantly underlain by Late Midlandian till associated with the large ice mass that was centred on the Lough Neagh Basin. However, being in the lee of the Slieve Croob upland, it would appear that sediment supply was relatively limited. Thus, whilst there are drumlins that can be used to infer the direction of ice flow, there are also many drift free areas that were scoured and moulded by the overriding ice. Although most drumlins in Northern Ireland are composed of glacial till or tills, a small number are 'drumlinoid features' are rock-cored and some are composed of sand and gravel. Where drumlins are rock cored there may have been significant frost shattering prior to their shaping by ice flow. It is possible therefore to see tails of shattered debris within till leading away from the feature in the direction of flow (Davies and Stephens 1978). It is generally accepted that most of the drumlins of Northern Ireland were formed by deposition beneath fast flowing ice. In the majority of cases this has resulted in a thick layer of Upper (younger) Till overlying a core of Lower (older) Till. This pattern has been observed across Northern Ireland, apart from a limited area in the north of County Down. The precise temporal relationship between the two tills has not been definitively resolved, but Davies and Stephens (1978) refer to an organic layer between the tills in County Fermanagh that has been dated at $30\,500 \pm 1170/1030$ years B.P. and shelly material between the tills on the Ards Peninsula dated at $24\,050 \pm 650$ years B.P.. However, these deposits only indicate that the Lower Till is older than the dates obtained.

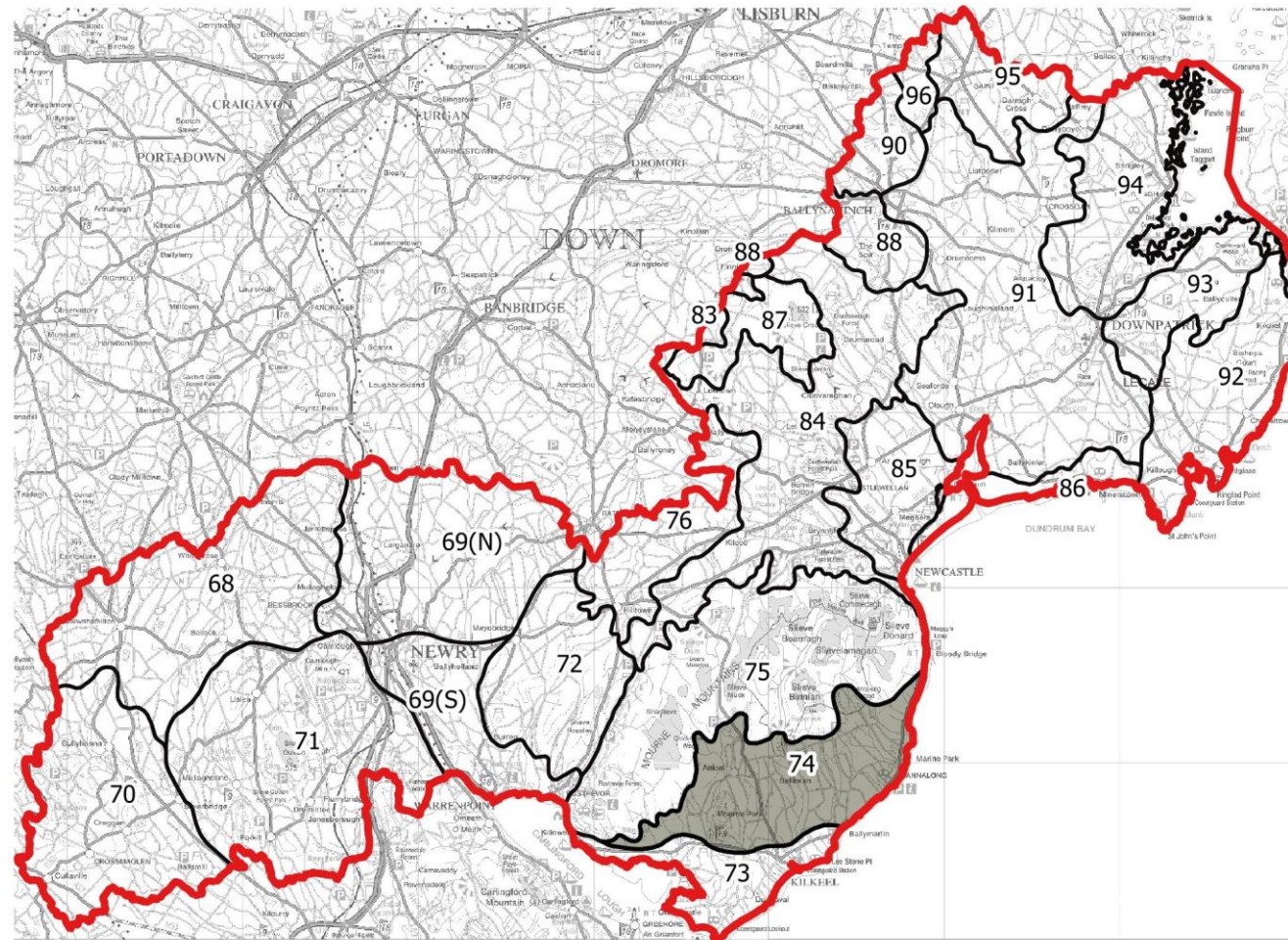
In the south of the LCA, during the last glacial phase of the Midlandian the Mourne existed as an obstacle to a readvance of regional ice that flowed from the north and butted against the northern slopes and separated into two lobes around 15ka B.P. The western lobe was deflected westwards down Carlingford Lough and the eastern lobe curved around the eastern slopes of the Mourne as far south as Dunmore Head (see LCAs 73 and 74). Consequently, on the northern margin of the Mourne, a variety of deglacial deposits and landforms were created when the ice finally retreated from the mountain front. These comprise two deglacial complexes.

The Western Mourne moraine and drumlin complex (1.5km² in area in this LCA) occupies the valleys of the three south-westward flowing rivers and adjacent lowlands of the Western Mourne. The western margin of this LCA runs along the axis of the Kilbroney, Glen and the upper Shanky's Rivers, all of which contain recessional moraines associated with Late Midlandian ice retreat.

The Northeast Mourne Moraine and Raised Beach Complex comprises two zones. This LCA is restricted to the irregularly shaped northern zone and has a southern limit that follows the indented

outline of the mountains from near sea level at Newcastle to the northwest shoulder of Spelga Mountain. The deposits are mainly a series of moraines which trend sub-parallel to the mountains and reflect topographic controls by bedrock highs. The morainic belts were deposited following the early part of the last glacial phase in the area. The moraines record the final retreat of Late Midlandian ice towards its source region in the Lough Neagh Basin and front the drumlin swarms of northern County Down.

5. Inclined Coastal Pastures



Kingdom of Mourne Inclined Coast Pastures (74)

5.1 KINGDOM OF MOURNE INCLINED COASTAL PASTURES (74)

Settlements: Annalong, Attical, Ballymartin

Landscape Character

Key Characteristics

- Distinctive open 'stone wall country' on the southern slopes of the Mourne.
- Rolling mountain footslopes, dissected by numerous rocky streams and rivers.
- A patchwork of improved and semi-improved grazing in medium sized square fields divided by robust stone walls of glacial granite boulders.
- Numerous scattered small scale individual houses and farms along a dense network of narrow roads often aligned parallel to the slopes.
- Scattered trees and yellow gorse along field boundaries and patchy woodland in valleys.
- Coniferous plantation on hillslopes.
- Views to the coast and into the Mourne Mountains.

Landscape Description

Landform

The Kingdom of Mourne comprises the rolling footslopes of the Mourne Mountains, including the outlying mountain of Knockree. The land falls to the coastal fringe to the south and is dissected by numerous parallel streams and rivers running broadly north-west to south-east towards the coast. West of the Kilkeel River, the smoothly rounded slopes of Knockree and the smaller Aughrim and Leitrim hills rise from the sloping farmland, forming prominent features of the landscape.

Landcover

A patchwork of medium sized square pastures is typically divided by highly distinctive and robust stone walls of glacial granite boulders. These rounded boulder walls, without mortar, dominate the landscape, creating a unique and unified landscape pattern. On the lower slopes, field boundaries often include hedges and scrubby vegetation, while on upper slopes bare stone wall boundaries often have a starker appearance. Vegetation is limited to scattered trees, distinctive yellow gorse along field boundaries and patchy deciduous woodland in the valleys and along river corridors. Large regular shaped coniferous plantations clothe the summit of Knockree and the upper valley slopes of the Annalong River, with smaller plantations at Silent Valley and Crocknafeola Wood.

Development

There are numerous scattered individual houses and farms along a dense network of narrow roads, which are often aligned parallel to the direction of the slope. Most roads run along spurs with occasional links across the valley streams via stone bridges. Buildings are a mixture of farms, new bungalows and houses, along with occasional white painted stone cottages. Most buildings are small in scale. Annalong is the main settlement, with smaller concentrations at Attical and Ballymartin. The more abruptly sloping coastal edge appears less favourable to holiday and caravan parks compared to the flatter landscape at Kilkeel further west. Upper slopes are more

sparsely developed, however houses and bungalows still remain frequent in the landscape. Former quarry workings and a radio mast are notable on Aughrim Hill. There are some coastal caravan developments at Annalong.

Perception

There are long views to the coast and to the Mourne Mountains, the latter providing a dramatic backdrop to the intricate pattern of boulder-stone walls and fields. This rural 'stone wall landscape', is known locally as the 'Kingdom of Mourne'. Archaeological sites are of importance for tourism within the area, as are the wooded estate landscapes of Mourne Park House and the area below Silent Valley Reservoir.

Landscape Condition and Forces for Change

Landscape Condition

The condition of the landscape is generally good, with pastures appearing mostly well managed and agriculturally productive, with areas of scrub and moorland appearing only in some of the upper most parts of the landscape. Stone walls are mostly intact and in good repair, only occasionally replaced by stock fencing, and with a strong landscape pattern retained. In some locations, for example close to Attical, there are concentrations of ad-hoc new housing development, the spread of which would tend to undermine rural landscape characteristics.

Forces for Change

Agriculture

The farming landscape appears stable and productive, and it appears that characteristic stone walling is being largely retained and maintained. The piecemeal replacement of stone walling with stock fencing, or the loss of walling through field enlargement, remains an ongoing risk.

Trees and Woodland

Woodland cover within this landscape is generally low, and significant woodland planting appears unlikely. There is the potential for expansion of existing areas of commercial forestry at the upper fringes of the LCA or on Knockchree, particularly into more marginal areas of farmland.

Development

Sea views and the setting of the Mournes is likely to result in ongoing pressure for rural housing development.

Minerals

A relatively low level of small scale quarrying has been undertaken in the area, and there may be future pressure for the expansion of existing sites or quarrying at new sites due to the presence of

mineral resources potentially suitable for high specification aggregates, as indicated on GSNI mapping. Minerals sites could potentially be obtrusive features in such an open landscape.

Tall Structures

There is a low level of existing and consented wind energy development in this landscape area, however there may be future pressure for domestic or farm scale wind energy developments. Tall structures would tend to be quite prominent in this open landscape, and risk affecting the setting to the adjacent Mournes.

Tourism and Recreation

Demand for leisure and tourism development is likely to remain because of the landscape qualities recognised through AONB designation, leading to an additional requirement for visitor facilities, including holiday accommodation and parking. There may be further demand for coastal caravan parks.

Climate Change and Coastal Erosion

The LCA has a low rocky coastline, identified as potentially being susceptible to erosion. The general forces for landscape change relating to climate change and coastal erosion set out in Section 5.3, should also be referred to.

Landscape Management and Planning Guidelines

Key Sensitivities

The national importance of this scenic landscape is reflected by its AONB status. Its open character and highly distinctive landscape pattern is crucial as a setting to the Mournes. Any disruption to the stone wall pattern would be highly damaging to landscape character. Much of the rich cultural heritage of the Mournes is located within this farmed area, which would be sensitive to agricultural change or intensification.

Guidance

Agriculture

- Removal of stone walls for other uses and to enlarge fields is detrimental. Their on-going restoration and repair is essential to conserve this unique and striking landscape feature.
- Larger styles of farm building have the potential to be visually intrusive in this open landscape. Buildings should be of an appropriate scale, with effects mitigated by native woodland planting.

Trees and Woodland

- Large scale woodland planting within the LCA should generally be avoided to ensure the open character and striking landscape pattern is retained.
- Wooded river corridors should be retained and enhanced.
- Softening of angular coniferous forestry plantations in the upper parts of the LCA with deciduous planting would assist with their integration into the landscape.

Development

- Continued scattered housing and bungalow development throughout the area is leading to the erosion of rural character. The impact of ornamental plants and garden furniture often has a negative influence. The area has little capacity for accommodating significant further housing development.
- Where new housing is to be constructed, the traditional vernacular style of low, white-finished cottages would be easier to accommodate in the landscape than larger non-traditional housing types.
- The setting of archaeological sites, including isolated standing stones, is important and should be a priority for conservation.
- New development and settlement growth should be directed inland, rather than along the coast, preferably inland from the A2 to maintain coastal characteristics and outward views.

Minerals

- The openness of the landscape limits its capacity for accommodating quarry developments. Any such development should be small scaled and infrequent.
- Bunding and woodland planting should be utilised in the design of quarries, along with consideration given to the design of entrances and the siting of quarry infrastructure.

Tall Structures

- SPG accompanying PPS18 assesses a high sensitivity to wind energy development.
- Large scale or vertical development (including telegraph poles and telecommunication masts) are disruptive in this area.
- The somewhat more enclosed western part of the LCA has the greater capacity for small scale wind turbines, but any such development should be associated with the lowlands to avoid adversely affecting the nearby Mournes, with turbines well separated.

Tourism and Recreation

- Visitor facilities such as picnic sites and car parks should incorporate local stone and other traditional materials. Native planting should be incorporated into the design of car parks to mitigate against their visual effects across and open landscape.
- There are few coastal caravan developments, and their spread to further locations along the coast should be limited.

Coastal Erosion and Climate Change

- Limiting the amount of further coastal development will have benefits to landscape character and help mitigate against the possible effects of coastal erosion.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- All 8,220 ha of the LCA is within the council boundary.
- woodlands account for around 7% of the LCA, about one-third is broadleaf and most of that is in Mourne Park.
- Mourne Park is one of the prime examples in NI of estate woodland and contains 'long-established' woods and possibly elements that are 'ancient'.
- few other areas of broadleaf woodland.
- coniferous forests significant on Knockree and along the foothills in the north, but of limited biodiversity.
- to the east of Kilkeel River and intermixed with improved pastures, significant areas of damp unimproved grassland and wet heath of importance to habitat and species diversity.
- rare NI littoral habitats along the Mourne Coast.

Key Sites

- SAC: Eastern Mournes; and Murlough
- ASSI: White Water River; Western Mournes and Kilfeaghan Upper; Eastern Mournes; Samuel's Port; and Mournes Coast
- AONB: Mourne
- SLNCl: Annalong River; Attical Moraine Complex; Ballymartin Moraine incorporating Ballyveagh Beg; Cassy Water; Glassdrumman; Mourne Park incorporating White Water River and Cranfield Moraine; Mullartown Moraine; St. Pious Hill; and Western Mournes Habitat and Geology incorporating Rocky Mountain



Views across fields divided by boulder stone walls to Knockree.



Fields divided by hedges on lower slopes, with the forested Knockree in the background.

Woodlands

Woodlands account for approximately 7% of the land cover of which a third is broadleaf woodland and most of that is in Mourne Park. This park comprises over 100ha of wooded estate with parkland and plantation (**parkland and wood pasture**). Large, wooded areas were established by 1819 and most remain despite later extensions and new plantations; the woodlands are at least 'long-established' and parts may be 'ancient'. Despite its name, Beech Wood has a range of species including oaks, sweet chestnut, ash, Scots pine and grand fir. Threegate Wood has a pre-1834 section of pedunculate oak, sweet chestnut, beech, horse-chestnut and lime whereas sections planted later contain Douglas fir, yew, larch and elm. The eastern banks of the White Water as it flows through the Park are steep and some of the trees here may be successors of 'ancient' woodland, but most of Tullyframe Wood is planted and has a similar composition to the pre-1834 part of Threegate Wood, as does Greengate Wood. The later Veetchill and Standing Stone plantations are pure oak. Although the woodlands are generally in good condition at present, there is some concern for the future; in many parts there is an absence of regeneration of the canopy trees whereas saplings of sycamore, ash and grand fir are common. Rhododendron also forms a dense understorey in parts preventing regeneration of canopy trees and the development of ground flora, however, practical efforts to remove invasive species have been instigated.

Smaller parks and large gardens in the LCA show a dominance of beech with other broadleaves or of Scots pine and other conifers, largely depending on the date of planting.

The Kilkeel River, which is an ASSI, has several patches of woodland; none are large but together they form a significant ribbon of woodland in an area otherwise devoid of woodland. Alder and hazel are the most common species but sycamore, ash and oak are frequent. In parts there is a rich ground flora, especially of spring flowering plants. There are flushed areas also where willow dominates. Generally, **wet woodland** is scarce in the LCA.

There are four areas of coniferous forest (two-thirds of the woodland), at Mourne Wood on the northern side of Mourne Park, Crocknafeola, Silent Valley and Annalong Wood. Mourne Wood has a very complex pattern of planting, but the main species are Scots pine, Douglas fir, lodgepole pine, larch and Norway spruce; there are also some mixed hardwoods. Similar species are found at the other forests, but generally in less complex planting and with greater amounts of Sitka spruce.

Grassland and Arable

Grassland forms around 70% of the land cover of the LCA of which almost half is in improved pastures. East of the Kilkeel River, less improved grassland is more common than to the west, where it is largely confined to the foothills of the mountains. In part this division represents the physical environment; to the east of the river the Mourne Plain is strewn with large boulders and fields in productive pasture have been reclaimed, some to a greater degree than others. Non-reclaimed fields are often in wet acid grassland with abundant rushes or in wet heathland where plants may include cotton grass, deer grass, pill sedge, green-ribbed sedge, cross-leaved heath, sweet gale and purple moor grass.

Improved pastures have generally low biodiversity as a result of relatively intensive management. Some of the pastures are sown grasslands dominated by ryegrass and few other species - low biodiversity is in-built. Other grasslands have been converted to improved pastures through

5.1 KINGDOM OF MOURNE INCLINED COASTAL PASTURES (74)

management. High levels of grazing or repeated cutting for silage, high inputs of fertilizers and slurry, and selective herbicides serve to reduce diversity of both flora and fauna. Arable land is scattered through the LCA, but forms only a small proportion of the land cover.

In areas of improved pasture and arable, biodiversity is often centred in the **hedgerows**, but in this LCA most fields are bounded by walls constructed from the cleared boulders. Where they occur, hedges are commonly of whin or hawthorn, but are generally poorly managed.

Heaths and Bogs

Apart from patches of heath on the Mourne Plain (see above), **lowland heathland** is restricted to the foothills of the mountains including the southern extent of the Eastern Mournes ASSI and Western Mournes and Killeaghan Upper ASSI. Here heather heath - both common heather and bell heather - is mixed with upland grassland often on rocky slopes that also have whin (see also LCA 75).

Wetlands and Lakes

There are no significant wetlands or lakes in the LCA. Several almost parallel **rivers** and streams cross the LCA from NW to SE, including the White Water River ASSI; many have records of **otter**.

Coastal

The extreme northeast of the LCA contains the southern tip of an important **coastal vegetated shingle** site, designated as the Mournes Coast ASSI (see LCA 75). Most of the coast is **maritime cliff and slopes** with boulder and bedrock shores below which have good faunal diversity. Of note are the ***Sabellaria alveolata* reefs** (honeycomb worm) that are restricted in Northern Ireland to the Mournes coast and are particularly evident at Glasdrumman Port. The Samuel's Port ASSI lies to the south of Annalong and hosts several intertidal habitats and important species communities.

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: low woodland cover of variable biodiversity value.

Actions:

- enhance the biodiversity value of demesne/parkland woodland by encouraging planting of saplings of the standard trees; by limiting more invasive tree species such as ash and sycamore; by preventing further loss of parkland; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna); by reduction of rhododendron.
- further study of the history of demesne and other broadleaved woodlands particularly any ancient and long-established, as a key to future management.

- encourage control of grazing in broadleaved woodlands along streams to foster regeneration and if necessary, encourage replanting of canopy species; also to encourage ground flora.
- encourage new native woodland planting through appropriate measures in agri-environment and forestry grant schemes, preferably of native broadleaves.

GRASSLAND AND ARABLE

Issue: poor biodiversity of farmland and poor management of Priority Habitat hedgerows.

Actions:

- maintain and improve hedgerows where presently common. This may be achieved through adoption of appropriate measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leaving saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilizers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- encourage, through participation in agri-environment schemes, adoption of less intensive management of pastures to allow reversion to more species-rich grassland and protect unsown areas of species-rich grassland.
- leave stubble over winter, rather than autumn ploughing, to increase food resources for farmland birds; spring sown cereals are also valuable for breeding birds.

HEATH AND BOGS

Issue: loss of Priority Habitat lowland heathland and decline in its biodiversity.

Actions:

- promote membership agri-environmental schemes through consultation with farmers.
- control grazing intensity on existing heathland to encourage development of heathland and of heather of different ages (i.e. in foothills).
- discourage 'reclamation' to pasture fields on the Mourne Plain.

WETLANDS AND LAKES

Issue: maintain water quality in rivers.

Actions:

- rivers and streams in this area flow through agricultural land including that in improved pastures; promote and ensure compliance with existing good farming practices so that streams are not polluted by run-off from agricultural land or seepage from silage pits.
- monitor streams in relation to expansion of rural housing and associated septic tanks.

COASTAL

Issue: Priority Habitat *Sabellaria alveolata* reefs restricted in Northern Ireland to Mournes Coast.

Action:

- trampling damage by beach users and extraction of the worms for angling bait can occur, but on a limited and local scale. The former probably has the greater potential for damage, particularly as leisure use of beaches increases. Need for monitoring and possible need for ASSI designation.

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm' (see Appendix B for information on drumlins). However, in the limited area south of the Mourne, the landscape is dominated by glaciofluvial features, particularly extensive moraines and post-glacial raised beaches.

The Kingdom of Mourne comprises the rolling foot slopes of the Mourne Mountains, including the outlying mountain of Knockree. The land falls to the coastal fringe to the south and is dissected by numerous parallel streams and rivers running broadly northwest to southeast towards the coast. There are long views to the coast and to the Mourne Mountains, the latter providing a backdrop to the intricate pattern of dry stone walls and fields. This rural 'stone wall landscape', is known locally as the 'Kingdom of Mourne'. The national importance of this scenic landscape is reflected by its AONB status. Its open character and highly distinctive landscape pattern are crucial as a setting to the Mourne. Any disruption to the stone wall pattern would be highly damaging to landscape character. Geomorphologically, the landscape is dominated by suites of glaciofluvial deposits, especially moraine ridges. The south of the LCA contains the Mourne Plain complex, and from an aesthetic point of view, the complex adds considerable topographic diversity within a small altitudinal range, accentuated by the drainage pattern which exploits inter-ridge depressions and dissects some of the ridges. The pockmarked landscape resulting from opencast pit abandonment detracts from the aesthetic appeal of the area. In the north and east of the LCA, the Northeast Mourne complex has created a topographic variability through moraine ridges that have been little scarred by quarrying. The few pits in the area are no longer worked, are mostly overgrown, and are well hidden. In the foothills of the Mourne, the south draining river valleys are associated with arcuate moraine ridges that mark the retreat of late-glacial valley glaciers.

Orford (in Whalley et al. 1985) has described the coast of the Kilkeel plain as typically characterised by coastal cliffs cut into till exposing a wave cut platform. Sub-aerial erosion of the cliffs supplies sediment to fringing sand and gravel beaches of no great extent as much of the sediment is too fine to remain in the beach system. Shoreline retreat rates are the highest for Northern Ireland and have a mean of ca 0.3m/y. Where a moraine axis crops out in the longshore cliff section, lag boulder beaches occur, though boulder armouring of the wave cut platform is common. Variations in the planform of the cliffs appear to be related to refraction controls imposed by variability in the composition of the glaciogenic material. For example, boulder lags can leave remnant shoals that

influence longshore beach development. Between Dunmore Hill and Ballymartin Hill the coastal plain has a stepped profile, produced by notches trending subparallel to the coast. Between Dunmore Hill and Annalong coastal moraine ridges are truncated or notched at ca 30m a.s.l. Between Mullartown and Annalong the gentle slopes are also notched at ca 20m a.s.l. This notch is continuous south to 1km north of Ballymartin Hill, where it pinches out. A notch (10m a.s.l.) cuts into late glacial beach deposits between Glasdrumman and Annalong and forms a discontinuous cliff (<8m high). These are late-glacial marine notches and are analogous to similar notches on the Mourne Plain. They are the result of the interplay of glacioisostatic and glacioeustatic forces and record coastal erosion of moraines following retreat northward of Late Midlandian ice along the coast.

Solid Geology

This LCA comprises the southern slopes of the Mourne Mountains and has 65% Lower Palaeozoic Hawick Group (intruded by felsites and dolerites) in a southern strip, with Tertiary Mourne Granites (G2 to G5) through the northern part of the LCA (ASSI 095). Tertiary intrusives are observable at Glasdrumman Port (ESCR Site 95).

The Mourne Granites were emplaced in successive injections at two centres: LCA 74 covers the boundary between the eastern and western centre. The G2 granite contains the unusual dark quartz crystals known from other areas of the Mourne. In the western Mourne intrusive centre pink outer granites (G4) enclose a later, fine-grained microgranite or granophyre (G5): the metamorphosed (Silurian) roof of these granites can be seen at Eagle Mountain (ESCR Site 104). The spectacular granite exposures comprise ASSI 95, designated because the G2 to G5 succession shows evidence of pulsed granite intrusion.

A felsitic (acid - composite) cone-sheet extends in an arc through the Hawick Group exposure on the western edge of LCA 75, where it is best observed along the coast. This was a late intrusion, forming as the granite solidified, cooled and the overlying ground collapsed and cracked in a crater-like manner, allowing late molten rock to inject in a thin sheet.

Drift Geology

This area arguably contains one of the most varied and complex suite of glaciogenic and glaciofluvial features in Northern Ireland, and records the interface between ice originating in the valleys that now drain the south side of the Mourne, ice moving across the coastal plain and Irish Sea ice impinging on the coastal zone. Because of this it has been possible to identify a range of glaciofluvial complexes associated with the Late Midlandian as well as numerous individual features. The principal lowland complexes are summarised below, together with their areal extent in the LCA.

The Mourne Plain Complex (13.9km² in area in this LCA) is located on the coastal belt between Killowen, Ballymartin and Cranfield Point, south of the Mourne massif. The relatively flat lying, undulating plain extends for 16 km along the coastal lowlands, with a maximum width of 5.5 km. The entire area is overlain by thick glaciogenic deposits of Late Midlandian age. Coastal cliff exposures reveal a minimum drift thickness of 15m. Deposits include elongate, arcuate morainic

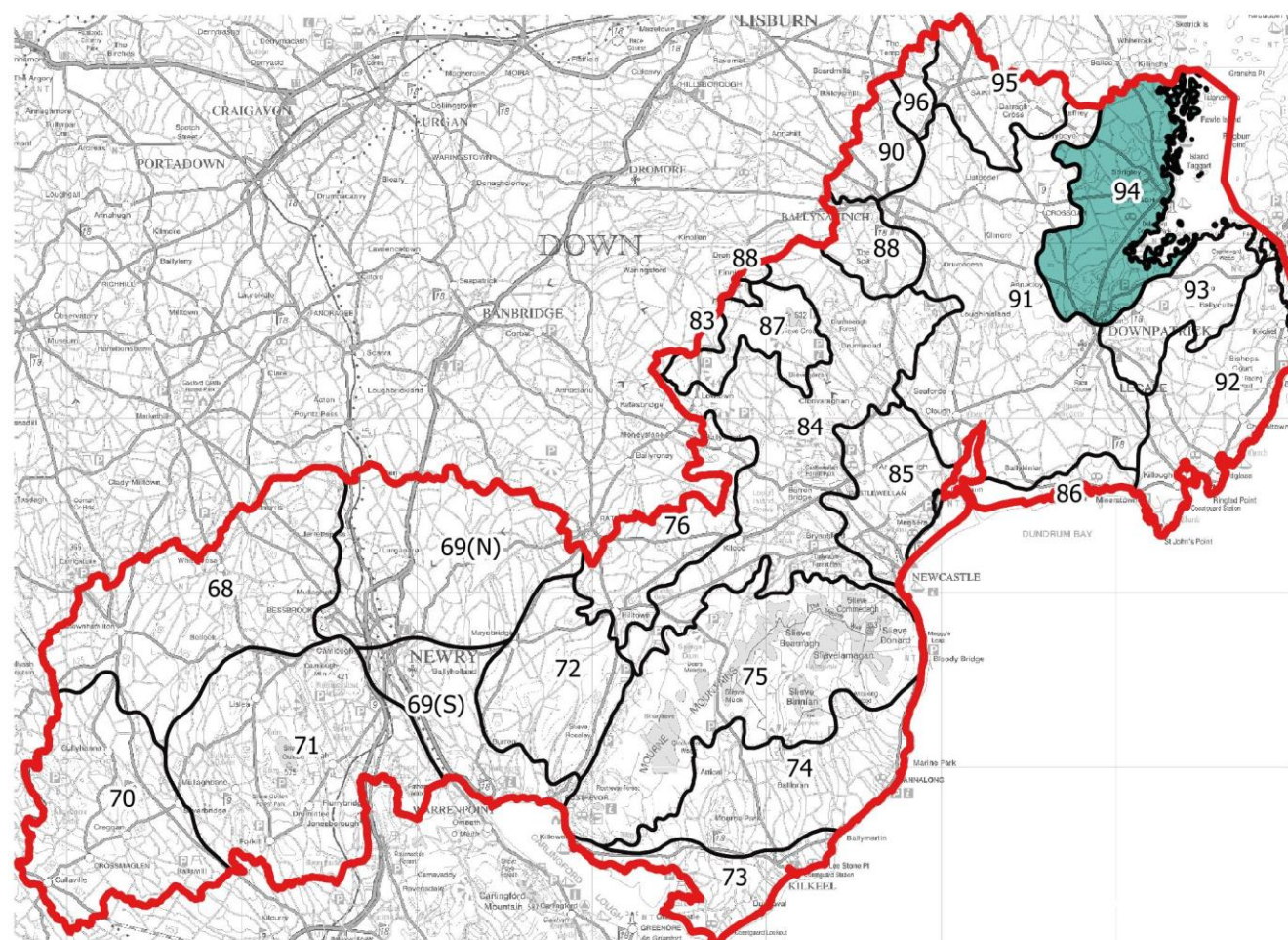
ridges which record ice margins during the last deglacial cycle ca15kyr B.P. A large proportion of this Complex lies to the south in LCA 73.

The Cranfield Moraine (2.6km² in area in this LCA) is a conspicuous, round-crested ridge or nested set of ridges which forms a shallow, eastward curving arc between Cranfield Point and the lower slopes of the Western Mourne Mountains. Its arcuate form means that it is visible for a considerable distance and from many directions. In the northern part of the moraine the ridge flank slopes precipitously from the ridge crest, which lies 70m above the local topography immediately to the west. Most of the moraine lies to the south in LCA 73, with a very minor element in LCA 75.

The Northeast Mournes Moraine and Raised Beach Complex (14.2km² in area in this LCA) comprises two zones. This LCA is restricted to the southern zone that is roughly triangular and extends from Ballymartin north to Newcastle and west to Ballyveagh Beg Upper. The complex consists of two main morphological elements. Recessional moraines that were linked to ice that initially advanced southwards around the eastern flank of the Mournes as far as Ballymartin. Deposition followed the lowering of the ice sheet and its retreat northwards and eastwards during the Late Midlandian. Shoreline notches cut into moraine ridges on the coastal lowlands and in the Newcastle area during late- and postglacial marine high stand are associated with spreads of beach sand and gravel. The northern part of the southern zone lies in LCA 75.

As well as the above lowland complexes there are three moraine/outwash complexes along the southwards trending Whitewater/Attical Valley (5.6km² in this LCA), Silent Valley (1.1km² in this LCA) and Annalong Valley (2.8km² in this LCA). These reflect patterns of ice advance and retreat across the boundary between the coastal plain (LCA 74) and the Mournes Massif (LCA 75). Although individually variable, the complexes all characteristically comprise well-preserved, cross-valley, arcuate recessional moraines. These are associated with a Late Midlandian advance through the mountains, and subsequent retreat of ice up the valleys. Those in the Annalong Valley are seen to postdate moraines of an earlier Late Midlandian phase which records the retreat of ice northward across the Mourne Plain. In the Attical region, the moraines are related to proglacial outwash in inter-moraine areas.

6. Loughs and Drumlins



Strangford Loughs and Drumlins (94)

6.1 STRANGFORD LOUGHS AND DRUMLINS (94)

Settlements: Downpatrick, Killyleagh

This assessment applies to the south easterly part of the wider LCA which falls within Newry, Mourne and Down. The LCA boundary has been amended to include the southerly lough shores and islands which were included within the NILCA 2000 Portaferry and North Lecale LCA (93).

Landscape Character

Key Characteristics

- Scenic landscape of drumlins, wooded estates and islands leading to the shores of Strangford Lough.
- Stands of beech and pine.
- Stone bridges and causeways cross water and link islands.
- Dense network of winding roads.
- Castles, mottes, chambered graves and other archaeological sites.
- Views across the Lough with its numerous islands and inlets.

Landscape Description

Landform

This waterside landscape of drumlins and loughs, islands and inlets, occupies the southern and western shores of Strangford Lough. The influence of glacial action has produced a complex, convoluted coastline with rocky islets (pladdies) which is a haven for wildlife and provides a variety of landscape experiences, including long sweeping views, colourful quays, isolated islands and tranquil inlets. The drumlins form a dense pattern and many of the hills are unusually high.

Landcover

Inland, drumlin farmland with a robust network of hedges and occasional stone walls predominates. The hollows between the drumlins contain marshy pasture or loughs, which often have well wooded margins. The many small wooded estates make a significant contribution to the wooded character of the area. Towards the shores of Strangford Lough, the pattern is reversed with water dominating and the drowned drumlins rising out of the water as small round islands. Sheep grazing dominates, particularly at the edge of the lough, however there is also a significant proportion of arable farmland. Stone walls and stands of pine and beech are familiar features which enhance the experience of the rolling farmland and water's edge.

Development

Inland, white-finished farm-houses, some large and complex in form, stand out as features in the landscape. The isolated and tranquil character of drumlin islands has made them favoured sites for churches, castles and chambered graves. Small settlements lie clustered around local quays and occasional small vernacular white-finished cottages may still be seen in their original form. Some larger new houses have been sited to take advantage of the scenic landscape qualities. Numerous small roads wind around and across the drumlins, linking small farms and coastal settlements. However, the main A22 cuts directly SE/SW across the landscape, traversing and cutting through

drumlins, rather than winding around them. Killyleagh is a sizeable town located on the lough side which is visible from the eastern lough shore and higher points of the Lecale Hills.

Perception

Inland the steep drumlins and areas of woodland create an intimate, enclosed character. The lough tends only to be perceived when close to the shoreline where the waterbody and its complex shoreline and islands, backed to the south by the low Lecale Hills, can be appreciated.

Landscape Condition and Forces for Change

Landscape Condition

The landscape is in good condition with well-maintained stone walls, restored castles, churches and traditional dwellings. Well maintained, productive farmlands and large estates contribute to the sense of a strong, unified landscape character.

Forces for Change

Agriculture

There is a robust, consistent character to the farming landscape, but which would be susceptible to the loss of traditional features such as hedgerows, field boundary trees or stone walling as a result of field enlargements or other agricultural improvements. Wetlands and coastal habitats are susceptible to the effects of run-off, grazing and drainage.

Trees and Woodland

Mature trees and woodlands, including estate landscapes, contribute greatly to the landscape character, fringing lough shores, topping drumlins and islands, and assist with integrating development into the countryside. Ongoing development, changing farming practices or neglect may result in the loss of these important landscape features.

Development

Development pressures inland from Strangford Lough seem relatively limited, however there may be ongoing pressure for coastal housing development, including settlement expansion at Killyleagh.

Minerals

The area has historically been subject to some smaller scale sandstone quarrying, however no large scale quarrying activity has been undertaken in the LCA, and there is no evidence suggesting the likely significant expansion of quarrying here.

Tall Structures

There is a very low level of existing and consented wind energy development within the LCA, but there may be ongoing pressure for small domestic or farm scale schemes.

Tourism and Recreation

There are marinas on Strangford Lough and some caravan development, while Delamont Country Park is a focus of visitor interest. There may be ongoing pressure for leisure related developments on the lough shore, such as marinas, caravan parks or holiday accommodation.

Climate Change and Coastal Erosion

Rising sea levels have the potential to affect coastal farmland, trees and woodland and coastal developments. This may include changes to the water table and increasing salinity. The general forces for landscape change relating to climate change and coastal erosion set out in Section 5.3, should also be referred to.

Landscape Management and Planning Guidelines

Key Sensitivities

This landscape is particularly vulnerable to changes which may have an impact on its small scale and tranquil character. Strangford Lough is one of the largest sea loughs in Northern Ireland and its inter-tidal mudflats are recognised for their nature conservation and earth science value by their designation as an ASSI, SAC and SPA. Strangford Lough was designated as Northern Ireland's first Marine Conservation Zone (MCZ), replacing the earlier Marine Nature Reserve designation. The eastern area of the LCA falls within Strangford Lough AONB.

Guidance

Agriculture

- The management and replanting of hedges, and the rebuilding of drystone walls where they traditionally occur, would help maintain the existing landscape pattern.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.
- The less intense management of inter-drumlin wetland areas could be encouraged through agri-environmental schemes.

Trees and Woodland

- Small copses, woodland polygons and clumps of native trees around farms and houses should be retained and enhanced to maintain landscape structure and integrate development into the landscape.
- Stands of beech and Scots pine are features of the landscape which should be retained and their replacement planned for, ideally with these same species.

- Wet woodlands at lough fringes are important habitats which should be protected from browsing, drainage or other agricultural improvement.
- Pockets of coniferous planting can be accommodated in this landscape, but should be well integrated with native woodland.

Development

- The outer edges of Killyleagh have expanded beyond the natural containment provided to the settlement core. Any future development should be designed to take advantage of the topographic screening provided by large drumlins, avoiding the more prominent drumlin tops. Spread of the settlement along the lough shore should be contained.
- The settings of historical features may be conserved and enhanced by providing views and access to monuments. Information boards may assist visitors in experiencing them to their full potential.
- New houses should be of a small scale, especially along the lough edge, and should incorporate traditional features, materials and colours such as simple shapes and white-rendered finishes.
- The potential for views across the lough from high points should be maximised by providing viewing places and by ensuring built development is not intrusive.

Minerals

- The landscape would generally be very susceptible to intrusion from any large scale minerals development, particularly where affecting the setting to Strangford Lough, its coastal towns, estate landscapes, and small scale hills.

Tall Structures

- SPG accompanying PPS18 assesses a high sensitivity to wind energy development.
- Sizeable wind turbines are likely to overwhelm the relatively small landscape scale of this LCA.
- Turbines would be best accommodated if small scaled, well separated, and associated with farms and houses at inland locations.
- Wind turbines should not be sited so as to affect the more intimate enclosed bays, islands and important drumlin skylines.

Tourism and Recreation

- Tourist facilities should be kept in scale with the landscape; rough surfaced, small parking spots are most suitable in lough-side locations. Local materials and features such as stone walls, gorse, pine and beech should be used to construct and integrate any new development into the landscape.
- Coastal caravan sites are a potentially intrusive feature. Such development should be small scaled and well-integrated into the landscape through taking advantage of naturally occurring topographic screening and the inclusion of native woodland planting.

Climate Change and Coastal Erosion

- Maintaining the integrity of natural coastal systems, in particular salt marsh, may assist in mitigating the effects of any future coastal flooding.
- Limiting the amount of further coastal development will have benefits to landscape character and help mitigate against the possible effects of coastal erosion and flooding.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- In total, 7,212 ha (74%) of the LCA area is within the council boundary.
- to the south and west of Strangford Lough, the landscape is dominated by high drumlins.
- inter-drumlin hollows are occupied by loughs, marshy pastures and wet woodland.
- the convoluted coastline is an intricate mix of inlets, drowned drumlins and rocky islets, or pladdies which are a haven for wildlife.
- many small wooded estates help create an impression of a woodland landscape.

Key Sites

- SPA: Strangford Lough
- SAC: Strangford Lough; and Turmennan
- ASSI: Turmennan; Quoile; Strangford Lough Part 2; Strangford Lough Part 3; and Heron and Carrigullian Loughs
- Ramsar: Turmennan; and Strangford Lough
- NR: Quoile Pondage Basin
- AONB: Strangford and Lecale
- SLCNI: Clea Lakes; Cuttyshane Bog; Dunanelly; Macheracranmoney Wood; Mill Pond Shrigley; and Portulla Wood



The south western end of Strangford Lough, enclosed by drumlins and islands.



Large drumlins inland from Strangford Lough.

Woodlands

Just under 8.5% of the LCA is occupied by trees and woodland, and over three-quarters of this is broadleaved or mixed woodland. Larger areas of woodland are found mainly to the south of the road between Crossgar and Killyleagh and are associated with demesnes. The Finnebrogue estate forms the centre of this woodland concentration. These planted woodlands (**parkland and wood pasture**) have abundant oak and beech, but also ash, wych elm, sycamore, hazel and sweet chestnut. Semi-natural broadleaved woodland is rare. **Wet woodlands** are scattered in occurrence and often found colonising former fen or marshy areas. For example, the Quoile Pondage NR has areas of alder and willow, and the fens of inter-drumlin hollows are frequently fringed with these species. The NR also supports stands of **oakwood**. There are few conifer woodlands in this LCA.

Grassland and Arable

Pasture is the dominant land cover in the Strangford Drumlins and Islands LCA, accounting for around two-thirds of the area. The majority is improved pasture, but most is inter-mixed with arable fields. More continuous grassland is concentrated in the region to the north and east of Finnebrogue and north of Ballygoskin. In these areas, much of the grassland is of poorer agricultural quality, either because it is on thin, rocky soils or in damp, low-lying land. However, these grasslands are more diverse in plant species than the dominant, more improved pastures. Semi-natural grasslands are rare.

Arable fields are intermixed with pasture throughout the LCA; more solidly arable areas occur east and west of Shrigley, and around Toye.

Heaths and Bogs

In the past there were some small inter-drumlin **lowland raised bogs** in the LCA, but today, as a result of past cutting, only very small patches remain. Almost all the former bog sites are now in carr (**wet woodland**) or have been reclaimed for agriculture. Turmennan ASSI and SAC has transitional communities from fen to bog and has small areas of wet heath.

Wetlands and Lakes

Although there are a few small inter-drumlin fens and marshes throughout the LCA, their occurrence is concentrated in the zone between Killinchy to the north and Killyleagh to the south. Here the **lowland fen** and swamp communities tend to surround lakes or have formed from cut-over bogs and include small ponds. They often have wet woodlands to give a locally rich diversity of habitats. Notable plant species include, bog pimpernel, least bur-reed, floating mud-rush, cyperus sedge and the great spearwort; Priority Species, including **otter**, **red squirrel** curlew (**breeding waders**) and **yellowhammer**, have also been recorded in some of these sites. The most extensive area of wetland communities lies in and around the Quoile Pondage NR, designated as the Quoile ASSI. The present freshwater lake was created by the construction of a tidal barrier across the Quoile estuary in 1957. Since that time, succession has led to a diversity of habitats rich in wildlife. The natural colonisation of the former seashore has resulted in marsh plants growing along the river fringes, with reed-beds, rushy grassland and alder or willow scrub in old muddy bays. Woodland of

oak and ash is developing on the higher, stony shores. Periodic rises in the water table help maintain distinct zones of vegetation.

The freshwater lake created by ponding the Quoile is an example of **eutrophic standing waters**, that is, high in plant nutrients. Insect life is rich providing food for fish such as rudd and eels. In turn, these attract grey herons, cormorants and grebes. The Quoile is also a site for migrating wading birds in the spring and autumn, whilst in summer, swans and many breeding wildfowl appear, including the scarce gadwall. In winter, large numbers of wigeon and other ducks may be seen. Although having a high biodiversity, the Quoile has been affected by pollution incidents in the past.

Marl lakes have a high base status, a specialised flora and are generally rare in Northern Ireland; Tullyveery Lough and Heron Lough are unusual examples in the east of Northern Ireland, with most occurring in Fermanagh. Heron Lough is part of the Heron and Carrigullian Loughs ASSI, which is partly within the council area. This site has a transitional mix of open water, swamp, fen, wet grassland and woodland habitats and supports an excellent range of aquatic water beetles. Several wetland community types are found in Turmennan ASSI and SAC, including mire, swamp and wet grassland.

There are few rivers of note in the LCA.

Coastal

The seaward boundary of the LCA is not a clear one because of the convoluted coastline with its many inlets, bays and islands. These form an important part of the LCA, through their contribution to the landscape and to the biodiversity. Sheltered inlets and bays tend to have muddy shores, often with a fringe of **coastal saltmarsh**, a rare community in Northern Ireland, on their landward edge. Mud snails, which graze on microscopic algae and bacteria on the surface of the **intertidal mudflats**, are eaten by shelduck and other waterfowl. Lugworms, ragworms, catworms, tellin shells and burrowing amphipod 'shrimps' live within the sediment. These organisms exist in enormous numbers and form an important part of the diet of the 45,000 wading birds that winter on Strangford Lough. (Strangford Lough has been designated as Northern Ireland's first Marine Nature Reserve). The diversity of some mudflats and bays in the LCA, are threatened by the growth of *Spartina*; this forms an almost pure community and supports low biodiversity.

The sheltered waters, rocks and islands attract seabirds, particularly terns, black-headed gulls, black guillemots and eider duck all of which breed and feed within and close to the Lough. Strangford Lough is designated as a SPA, SAC and ASSI for its marine and intertidal habitats, breeding and wintering bird populations and common seal populations (**marine mammals**).

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: low woodland cover of variable biodiversity value, but including the Priority Habitats parkland and wood pasture at Finnebrogue estate and wet woodlands within the Quoile Pondage Basin NR.

Actions:

- enhance the biodiversity value of demesne woodlands by discouraging any further felling or pollarding; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna); ensure that hazel scrub is not cleared.
- enhance biodiversity through appropriate measures in agri-environment and forestry grant schemes to improve and extend woodland cover; management plans for demesne woodland should be directed toward their survival, through natural regrowth or planting of native broadleaf species.
- encourage control of grazing in broadleaved woodlands to foster herb layer and regeneration and if necessary, encourage replanting of canopy species.
- further study of the history and ecology of broadleaved woodlands within the LCA, particularly any ancient and long-established, as a key to future management.
- ensure conservation of wet woodlands by allowing succession to take place and installing fencing to prevent trampling; ensure that loss does not occur through drainage, reclamation, landfill or dumping/tipping.

GRASSLAND AND ARABLE

Issue: improved pastures and arable land of low biodiversity value.

Actions:

- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland maintain and enhance damp grassland by, where, possible, restricting field or arterial drainage.
- maintain and improve field boundaries, especially hedgerows where they occur through adoption of appropriate measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to farmland birds.
- ensure that further clearance of boulders does not occur on pastoral or arable land.

HEATHS AND BOGS

Issue: once existent inter-drumlin lowland raised bogs have been lost to cutting, with only very limited patches remaining today.

Actions:

- maintain the integrity of those small remaining inter-drumlin bogs by for example, preventing infilling, fly-tipping, fires, new drainage and mechanised peat cutting - applies particularly to intact bogs but cut-over bogs can provide important habitats for birds and invertebrates.

- consider restoration of bog habitats through appropriate water level management, removal of individual colonising trees and phasing out peat cutting - applies particularly to formerly intact bogs affected by recent mechanical cutting.
- monitor use of cut-over bogs to ensure that important micro-habitats are not lost, that the large tracts of land required by predator birds are not broken up by planting and other uses, and that the needs of over-wintering and breeding wetland birds are met.

WETLANDS AND LAKES

Issue: the Priority Habitats lowland fens, eutrophic standing waters and marl lakes are threatened by nutrient enrichment.

Actions:

- promote and ensure compliance with good farming practices, relevant guidelines and legislation so that fens and lakes are not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip; ensure that further eutrophication does not occur as a result of nutrient-rich surface waters from surrounding farmland.
- monitor streams in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants.
- prevent further loss of fens through drainage, reclamation, land-fill, new woodland planting and encroachment by scrub woodland; prevent dumping and fly-tipping and encourage removal of rubbish; care should be taken to divert the flow of nutrient rich water from agricultural land away from fens, so that sites do not become damaged by a change in species composition.
- carefully assess any proposals for arterial and field drainage near to fens so that the water table is not lowered to the extent that fens are affected.
- monitor effects of recreation, including fishing, on shoreline communities (reedbeds, fens etc.).

COASTAL

Issue: mudflats in this LCA are often fringed with the Priority Habitat coastal saltmarsh; some areas are threatened by the growth of *Spartina*, which supports low biodiversity.

Actions:

- protect rare coastal saltmarsh communities from sources of pollution and waste tipping, in addition to damaging activities such as land-fill and construction.
- protect mudflats from potential impacts of nutrient enrichment, land claim, coastal defences, dredging and human disturbance.
- ensure that Priority Species, rare plants and Red List Species are protected from factors such as new development, erosion, waste tipping and pollution.
- monitor the spread of the invasive alien plant *Spartina angelica* and its impact on local biodiversity, to facilitate population control and conservation management.
- monitor the effects of recreation in Strangford Lough, including boating and fishing, on those rocks and islands which attract breeding seabirds.

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm'.

The *Strangford Loughs and Drumlins* LCA provides a waterside landscape of drumlins and loughs, islands and inlets that occupies the southern and western shores of Strangford Lough. The drumlins form a dense pattern and many of the hills are unusually high. Inland, drumlin farmland with a robust network of stone walls predominates. The hollows between the drumlins contain marshy pasture or loughs, which often have well wooded margins. Towards the shores of Strangford Lough, the pattern is reversed, with water dominating and the drowned drumlins rising out of the water as small round islands. Orford (in Whalley et al. 1985) has described the coastal lowlands around Strangford Lough as a mixture of glaciomarine shelf sediments with a superimposed two-unit drumlin cover, lying on a low undulating basement of Silurian greywacke and mudstones. Strangford Lough is tidal with a distinctive straight east coast and a highly irregular west coast morphology. The lough contains numerous drowned drumlin islands that have been removed completely from the eastern shore to leave remnant shoals or 'pladdies'. On the western shore the drumlin islands are largely retained and linked by limited shoreline deposition. The difference between the lough shores is because of prevailing south-westerly waves that vigorously attack the eastern shore, whilst leaving the western shore largely untouched. There are extensive intertidal mud and sand flats in the north of the lough that act as sinks for most of the sediment derived from the erosion of the east coast. Sites such as those at Rough Island (LCA 101) and Ringneill Quay have been important in documenting post-glacial sea level fluctuations. In particular, McCabe and Knight (in Knight 2002) have observed that at the head of Strangford Lough there are well defined late- and post-glacial wave-cut terraces at around 20m O.D.

Solid Geology

Predominantly Lower Palaeozoic greywackes (sandstones) and shales with numerous minor igneous intrusions. The north-eastern tip covers the Carboniferous Castle Espie succession. Over 95% of the LCA comprises Lower Palaeozoic (predominantly Ordovician Gala Group) greywacke sandstones and shales, the remainder being Carboniferous and Tertiary intrusives. The greywackes are commonly quarried as a source of aggregate; they are interbedded with thinner beds of siltstone or mudstone, commonly arranged as fining-up cycles. Minor conglomerates and volcanic ash-beds (or bentonites) occur.

The northern end of LCA94 encroaches onto Carboniferous rocks. These comprise the fossiliferous limestones and thin shales of the Castle Espie Group. This is a unique location for rocks of this age

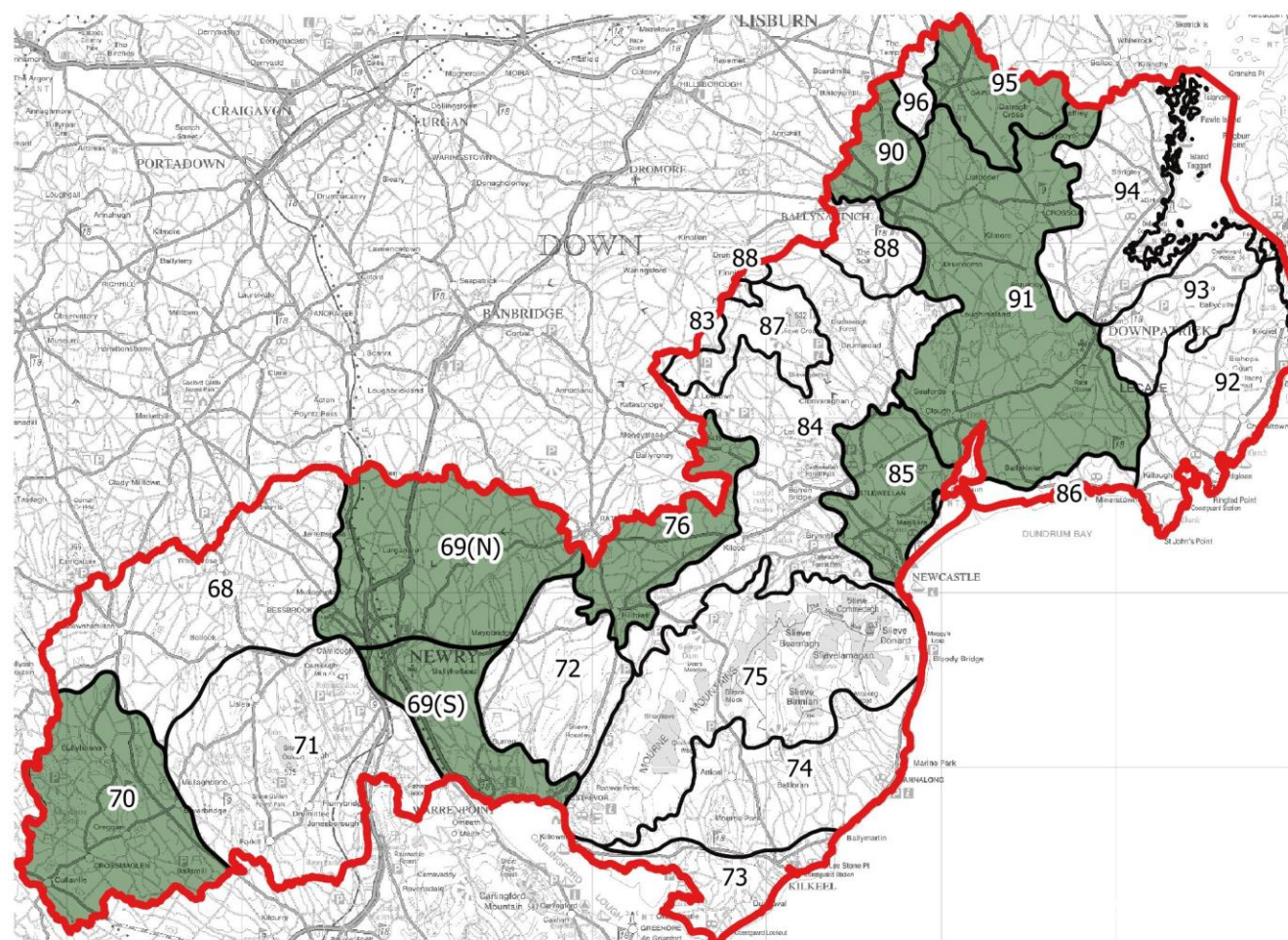
and lithology, the only equivalent in the north of Ireland being the Blackwater Limestone Formation in the south of Northern Ireland. ESCR Site 250.

Drift Geology

The drift geology map for this LCA shows it to be predominantly underlain by Late Midlandian till associated with the large ice mass that was centred on the Lough Neagh Basin. This ice flowed south eastwards from an ice divide that lay approximately SW-NE along the line of the north Belfast Hills. Evidence for this flow direction is found in the orientation of the numerous drumlins that make up much of the landscape. However, in the north and south of the LCA there are also significant outcrops of drift free bedrock that were scoured by the overriding ice. McCabe and Knight (in Knight 2002) have suggested that this area, and much of central Co. Down, was the site of an ice stream during the Drumlin Readvance that delivered a high sediment flux to the ice margin at areas such as the Lecale Coast to the southeast. This may go some way to explain the partial drift cover in the region and the widespread occurrence of rock cored drumlins. Further information on drumlins and inter drumlin hollow is provided in Appendix B.

The post-glacial inundation of the coastal drumlins along the western shore of Strangford Lough is particularly well illustrated in the south of the LCA along the Quoile estuary. This was filled with estuarine clays that accumulated to a height some 3m above present-day mean sea level. The record of sea level change is demonstrated by the depositional sequence at Woodgrange ASSI in LCA 91.

7. Lowland Drumlin Farmland



Newry Lowland Drumlin Farmland (69 North and South)
 Crossmaglen Lowland Drumlin Farmland (70)
 River Bann Lowland Drumlin Farmland (76)
 Newcastle Lowland Drumlin Farmland (85)
 Ravernet River Lowland Drumlin Farmland (90)
 Quoile River Lowland Drumlin Farmland (91)
 Saintfield Lowland Drumlin Farmland (95)

7.1 NEWRY LOWLAND DRUMLIN FARMLAND (69)

Settlements: Ballyholland, Bessbrook, Burren, Glen, Jerrettspass, Lurganare, Mullaghglass, Newry, Rostrevor, Warrenpoint

LCA 69 is sub-divided into 2 areas (LCA 69 North and LCA 69 South), to reflect variations in landscape character. However, a single biodiversity profile and geological characteristics review is provided for the whole of LCA 69.

Landscape Character – Newry North (LCA 69N)

Key Characteristics

- Drumlin landscape drained by tributaries of the Newry River.
- Rolling, improved pastures in good condition, becoming increasingly rough on the fringes of Slieve Roosley.
- Well-trimmed hedges and tree belts separate fields, creating an intact and unified landscape.
- A relatively dispersed pattern of rural housing development and larger farms, older properties set amongst stands of trees.
- Network of narrow hedged and hedge-banked roads within the drumlins.
- Occasional panoramic views of the Mourne Mountains.

Landscape Description

Landform

The landscape comprises the river basin to the north of Newry between the higher landforms of the Ring of Gullion and Carrigatuke hills to the west, and Slieve Roosley to the east. It is an expansive area of rolling drumlins, drained by tributaries of the Newry River which flow in attractive river valleys. The drumlins are orientated north-north-west to south-south-east.

Landcover

The rolling fields have a neat appearance, although pastures become increasingly marginal with rocky knolls, bracken and gorse hedgerows towards the foothills of Slieve Roosley. Elsewhere, low hedges and woodland belts separating the fields accentuate the rolling topography of broad drumlins. Scots pine are commonly planted with houses and farms creating striking silhouettes on smooth sided drumlins. Mature oak and beech are common as are small patches of woodland, but otherwise the landscape is relatively open and there is an intact and unified landscape pattern.

Development

This area, to the north of Newry, is less densely populated than that to the south (LCA 69S). There are scattered individual bungalows, houses and large farms throughout the area, and in places new properties are sited on drumlin tops with little vegetative screening. Older properties and farmhouses are more often nestled amongst stands of trees.

There is a network of small hedged and hedge banked winding roads connecting scattered dwellings. These and the major roads 'roller coaster' over the drumlins, creating a confusing and often disorientating landscape for the traveller. The town of Newry is at the head of the Newry River which leads to Carlingford Lough. The settlement has expanded from the river up the valley sides and spilling onto the higher ground towards Bessbrook and to the east towards the valley of the Clanrye River.

Perception

This area of the landscape has greater qualities of tranquillity than that to the south of Newry. The landscape seems open and exposed on ridge-tops and enclosed and sheltered within the valleys.

Landscape Condition and Forces for Change

Landscape Condition

The landscape is generally in good condition. It becomes slightly more degraded on the fringes of Newry, with field boundaries falling into disrepair and scattered ribbon development. Pylons, major transport corridors and insensitive development associated with the town, serves to detract from the overall high quality of the landscape.

Forces for Change

Agriculture

The loss of field boundaries and the replacement of hedgerows and hedge banks with wire is detrimental to the landscape character.

Trees and Woodland

Mature trees, small woodlands and tree clumps, particularly Scots pine and beech, contribute to the landscape character. Development pressures may threaten these landscape features.

Development

Pressure for housing development appears more limited here than in parts of the landscape to the south of Newry extending to the coast. Nevertheless, newer housing developments are a frequently occurring feature of the landscape, and there may be ongoing pressure for rural housing developments, particularly at the fringes of Newry.

Minerals

There is a low level of relatively small scale quarrying activity in the LCA, and GSNI mapping indicates the area includes mineral resources potentially suitable for high specification aggregates, as indicated on GSNI mapping, therefore ongoing pressure for minerals development may continue into the future.

Tall Structures

Small to medium scale wind turbines are currently occasional features of the rural landscape. There may be ongoing pressure for domestic or farm scale schemes.

Landscape Management and Planning Guidelines

Key Sensitivities

Landscape management and planning should aim to ensure the suburbanising influence of Newry does not extend into this area in an unplanned pattern further blurring the distinction between the rural and urban landscape. The most sensitive landscapes are the attractive river valleys, loughs and marshes, exposed drumlin tops and the many archaeological sites (raths, mottes, standing stones) which occur throughout the area.

Guidance

Agriculture

- The management and replanting of hedges, and the rebuilding of drystone walls where they traditionally occur, would help maintain the existing landscape pattern.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.

Trees and Woodland

- The management and creation of small farm woodlands would help to maintain landscape diversity and integrate new development, particularly on the fringes of Newry.
- Existing mature specimen trees and stands should be maintained. Native successor trees should be encouraged either through planting or appropriate management of emerging saplings. Scots pine is a characteristics species.

Development

- Development close to Newry should be concentrated in coherent groups located on lower slopes, close to existing buildings.
- Single dwellings in the countryside could be integrated more easily if located on lower slopes. It is important to keep views of the Mourne open. Restoration of remaining older stone buildings would be beneficial.
- The use of native planting on the boundaries of developments and use of a limited range of building materials, for garden fences and walls, as well as for the buildings themselves, will improve the unity and integration of buildings within the countryside.
- There is a high density of cultural heritage sites within this landscape; the settings of these sites should be respected in the siting of new buildings.

Minerals

- The undulating landform could potentially accommodate a level of quarry development if carefully sited and designed.
- The effects of minerals related development should be mitigated through the inclusion of bunding and native woodland planting, with consideration given to the effects from gateways, views to plant and other ancillary elements.

Tall Structures

- SPG accompanying PPS18 assesses a high to medium sensitivity to wind energy development.
- The rural landscape has a limited capacity for smaller scales of wind energy development, which should appear as infrequent features.
- The siting of turbines on the top of prominent drumlins or ridges should be avoided.



Scots pine are features of the landscape on steep drumlins to the north east of Newry.



Scattered housing and farms to the north of the character area.

Landscape Character – Newry South (LCA 69S)

Key Characteristics

- Pronounced ridges and valleys, differentiating the area from that of the more undulating landforms to the north.
- Includes the narrow, enclosed corridor of the Newry River from Newry to Warrenpoint.
- Stone walling, scrubby, gappy hedges.
- Pastures of varying quality, patchworks of scrubby woodland and conifers.
- Loughs recognised for their national and international natural heritage value.
- Views to the Mournes and Slieve Gullion.
- Scenic coastal fringe with views to the Republic.
- High levels of housing development beyond settlement boundaries.

Landscape Description

Landform

The wider basin of the Newry River is an expansive area of rolling drumlins, however the area south of Newry is defined by more pronounced broader ridges separated by narrow, flat-bottomed valleys with ribbon loughs and bogs such as Derryleckagh Lake and Greenan Lough. The ridges descend quite steeply to a low stony shoreline with Carlingford Lough. To the south of Newry, the Newry River flows in a dramatic, steep sided narrow valley.

Landcover

In comparison to the pastures further north of the character area, landcover is less uniform, with pastures of varying quality intermingled with scrub, bracken, patchy woodland, and less well defined field boundaries. Fen and wet woodland fringe the loughs, while larger tracts of woodland are present at the estate landscapes at Dromantine House and Narrow Water Castle, including coniferous plantations. Stone walling is characteristic in parts of the landscape close to Slieve Roosley, contributing to a more rugged landscape quality.

Development

Housing development occurs frequently within this landscape, strung along the network of minor roads, and lessening the contrast between countryside and areas of settlement. Housing is quite prominent when sited on the steep sided ridges. In places the frequency of housing, usually incorporating mown lawns and ornamental planting, give a suburban quality to the landscape. The port of Warrenpoint and the small town of Rostrevor are located in sheltered bays along the coast and have attractive centres. Narrow Water Castle is an important historic landmark at the entrance to the Newry River, seen from the busy A2 that follows the waterside.

Housing extending up the steep slopes to the west of the Newry River, towards the Ring of Gullion, is prominent in views across the river valley, with the quarry site at Drumalane a significant scar on the landscape.

Perception

The landscape has a busier and more fragmented character to that of the more tranquil, uniform drumlins further north, with housing and other developments affecting the otherwise scenic qualities of the enclosed valleys and loughs. Long outward views from ridge tops, and also the coast, are an attractive feature of the landscape. Only the southernmost part of the LCA falls within the Mournes AONB.

Landscape Condition and Forces for Change

Landscape Condition

The landscape has a somewhat degraded quality, with field boundaries falling into disrepair and scattered ribbon development. Pylons, major transport corridors, quarrying and insensitive development associated with Newry, detract from the quality of the landscape. However, pockets of higher quality and more scenic landscape exist, particularly around the loughs.

Forces for Change

Agriculture

The loss of traditional field boundaries, with the replacement of hedgerows and stone walling with post and wire fencing, is detrimental to the landscape character. Sensitive wetlands are susceptible to the effects of adjacent agriculture including run-off or drainage.

Trees and Woodland

Mature trees, small woodlands and tree clumps are essential for the integration of the relatively high development levels into the more exposed parts of the landscape, however development pressures, particularly to the south, may threaten these landscape features.

Development

There appears to be significant development pressure within the LCA around Newry and Warrenpoint, where housing and other developments have in recent times been sited with little regard to their landscape context. Ribbon and scattered rural development within the broader fringes of Newry is visually intrusive where it is sited on ridge-lines and higher hill slopes.

Minerals

Larger scale quarrying has historically occurred in the LCA and, with mineral resources potentially suitable for high specification aggregates indicated on GSI mapping, ongoing pressure for

minerals development may continue into the future. Effective mitigation of the landscape and visual effects of quarrying can be difficult to achieve on steep terrain.

Tall Structures

There may be on going pressure for domestic or farm scale wind energy schemes, and potentially larger scale developments associated with the commercial and industrial areas around Newry and Warrenpoint.

Roads

Construction of the Newry Southern Relief Road, linking the A1 Newry Bypass directly to the A2 Warrenpoint Road, is likely to be undertaken in the near future, passing through countryside to the south of Newry and also involving a bridge crossing of the Newry Canal and Newry River. The preferred route would traverse the steep and visually exposed escarpment west of the river, likely to exacerbate the landscape and visual effects of the scheme.

Landscape Management and Planning Guidelines

Key Sensitivities

Landscape management and planning should aim to limit suburbanisation, particularly in the southern parts of the rural landscape around Newry and Warrenpoint. The most sensitive landscapes are the attractive river valleys, loughs and marshes, such as the Derryleckagh Bog ASSI and the many archaeological sites (raths, mottes, standing stones) which are concentrated on the fringes of the area.

Guidance

Agriculture

- The management and replanting of hedges, and the rebuilding of drystone walls where they traditionally occur, would help maintain the existing landscape pattern.
- Inter-drumlin wetlands and the more extensive bogs to the south-east of Newry should be a priority for landscape management. Agricultural run-off or drainage may have serious consequences for these valuable habitats.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.

Trees and Woodland

- The management and creation of small farm woodlands would help to maintain landscape diversity and integrate new development into the landscape.
- Existing mature specimen trees and stands should be maintained. Native successor trees should be encouraged either through planting or appropriate management of emerging saplings. Scots pine is a characteristics species both inland and in coastal locations.

Development

- Development around Newry should be concentrated in coherent groups located on lower slopes, close to existing built up areas.
- Single dwellings in the countryside could be integrated more easily if located on lower slopes.
- The use of native planting on the boundaries of developments and use of a limited range of building materials, for garden fences and walls, as well as for the buildings themselves, will improve the unity and integration of buildings within the countryside.
- There is a high density of cultural heritage sites within this landscape, the settings of these sites should be respected in the siting of new buildings.

Minerals

- Exposed hill sides, frequent housing, and the presence of environmentally sensitive valleys pose significant constraints to minerals development in the area.
- The effects of any minerals related development should be mitigated through the inclusion of bunding and native woodland planting, with consideration given to the effects of gateways, views to plant and other ancillary elements.

Tall Structures

- SPG accompanying PPS18 assesses a high to medium sensitivity to wind energy development.
- The more industrial areas south of Newry may have some capacity for wind energy development, but which would require careful design to avoid overwhelming the relatively small scale and enclosed landscape, impacting upon views to the Mournes and the Ring of Gullion, while also affecting the setting of Warrenpoint.
- The siting of turbines on the top of prominent drumlins or ridges should be avoided.

Roads

- Parts of the Newry Southern Relief Road would be situated in a relatively sensitive part of the landscape, with the road seen where there are currently attractive views west across the river to rising ground within the Ring of Gullion AONB. Northerly sections pass through a more industrialised landscape, characterised by the nearby disused quarry at Drumalane and industrial developments situated between the A2 and the canal.
- If constructed on the preferred route alignment, the road is likely to be quite exposed to view when traversing the steep escarpment west of the Newry River, and requiring significant earthworks to accommodate the route on a sloping landform. The inclusion of robust native woodland planting along these most exposed parts of the road corridor are likely to be essential in assisting with the integration of the road development into the landscape.
- The design of the route should also give consideration to the use of traditional materials in the construction of some highway elements, for example feature stone walling at prominent locations such as junctions.



Larger landforms and loughs to the south east of Newry.



Relatively high levels of rural housing and other development characterise the landscape near Ballyholland.

Biodiversity Profile (LCAs 69N and 69S)

This assessment applies to the combined area of LCA 69(N) Newry North and LCA 69(S) Newry South.

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- In total, 16,400 ha (91.3%) of the LCA area is within the council boundary.
- Large scale drumlin landscape drained by tributaries of the Newry River.
- Improved pastures cover the drumlin country, but rough grazing is found on rocky areas and in damp hollows.
- Although woodland occupies only 3.5% of the LCA area, there are significant examples of parkland woodland, hazel woods, mixed ash, mixed oak, wet, and base-rich woodlands.
- Hedgerows are the major field boundary; of varying management with some well-trimmed, but others merging into the gorse heath of rocky areas.
- Lowland fen sites of national and international importance.

Key Sites

- SAC: Derryleckagh
- ASSI: Castle Enigan; Derryleckagh; Greenan; Greenan Lough; and Carlingford Lough
- AONB: Mourne
- SLNCl: Betty's Hill Fen; Burren Lowlands incorporating Donaghaguy Reservoir; Canal Wood; Carnbane Wood (within Newry City); Carrickbawn Wood; Carrickbawn; Carrickmacstay; Carrogs; Commons Hall Road; Creeve; Coreagh, Newry; Cullion Fen; Daisy Hill Wood (within Newry City); Damolly; Derryleckagh Lake; Dromantine College; Drumantine Grassland; Fathom Lower Woods and Grasslands; Ghann River; Goragh Wood and Goraghwood Quarry; Granite View; Gransha; Greenan Wood; Kilbroney Park; Maginnis Villas; Milltown Lough; Narrow Water Forest; Rostrevor River; Sheeptown Fen; and Upper Burren Lake and Fen

Woodlands

Woodlands cover approximately 3.5% of the LCA with a large proportion in estates (**parkland and wood pasture**), including Narrow Water, Dromantine House and Rostrevor House. Beech is often the dominant tree but oak, sycamore and ash are common. In some of the wooded estates conifers may be intermixed, as at Dromantine, but even where the planting is essentially broadleaf, exotic conifers occur and include monkey puzzle, giant redwood and coastal redwood. Denser woodlands can have a heavy cover of rhododendron and cherry laurel that reduces the plant diversity of understory and ground layers. In other parts of the parklands, as at Narrow Water, heavy grazing has resulted in a lack of understory or ground flora species. Several of the woodlands show little sign of regeneration with many mature and post-mature trees. In contrast, planting of larch, Austrian

pine and birch at Warrenpoint Golf Course is out of keeping with the mature oaks that dominate the former parkland.

In this LCA exotic species of trees, particularly conifers, and small arboreta are common to large houses, as for example at Glenview, Dromantine House and notably at Rostrevor House. Along the lower Moygannon valley and the coast between Warrenpoint and Rostrevor, there are a number of large houses with impressive stands of trees that include both common broadleaves (particularly beech, lime, oak and sycamore), evergreen oaks from the Mediterranean and many conifer species. However, several of these larger houses and grounds are under threat from expansion and urban in-fill, particularly along the coast.

Carrickbawn Wood is a considerable area of oak/birch/beechness woodland adjacent to the coniferous plantations of Ballymoney Wood. This woodland has either a planted origin or has been 'landscaped' by the addition of beech and oak; this has almost certainly occurred in the lower Moygannon valley where hazel woodland on the steep stream-side slopes also contains beech and oaks. A relatively rare, for this LCA, patch of almost pure hazel coppice is alongside. One of the best examples of base-rich woodland in Co. Down is Derryleckagh Wood, part of the Derryleckagh SAC and ASSI, occupying steep slopes on the west of Derryleckagh Bog. Hazel is dominant with occasional oaks, and the oak component ensures classification as an Annex 1 of the Habitats Directive; there is a rich ground flora and the parasitic toothwort has also been recorded. A rich moss and lichen community is found on rock faces. Greenan Wood occupies a similar site; it has some oak with birch and hazel. The understorey is comprised of bramble, honeysuckle and bracken and there is a good moss cover on rocks. However, the site is heavily grazed.

Wet woodland is scattered throughout the LCA and usually associated with small pockets of fen; willow and alder dominate.

Grassland and Arable

Grassland occupies approximately 75% of the LCA and whereas most of this is in improved pastures, there are significant areas of rough grazing and wet grassland. The latter is particularly concentrated in two areas - one on an extensive, rocky area between Derryleckagh Lake and Cabragh. There, in the linear hollows between the rocky outcrops, which have some heather and gorse heath, are small patches of bog, fen and fen meadows. The second area lies north of Newry, centred on Damolly; this has a similar topography with fen meadows in hollows. Some of these are species-rich with a variety of sedges, including white sedge, brown sedge and long-stalked yellow sedge; small pools also contain bog bean. Elsewhere in the LCA, wet meadows may be found alongside fens that are scattered in inter-drumlin hollows, as at Castle Enigan ASSI. Other areas of dry rough grazing are associated with steep slopes that have thin soils and the rocky areas. These grasslands occur south and east of Newry, but although they are species-rich, they are often heavily grazed and potentially under threat from urban expansion. Nevertheless, these sites are worthy of retaining and are priority habitats in the NI Grassland Inventory.

Improved grasslands have low biodiversity, indeed biodiversity is associated with the field boundaries. Most improved pastures are surrounded by **hedgerows**; these are of variable quality with some being well-maintained, including more recent hedge laying, and towards the more marginal, rocky areas hedges become scrubby and in the rough grasslands sometimes merge into gorse scrub.

Arable land accounts for about 10% of the LCA mainly in the north with particular concentrations north of Newry and in a belt from the northeast corner to Cargabane.

Heaths and Bogs

There are no significant peat bogs remaining in the area, all have been cut-over and reclaimed to pasture or, following cutting, have developed into fen. Small boggy patches remain in hollows in some of the rocky country where there are also small patches of heather heathland.

Wetlands and Lakes

Many of the small inter-drumlin fens have been lost to agriculture, but significant large examples remain. Foremost among these is Derryleckagh SAC and ASSI. This basin fen (**lowland fen**) shows evidence of past peat cutting so that there is a range of conditions from slightly base-rich to markedly acidic, and a corresponding diversity of plant communities. The European interest arises from the presence of transition mires and quaking bogs. The main community at the site is an open bottle sedge - brown moss association, but other communities include lesser tussock sedge - mixed sedge swards, common reed beds and relict bog vegetation on the islands of peat left from cutting. The site supports a rich invertebrate community, including rare species, and a high density of breeding wetland birds, including reed bunting. Greenan ASSI is also a basin fen and although small, has a similar range of vegetation types. Castle Enigan ASSI is an extensive inter-drumlin basin in the north of the LCA, with wetland communities lying between ridges of higher ground. These raised areas support a range of habitats, including wet heath, acid grasslands, scrub and wood, which adds considerable diversity to the site. Much of the fen has developed on cut-over bog and some deep pools still remain. The vegetation is characterised by bottle sedge and water horsetail. The site is also important for wetland birds and invertebrates.

In the south of the LCA, wetlands have come under increasing pressure in recent years; urban and industrial expansion has taken place on in-filled wetlands. It is important that the remaining wetlands, some of the best examples of fen in Northern Ireland, are preserved. It is important also that they are protected from any drainage or other activities that will lower the water table and from inflow of nutrient-rich waters that could affect not only the quality of the water but also the plant species.

There are a number of lakes in the LCA, especially in the south. Greenan Lough ASSI includes open water as well as the **reedbeds** and associated vegetation types. The open waters of the lough contain a variety of aquatic plant species and shoreline species include shoreweed and water lobelia.

Rivers are not noteworthy for Priority Species. However, it is important that the quality of water is maintained or improved; thus agricultural practices should follow cross compliance requirements (with regard to spraying of fertilizers, slurry, herbicides and pesticides and management of silage effluent) so that pollution incidents are avoided. Expanding urban development and building in the countryside also should take water quality into account.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: this LCA contains significant examples of the NI Priority Habitat parkland and wood pasture planted by estates, which are of variable biodiversity value.

Actions:

- enhance the biodiversity value of broadleaved and mixed woodlands by discouraging felling; by preventing loss; by retention of veteran trees and dead wood (particularly for bryophytes, ferns, fungi and fauna); by limiting grazing to foster herb layer and regeneration and if necessary, encourage replanting of native species.
- encourage planting of native broadleaved woodlands through appropriate agri-environment and forestry grant schemes, as a replacement for conifer plantations and shelterbelts that are of poor biodiversity and landscape value; ensure that hazel scrub is not cleared.
- further study of the history and ecology of broadleaved and mixed woodlands within the LCA, particularly any ancient and long-established, as a key to future management of demesne woodlands.
- ensure conservation of wet woodlands, particularly in the south of the LCA, which are under threat from infill for urban and industrial expansion, drainage and dumping/tipping.

GRASSLAND AND ARABLE

Issue: grasslands and arable in this LCA have been intensively managed and are of poor biodiversity value, however, there are good examples of wet and dry species-rich grasslands, which are relatively rare in Northern Ireland.

Actions:

- encourage (through participation in agri-environmental schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland and protect unsown areas of grassland including dry, calcareous grassland.
- maintain and improve field boundaries, especially hedgerows where they occur through adoption of relevant measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- maintain and enhance wet grassland by where, possible, restricting field or arterial drainage; ensure that rough grasslands are neither undergrazed nor overgrazed nor lost to urban

expansion; ensure that traditional management of hay meadows continues (lowland meadows).

- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds.

HEATHS AND BOGS

Issue: limited areas of uncut peat-bog remain in hollows.

Actions:

- maintain the integrity of those small remaining peat-bogs by for example, preventing infilling, fly-tipping, fires, new drainage and mechanised peat cutting - applies particularly to intact bogs, but cut-over bogs can provide important habitats for birds and invertebrates.
- consider restoration of bog habitats through appropriate water level management, removal of individual colonising trees and phasing out peat cutting - applies particularly to any areas of recent mechanical cutting.
- prevent new forest planting on remaining patches of bog.

Issue: loss of heathland and decline in its biodiversity.

Actions:

- promote adoption of sensitive heathland management in agri-environmental schemes, through consultation with farmers.
- control grazing intensity on remaining heathland to encourage development of heathland and of heather of different ages.
- discourage 'reclamation' to pasture fields around heathland margins.
- discourage afforestation.

WETLANDS AND LAKES

Issue: loss of some of Northern Ireland's best examples of inter-drumlin fens to agriculture and urban expansion.

Actions

- protect remaining wetlands from infill for urban and industrial expansion.
- protect fens from drainage or other activities that would lower the water table and from inflow of nutrient-rich waters that could affect water quality and plant species; prevent further reclamation for pasture.
- ensure that disturbance of breeding wetland birds such as reed bunting is minimised.

Issue: the Newry River and lakes within Greenan Lough ASSI contain a variety of aquatic plant species.

Actions:

- protect the water quality of rivers and lakes through nutrient management and by reducing suspended sediments; prevent the release of particles released through peat cutting or forestry operations; install sediment traps at large extraction sites.
- promote and ensure compliance with good farming practices, guidelines and legislation so that rivers and lakes are not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip.
- monitor streams in relation to peat cutting (sediment load and deposition) - important for salmon that nursery and spawning beds are clear; monitor streams in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants; recognise that monitoring of streams in relation to forestry and other operations upstream may be important.

COASTAL

N/A

Geological Characteristics (LCAs 69N and 69S)

This section applies to the combined area of the Newry North and Newry South Lowland Drumlin Farmland LCAs.

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm'. (see Appendix B for information on drumlins).

The Newry Basin, comprising the *Newry North* and *Newry South Lowland Drumlin Farmland* LCAs, is a large-scale rolling drumlin landscape situated between the Ring of Gullion and the Mourne Mountains. The area is drained by tributaries of the Newry River that flow in attractive river valleys. The drumlins are orientated north-northwest to south-south-east. To the southeast, the drumlins are displaced by broader ridges separated by narrow, flat-bottomed valleys with ribbon loughs and bogs such as Derryleckagh Lake and Greenan Lough. To the south of Newry, the Newry River flows in a dramatic, steep sided narrow valley. There are occasional panoramic views of the Mourne Mountains from the tops of the drumlins. The landscape seems open and exposed on ridge-tops and enclosed and sheltered within the valleys. On the southern coastal plain of the LCA, moraines add topographic diversity to an area where the visual dominance of the Mourne mountains decreases rapidly westward and the drumlins around Rostrevor continue the trend of declining hilltop altitude towards the west and south, their clustered pattern and streamlined morphology contrasting with the isolated valley divides of bedrock highs. The most sensitive landscapes are the attractive river valleys, loughs and marshes.

Solid Geology

The area comprises 50% Newry Complex intrusives, 40% Lower Palaeozoic (predominantly Ordovician) greywacke sandstones and shales, and the remainder being Tertiary Lower Basalt Formation and dykes.

Drift Geology

The drift geology map for this LCA shows an area largely underlain by a late Midlandian till that constitutes most of the drumlins in the area and was deposited by ice that flowed southwards from a centre in the Lough Neagh Basin. Further information on drumlins and inter drumlin hollows is provided in Appendix B.

Running north to south through the LCA is the Poyntz Pass glacial drainage channel. This channel formed during the deglaciation of the Lough Neagh lowlands; a period when downwasting ice occupied the Lower Bann valley and prevented the northwards drainage of the proto-Lough Neagh. Lake levels then rose until an alternative outlet was found to the south via Pontz Pass and Newry to Carlingford Lough (Davies and Stephens 1978). McCabe and Hirons (1986) have described this drainage channel as having similarities to a tunnel valley system, in which sand cored drumlins occur within the channel system itself and are flanked by large rock drumlins west and east of the channel.

The deglaciation of the area is further marked by the occurrence in the southeast of the LCA of elements (2.2km²) of the Western Mournes Moraine and Drumlin Complex. The valleys of the Ghann, Moygannon and Kilbroney Rivers, as well as the Glen River and the upper Shanky's River, all contain recessional moraines associated with Late Midlandian ice retreat. The lowlands southwest of the Mournes are characterized by south eastward trending drumlins. These are related to Late Midlandian fast ice flow into Carlingford Lough, through the western valleys of the Mournes and across the lowlands to the ice limit at Cranfield Point. This probably indicates rapid drawdown of marine-based ice. Chaotically distributed hummocks and occasional kettle holes on the lower slopes of the drumlins and in inter-drumlin areas record local ice stagnation. Other areas of the Complex occur in LCAs 72, 75 and 84. The drift map for the LCA clearly shows the post-glacial raised beach deposits that underlie much of the narrow coastal plain between Warrenpoint and Rostrevor. Interestingly, it also shows an area of raised marine deposits beneath the centre of Newry. If confirmed, these could have implications for the interpretation of the Holocene history of the coastal zone. One possibility is that they could represent a mid-Holocene transgression associated with rising sea level that extended the estuary of the Newry River much further inland.

7.2 CROSSMAGLEN LOWLAND DRUMLIN FARMLAND (70)

Settlements: Creggan, Crossmaglen, Cullaville, Cullyhanna, Silverbridge

Landscape Character**Key Characteristics**

- Rolling drumlins with broad areas of wetland and bog in inter-drumlin hollows; small rounded loughs fringed by moss.
- Strong field patterns created by hedgerows give much of the landscape a well-structured appearance, while other parts have a more marginal quality.
- Winding rivers weave inconspicuous courses between drumlins; stone bridges are a feature.
- Roller-coaster roads wind across the drumlins, keeping to the higher land.
- Scattered settlement pattern with some derelict stone cottages.
- Hills of the Ring of Gullion provides a striking backdrop to an isolated and strongly rural landscape.

Landscape Description**Landform**

The *Crossmaglen Lowland Drumlin Farmland* is a lowland landscape on the southern border which is confined to the north and east by the uplands of the Carrigatuke hills and the Ring of Gullion. This is a diverse and well-structured landscape of rolling green drumlins and some elevated hills with scrub, bog and small loughs occupying the land in between. There is often a striking contrast where the smoothly curving drumlins are curtailed by the horizontal plain of a lough. Rivers, including Creggan River, pass inconspicuously between drumlins and are crossed by attractive stone bridges.

Landcover

Some lough shores are wooded and many are inaccessible as they are fringed with extensive areas of bog or wet woodland. Fields are predominantly pasture and are of a regular shape and size. They are enclosed by dense hedgerows with numerous hedgerow trees, which create strong field patterns. Occasionally, particularly to the south, there are some stone boundaries. Some pastures are abandoned to rush and scrub.

Development

Roller-coaster roads wind across the drumlins making orientation difficult. They connect roadside houses, which are traditionally situated at the ends of access tracks. There are scattered derelict stone houses, and there is piecemeal new development often sited prominently in what is a relatively open landscape. In general, rural housing development remains well spaced beyond the main areas of settlement. The principal settlement is Crossmaglen, at the junction of several rural roads, part of which occupies a relatively prominent position on a low hill. Archaeological features, scattered throughout the area, are important.

Perception

The Ring of Gullion creates a strong backdrop to the undulating drumlin landscape and the nearby uplands create a sense of isolation. The LCA has a remote and strongly rural character.

Landscape Condition and Forces for Change***Landscape Condition***

The landscape condition is mixed, often comprising improved pastures and an intact hedgerow pattern on the drumlins, but there are some areas where the farmland has become degraded, with derelict and partly abandoned fields, and occasional abandoned buildings.

Forces for Change**Agriculture**

Further degradation and abandonment of pastures would alter the landscape character, particularly if the hedgerow pattern begins to break down. Sensitive wetlands are susceptible to the effects of adjacent agriculture including run-off and drainage.

Trees and Woodland

Mature trees and small woodlands contribute to the landscape character, fringing lough shores and assisting with integrating development into the countryside. Ongoing development, farming practices or neglect may result in the loss of these important landscape features.

Development

There may be ongoing pressure for new rural housing development within the area. Housing developments and new larger scales of agricultural buildings can appear prominent when sited on exposed drumlin tops and sides. There is the potential for leisure development at larger loughs such as Lough Ross.

Minerals

Minerals extraction has been undertaken at Tullyvallen to the north of the LCA and at Swan Rock to the south east, and there may be further pressure for quarry expansion or minerals development elsewhere in the character area due to the presence of minerals resources potentially suited to high specification aggregates, indicated on GSNI mapping.

Tall Structures

Wind turbines are a minor feature of the landscape, however there may be further pressure for domestic or farm scale wind energy developments.

Landscape Management and Planning Guidelines

Key Sensitivities

The rolling landform and well-structured field pattern is relatively robust and offers some capacity for accommodating new development. The inter drumlin wetlands and loughs are the most sensitive areas and are of both ecological and scenic importance.

Guidance

Agriculture

- The inter-drumlin wetlands are sensitive to pollution via run-off, landfill etc and should be a priority for management action. The management of lough side woodlands, carr and moss to ensure their long term conservation is also important.
- Management and replanting of hedgerows and hedgerow trees should be a priority.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.

Trees and Woodland

- Riverside planting would enhance the landscape and ecological value of the Creggan River corridor.
- The management and creation of small farm woodlands would help to maintain landscape diversity and integrate new development into the landscape.
- Wet woodland at lough fringes contributes positively to habitat diversity as well as landscape character, and should be encouraged.

Development

- The use of native planting on the boundaries of developments and use of a limited range of building materials, for garden fences and walls, as well as for the buildings themselves, will improve the unity and integration of buildings within the countryside.
- The use of vernacular styles and materials in new buildings (i.e. stone bungalows with slate roofs) would help conserve the landscape character. Traditional locations for houses are on the tops or sides of drumlins, however in prominent locations landscape and visual effects should be mitigated by developments of appropriate scale, and the inclusion of native planting.
- Small-scale development may be accommodated within this rolling, well-structured landscape, provided it is accompanied by new planting. Development should occur within the existing landscape framework, retaining hedgerows and trees where possible; large-scale development may be prominent in views from the adjacent uplands.
- Development should not impinge on the wider landscape setting of archaeological features such as crannogs and raths.

Minerals

- Quarrying can be accommodated in the undulating landscape where including appropriate mitigation including woodland screen planting and bunding, with consideration given to the effects of gateways, views to plant and other ancillary elements.
- The numerous small loughs are the most sensitive parts of this landscape, the settings to which should remain unaffected by industrialising influences.

Tall Structures

- SPG accompanying PPS18 assesses a high to medium sensitivity to wind energy development.
- The landscape could accommodate a level of small scale domestic or farm scale wind turbines in proportion to the relatively small landscape scale, sited to take advantage of topographic screening.
- Turbines, particularly those located towards the east of the LCA, should be sited so as not to impact upon key views from the LCA towards the hills of the Ring of Gullion.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- All 10,034 ha of the LCA area is within the council boundary.
- improved pastures dominate the LCA.
- loughs and fens in broad inter-drumlin hollows and flat-floored valleys; fens are the most important feature of the habitat biodiversity of the LCA.
- woodlands are very sparse and confined to small patches; semi-natural wet woodlands on fens and hazel woods on steep slopes.

Key Sites

- ASSI: Tullyard; Drumlougher Lough; Lurgan Lough; and Loughaveely
- AONB: Ring of Gullion
- SLNCI: Annaghgad Grassland; Annaghmore Lough; Cappagh Lough Fen and Cappagh Grassland; Carnally Fen North; Carnally Fen South; Carnally Grassland; Carran Fen; Clonalig Lough; Cornahove Lough; Creenkill Grassland; Creggan Bane Fen; Crossmaglen Fen; Crossmaglen North Fen; Cullyhanna Lough; Cullywater; Drumboy Lough; Drummackavale Lough; Glassdrumman Fen; Glassdrumman Lough; Kiltybane Lough; Lisamry Lough; Lisleitrim Lough; Lough Alina; Lough Patrick; Lough Ross; Lurgan Lough; Sheetrim Lough; Silverbridge; Teer; Tullydonnell Grassland



Areas of scrubby pasture towards the centre of the LCA.



Ross Lough.

Woodlands

Woodland is scarce in the LCA, accounting for around 1.5% of the land cover, and occurring mainly as small patches. There are no extensive areas of woodland and no major conifer plantations. There has been planting of relatively large stands at several locations, including conifer planting along the edge of the cut-over bog at Sheetrim House, a 12 ha broadleaf woodland at Drummuckavall and broadleaf planting on the Ashfield Golf Course. There are also numerous smaller plantations including relatively recent Sitka spruce planting, but others are part of nineteenth century 'landscaping', associated with mounds and predominantly of Scots pine and larch. Other broadleaf plantations include a strip along the valley near Silverbridge where beech is dominant and accompanied by ash, oak, and elm together with hazel, birch and rowan. Such plantations may be associated with parklands (**parkland and wood pasture**) although several of these have been lost and of those that remain, many are rundown; felling, pollarding and piece-meal coppicing are evident. An exception is Creggan Poet's Glen, centred on the Rectory and walled garden; this has been restored and the parkland is listed as a priority woodland.

Semi-natural woodland is mainly of two types, **wet woodland** and hazel woods. Wet woodland is common in areas of **lowland fen** (see below) and is predominantly of willow and alder carr; examples include Cappagh Lough and St Peter's Lough. Hazel woodland occurs as isolated patches on hillsides or along valley sides; examples include those at the Dorsy Enclosure. They are often almost completely hazel, but there are occasional ash, sycamore, holly and rowan.

Grassland and Arable

Grassland accounts for most of the land cover of the LCA, much of which is improved pasture; the remainder is a mix of arable, hay meadow and rough grassland. Although there is variation in intensity of management, improved pastures generally tend to have relatively low biodiversity as does arable land. Land classed as arable, which includes grass re-seeding, is scattered throughout the LCA.

Lowland pastures managed at low intensity are relatively rare in Northern Ireland, especially in the east, but there are several examples in this LCA. One is Tullyard ASSI; this site comprises two fields which are managed as hay meadows (**lowland meadows**). The site has freely draining soils and is on a relatively steep slope, but minor variations in drainage and traditional management practices ensure it supports a great diversity of species, including a variety of grasses and herbs. Several species of butterflies, including meadow brown, have been recorded at the site and, more generally, these grasslands can provide valuable feeding and roosting sites for a range of birds and invertebrates. Similar fields of species rich dry grassland totalling around 22 ha, and sometimes managed for hay, are located in several locations in the southern section of the LCA area, including east of Ross Lough, west of Crossmaglen near Cullaville, between Cappagh Lough and Drumboy Fort, at Clonalig and at Silverbridge.

Species rich wet grasslands and rush pastures totalling around 15 ha, occur alongside some fens, near to loughs and in flat river valleys; examples include fields around Ross Lough and in the Cully Water and Fane River valleys. Rush pastures are often species poor, but can also merge with the fens and more species-diverse flushed areas. They tend to form part of a mosaic of habitats that together support a diversity of plants, animals, birds, including priority wader species like lapwing, **curlew** and redshank, and invertebrates (see under Wetlands below).

Other rough grassland occurs on rocky or thin soils; here it is inter-mixed with bracken and gorse scrub and small pockets of cut-over bog. Gorse can attract notable bird species, typically linnet, stonechat and whinchat.

Heaths and Bogs

There are no areas of heath or bog in the LCA.

Wetlands and Lakes

Lowland fen is frequent in this LCA and often extensive, especially in the west where they occur in broader flat areas between drumlins and in the wide, flat-floored valleys of the southeast. Fens are probably of greatest importance to the biodiversity of the LCA. Most have a past history of cutting for peat fuel and draining for agriculture. As a result, height, water levels and acidity/alkalinity vary across the sites giving rise to diverse habitats and complex mosaics of plant communities. Fens may therefore have parts dominated by bottle-sedge and bog-bean association; by reed canary grass; by lesser tussock sedge; or by soft rush and meadowsweet. Patches of acid peat with heather and acid grasses or with cotton sedge are found on the remnants of the former bogs. Cutting has also left scattered small pools, such as at Clonalig Lough. The edges of fens may merge into wet rushy grassland grazed by cattle. Fens around lough margins may have common reed or reed canary grass. Where nutrient enrichment has taken place, reedmace may dominate; yet other areas may be colonised by willow and alder to form wet woodland.

This diversity of habitats and plant species has led to diversity of invertebrates; thus there are many species of dragonflies and damselflies, including the rare Irish damselfly, recorded for example at Drumlougher Lough ASSI along with rare water beetles, pond skaters, weevils and spiders at the Loughaveelly ASSI and the Lurgan Lough ASSI.

Most of the surveyed lakes in the LCA are **mesotrophic lakes** although Lurgan Lough Upper is an example of **eutrophic standing waters**. Mesotrophic lakes are characterised by having a middle level of nutrients between nutrient poor (oligotrophic) and nutrient rich (eutrophic). They have potentially the highest macrophyte diversity of any lake type. Furthermore, relative to other lake types, they contain a higher proportion of nationally scarce and rare aquatic plants. This is an increasingly rare type of lake in Northern Ireland because the nutrient status of many is being increased through input of nutrient-rich water from agricultural land. The occurrence of such lakes in the LCA is therefore important to the biodiversity of the LCA and Northern Ireland. The biodiversity is related not only to the lakes themselves but also to their surroundings because they form part of the diverse habitats found at sites. For example, at Drumlougher Lough ASSI there are fen types, bog remnants and wet grasslands in addition to the open water and lough edge communities. Sites therefore have Priority Species associated with surrounding habitats as well as the loughs themselves.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: this LCA contains the Priority Habitats parkland and wood pasture, and wet woodland although those that remain face a number of threats.

Actions:

- improve biodiversity through measures to improve and extend the woodland cover in agri-environment and forestry grant schemes.
- management plans for demesne woodland should be directed toward their survival, through natural regrowth or planting of native broadleaf species; halt any further felling or pollarding; retain veteran trees and dead wood and limit grazing.
- further study of the history and ecology of broadleaved woodlands within the LCA, particularly any ancient and long-established, as a key to future management; monitor sites.
- broadleaved plantations also require limitation of grazing and cessation of use as dumps.

GRASSLAND AND ARABLE

Issue: improved grasslands and arable of low biodiversity value are interspersed with species-rich examples of the Priority Habitat lowland meadows.

Actions:

- maintain and improve field boundaries, especially hedgerows where they occur through adoption of relevant agri-environment measures, for example correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland and protect unsown areas of grassland including dry, calcareous grassland.
- maintain and enhance damp grassland by, where possible, restricting field or arterial drainage.
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to farmland birds.

HEATHS AND BOGS

N/A

WETLANDS AND LAKES

Issue: this LCA is characterised by Priority Habitat lowland fens, mesotrophic lakes and eutrophic standing waters of high biodiversity value.

Actions:

- prevent further loss of fen through drainage, reclamation and land-fill; prevent dumping and fly-tipping and encourage removal of rubbish; divert the inflow of nutrient rich water from agricultural land away from fens so that sites do not become damaged by a change in species composition.
- protect the water quality of fens, lakes and rivers through nutrient management and by reducing suspended sediments; prevent the release of particles released through peat cutting or forestry operations; install sediment traps at large extraction sites.
- promote and ensure compliance with existing good farming practices so that water is not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip.
- monitor rivers and streams in relation to peat cutting (sediment load and deposition) – important for salmon that nursery and spawning beds are clear; in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants; recognise that monitoring of forestry and other operations upstream may be important.

COASTAL

N/A

Geological Characteristics**Overview**

This LCA lies within the region described as the Lowlands of South Armagh. Within Northern Ireland this is represented by the limited northwards extension of a drumlin covered coastal plain that lies for the most part in County Louth.

The Crossmaglen Drumlins and Loughs is a lowland landscape on the southern border which is confined to the north and east by the uplands of the Carrigatuke Hills and the Ring of Gullion. This is a diverse and well-structured landscape of rolling green drumlins and some elevated hills with scrub, bog or small loughs occupying the land in between. Some lough shores are wooded, and many are inaccessible as they are fringed with extensive areas of moss. Rivers, including the Creggan River, pass inconspicuously between drumlins and are crossed by attractive stone bridges. The Ring of Gullion creates a strong backdrop, with hilltop towers overlooking the drumlins. Isolation of the area by the uplands has given it a remote and deeply rural character. The landscape can therefore be summarised as one of rolling drumlins with broad areas of wetland and bog in inter-drumlin hollows; small rounded loughs are fringed by moss.

Solid Geology

The area comprises 95% Lower Palaeozoic (predominantly Ordovician) greywacke sandstones and shales, the remainder being Tertiary dykes and minor intrusives.

Drift Geology

The drift geology map for this LCA shows a diverse landscape of till covered, drumlin dominated lowlands interspersed with drift free local topographic highs. The till is late Midlandian in age and drumlin orientation suggests that ice moved south-eastwards across the region, although it had initially come southwards from a centre within the Lough Neagh Basin. Within Northern Ireland drumlins take a variety of forms; some are rounded in plan, although the majority are elongated in the direction of ice flow. Some have sharp crests, whereas others are more whaleback in profile. Although most drumlins are composed of glacial till or tills, a small number are 'drumlinoid features' are rock-cored and some are composed of sand and gravel. Where drumlins are rock cored there may have been significant frost shattering prior to their shaping by ice flow. It is possible therefore to see tails of shattered debris within till leading away from the feature in the direction of flow (Davies and Stephens 1978). It is generally accepted that the drumlins of Northern Ireland were formed by deposition beneath fast flowing ice. In the majority of cases this has resulted in a thick layer of Upper (younger) Till overlying a core of Lower (older) Till. This pattern has been observed across Northern Ireland, apart from a limited area in the north of County Down. The precise temporal relationship between the two tills has not been definitively resolved, but Davies and Stephens (1978) refer to an organic layer between the tills in County Fermanagh that has been dated at $30\,500 \pm 1170/1030$ years B.P. and shelly material between the tills on the Ards Peninsula dated at $24\,050 \pm 650$ years B.P.. However, these deposits only indicate that the Lower Till is older than the dates obtained.

7.3 RIVER BANN LOWLAND DRUMLIN FARMLAND (76)

Settlements: Hilltown

Landscape Character**Key Characteristics**

- Lowland basin containing the course of the Bann and numerous smaller watercourses.
- Flat waterlogged areas of birch moss, marshy pasture and loughs.
- Distinct drumlin landforms supporting improved farmland.
- A prominent hill is the site for the striking hilltop town of Rathfriland, just outside of the district.
- Roads cross the basin on embankments and settlement is restricted to drumlins.
- The River Bann winds inconspicuously between drumlins and under distinctive stone bridges.
- Views are enclosed by drumlins and dense birch growth on areas of moss.

Landscape Description

Landform

The upper part of the River Bann flows from the Spelga Reservoir to this low lying waterlogged area of land enclosed by the *Slieve Croob Rugged Uplands* to the north-east, the Mourne Mountains to the south-east and the Iveagh Slopes to the west, which are beyond the District Council boundary. The area is underlain mostly by a solid geology of intrusive igneous rocks, resulting in a uniform landscape of smoothly undulating drumlins set amongst waterlogged river corridors, bogs and loughs, although becoming somewhat more rugged on the approach to the foothills towards the east.

Landcover

Improved pastures predominate, while patches of moss supports rush and sedges, heather, gorse and scrubby woodland consisting of regenerating birch and willow. Pastures are enclosed by neat, but sometimes gappy hedgerows with occasional hedgerow trees. The landscape is relatively open with a low tree cover. Tree clumps, typically Scots pine, are occasional features of the landscape.

Development

Built development is clustered on drumlins and is linked by roads, which cross the waterlogged basin on high embankments and stone bridges. Small farmsteads are dotted throughout the landscape, with occasional traditional houses and red painted farm buildings. Newer house building is present but not a dominant feature of the landscape. Derelict farms and small cottages are also present. The striking town of Rathfriland sits on top of a prominent hill just beyond the District Council boundary which rises out of the flat plain. It is a major landmark and acts as a radial focus for roads across the Basin.

Perception

This is a quiet rural landscape, where the relative openness provides longer distance views to the striking backdrop of the Mourne Mountains. The River Bann passes through the basin but its course does not significantly influence the landscape, as it winds its way inconspicuously between drumlins.

Landscape Condition and Forces for Change***Landscape Condition***

Within the District Council area, the landscape condition is good with improved pastures and a strong pattern of hedgerows. The density of settlement is high along roads, particularly the main A25, but the areas in-between remain less affected by human influence with a strongly rural character.

Forces for ChangeAgriculture

The loss of field boundaries and the replacement of hedgerows and hedge banks with post and wire fencing is detrimental to the landscape character. Hollows, minor watercourses and wetland areas may be affected by agricultural change such as drainage, or by runoff.

Trees and Woodland

There is low woodland cover within the LCA, but some important areas of wet woodland for example at Ballyward Lake. Trees are susceptible to loss through agricultural improvements such as land drainage, field enlargement, or damage from stock.

Development

Further pressures for new housing development may arise close to main road corridors and near settlements such as Hilltown. The scenic qualities of the nearby Mournes may encourage future housing development.

Minerals

There is no large scale quarrying activity within the LCA, although in a small part GSNI mapping indicates the presence of mineral resources potentially suitable for high specification aggregates.

Tall Structures

Wind turbines are a minor feature of the landscape, however there may be further pressure for domestic or farm scale wind energy developments.

Landscape Management and Planning Guidelines

Key Sensitivities

Sensitivity to change is relatively low due to the undulating landform. However, the physical constraints of the landscape, such as poorly drained land, put greater pressure on accessible roadside locations which may lead to over-development of these areas. The areas of moss are important features of the landscape and are sensitive to drainage and development. Conservation of views to, and the setting of, the adjacent Mourne mountains should be a priority.

Guidance

Agriculture

- The improvement and management of hedgerows will result in a stronger field pattern which in turn will emphasise landform and enhance landscape character.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.
- Areas of moss/ peat bog should be conserved as distinctive landscape features and havens for bog communities and wildlife. The management of grazing and prevention of disturbance through drainage schemes and peat cutting will conserve these valuable areas of lowland peat.

Trees and Woodland

- The retention of hedgerow trees, which enhance landscape character and assist with integrating development into the landscape, should be encouraged.
- Broadleaved woodland should be favoured over coniferous plantations in this landscape. The management and creation of small farm woodlands would help to maintain landscape diversity and integrate new development.
- Existing wet woodland should be conserved and enhanced through appropriate management and protection from stock.

Development

- New development will be most inconspicuous if it is concentrated around existing hamlets rather than spreading across the rural countryside, or as dense ribbon development along the roads.
- The use of native planting on the boundaries of developments and use of a limited range of building materials, for garden fences and walls, as well as for the buildings themselves, will improve the unity and integration of buildings within the countryside.
- The eastern and southeastern margin of the LCA incorporates limited areas of the Mourne AONB. This designation is indicative of the scenic quality of these areas, and housing development here should be carefully controlled to ensure these qualities are not compromised.

Minerals

- The undulating landform could potentially accommodate a level of quarry development, however any such development should be sited so as not to affect the character of, or views to, the nearby Mournes.
- In general, the more undulating northern part of the LCA is less sensitive to minerals development than the more defined hills to the south.
- The effects of minerals related development should be mitigated through the inclusion of bunding and native woodland planting, with consideration given to the effects of gateways, views to plant and other ancillary elements.

Tall Structures

- SPG accompanying PPS18 assesses a high to medium sensitivity to wind energy development.
- The landscape could accommodate a low level of small scale domestic or farm scale wind turbines in proportion to the relatively small landscape scale, however the LCA is close to the Mourne AONB, and wind turbines should be sited so as not to affect distinctive views to the mountains.



Views south towards the Mournes which form a backdrop to the LCA.



A smaller scale farm with traditional buildings close to the River Bann.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- In total, 4,701 ha (53.1%) of the LCA is within the council boundary.
- flat lowland waterlogged basin with several lakes.
- some old cut-over bogs and small pockets of fen.
- very little woodland; some small wet woodland areas of birch and willow associated with bogs and fen.
- dominated by improved pasture but also includes damp acid grassland.

Key Sites

- AONB: Mourne
- SLNCl: Gargarry Fen; and Banbridge Countryside

Woodlands

There is very little woodland present in this LCA (under 2%), the majority of which is broadleaved or mixed woodland, with stands of **wet woodland** present around Ballyward Lake, and consisting mainly of birch and willow. There are also some areas of both broadleaved and coniferous woodland around Ballyward Lodge (**parkland and wood pasture**).

Grassland and Arable

Grasslands occupy the majority of the LCA area, predominantly in improved pastures. These have limited biodiversity because of their intensive management and any diversity of flora and fauna is generally to be found in the **hedgerows** surrounding the fields. Biodiversity can be increased through suitable management of hedges and through adopting sensitive measures within agri-environment schemes (including laying of hedges, planting of trees and shrubs, correct cutting cycles, avoidance of spraying with herbicides, pesticides, slurry and fertilizers) to encourage plant, animal and insect diversity, particularly of farmland birds.

In general, this LCA is relatively flat and has some pockets of wet acid grassland; they correspond to the locations of lowland fens. These damp grasslands provide important habitat that is potentially suitable for **breeding waders** such as lapwing, curlew and snipe.

There are a few areas of dry rough grassland especially around Gargarry and Ballyward where Irish hare have been sighted.

Arable fields, including re-seeded grassland, occur on the deeper soils of the lower lying land to the south and west of Rathfriland. Biodiversity can be improved not only by suitable hedgerow management, but also by leaving 'conservation headlands' and 'wildlife strips' around fields. A move from autumn sown cereals to spring sown and leaving stubble through the winter is also beneficial to farmland birds such as linnet.

Heaths and Bogs

There are a few areas of bog in this LCA, with this habitat limited to the area around Ballyward Lake and Gargarry. This site has areas of fen and scrub woodland.

Any proposals for arterial and field drainage near to bogs need to be carefully assessed so that the water table is not lowered to the extent that bogs and wet woodlands are affected.

In addition, fly-tipping should be prevented to safeguard the last remnants of bog habitat in the LCA area.

Wetlands and Lakes

Lowland fen is widespread and most individual sites are small with many areas being lost due to drainage, reclaimed to pasture and encroachment by scrub woodland. Fen habitat exists around the margins of Ballyward Lake. There is also an area of fen located at Gargarry alongside an area of cut-over bog. This site is variable with some areas of bottle sedge and others that appear to be

nutrient enriched and dominated by species such as meadowsweet due to the water table being lowered by drainage.

Fens therefore need to be protected against loss by drainage and infill, which includes use as official refuse tips as well as sites in which to deposit building rubble and fly-tipping. Damage can also result from leakage of fertilizers and slurry from surrounding agricultural land; this increases the nutrient levels and affects species composition.

Ballyward is the only relatively large lake in this LCA area and is nutrient enriched and of low biodiversity value, but it does have associated fen communities.

The LCA area includes the Bann River. There are three other **rivers** in this LCA including Muddock River and Drumadonnell River, where **otter** have been recorded, and Leitrim River. It is essential for the wildlife of rivers and streams that pollution incidences are avoided; in this LCA the main threat is from agriculture. Monitoring of water quality, maintenance of sewage plants, and avoidance of leakage of agricultural fertilizers, slurry and silage effluent are all required.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: the limited woodland in this LCA includes examples of the NI Priority Habitats wet woodland and parkland and wood pasture.

Actions:

- ensure conservation of wet woodlands by allowing succession to take place and installing fencing to prevent trampling; ensure that they are not lost through drainage, reclamation, landfill or dumping/tipping.
- management plans for any broadleaved woodland should be directed toward their survival, through natural regrowth or planting of native broadleaf species; halt any further felling or pollarding; retain veteran trees and dead wood.
- encourage control of grazing in broadleaved woodlands to foster herb layer and regeneration.
- further study of the history and ecology of broadleaved woodlands within the LCA, particularly any ancient and long-established, as a key to future management; monitor sites.
- encourage planting of broadleaved woodlands through appropriate agri-environment and forestry grant schemes rather than the conifer plantations and shelterbelts that are of poor biodiversity and landscape value; ensure that hazel scrub is not cleared.

GRASSLAND AND ARABLE

Issue: improved grasslands and arable of low biodiversity value, interspersed with pockets of wet acid grassland and dry rough grassland.

Actions:

- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland and protect unsown areas of grassland including dry rough grassland.
- maintain and improve field boundaries around arable lands, especially hedgerows where they occur through adoption of relevant measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- maintain and enhance wet acid grassland which is important for breeding waders by where, possible, restricting field or arterial drainage.
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to farmland birds.

HEATHS AND BOGS

Issue: bogs are under pressure from a range of threats.

Actions:

- maintain the integrity of existing bogs by for example, preventing infilling, fly-tipping, fires, new drainage, encroachment by trees and mechanised peat cutting - applies particularly to intact bogs but cut-over bogs can provide important habitats for birds and invertebrates. All dumped rubbish should be removed from bogs.
- any proposals for arterial and field drainage near to bogs need to be carefully assessed so that the water table is not lowered to the extent that the peat bogs are affected.
- consider restoration of bog habitats through appropriate water level management, removal of individual colonising trees and phasing out peat cutting - applies particularly to formerly intact bogs affected by recent mechanical cutting.
- prevent new forest planting on lowland raised bogs, especially those which could be restored to active growth.
- monitor use of cut-over lowland raised bogs to ensure that important micro-habitats are not lost, that the large tracts of land required by predator birds are not broken up by planting and other uses, and that the needs of over-wintering and breeding wetland birds are met.

WETLANDS AND LAKES

Issue: The Priority Habitat lowland fens require protection. The Upper Bann contains the Priority Species otter.

Actions:

- prevent further loss of fens through drainage, reclamation, land-fill, new woodland planting and encroachment by scrub woodland; prevent dumping and fly-tipping and encourage removal of rubbish; care should be taken to divert the flow of nutrient-rich water from agricultural land away from fens, so that sites do not become damaged by a change in species composition.
- carefully assess any proposals for arterial and field drainage near to fens so that the water table is not lowered to the extent that fens are affected.
- promote and ensure compliance with good farming practice, guidelines and legislation so that rivers and fens are not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip; ensure that further eutrophication does not occur as a result of nutrient-rich surface waters from surrounding farmland.
- monitor the Upper Bann in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants.
- monitor effects of recreation, including fishing, on shoreline communities (reedbeds, fens etc.).

COASTAL

N/A

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm'.

The Balltroney Basin occupies a lowland waterlogged area of land enclosed by the Slieve Croob Summits to the northeast, the Mourne Mountains to the south-east and the Iveagh Slopes to the west. The area is underlain by a solid geology of intrusive igneous rocks, resulting in a flat and waterlogged landscape of extensive moss and loughs, which is interrupted by distinct drumlins. The moss supports rushes and sedges, heather, gorse and scrubby woodland consisting of regenerating birch and willow. Lackan Bog, to the east of Balltroney, has been assigned ASSI status and represents one of the largest single blocks of lowland peatland left in County Down. Drumlins are farmed and pastures are enclosed by hedgerows with occasional hedgerow trees. The River Bann passes through the basin, but its course has little visual impact on the landscape as it winds its way inconspicuously between drumlins and under stone bridges.

Solid Geology

This LCA comprises the northern slopes of the Mourne Mountains with Rathfriland in the southwest and has 95% Tertiary G1 Mourne Granite. Lower Palaeozoic greywackes sandstones and shales occur in two small areas to the north and southwest.

Newry Granodiorite occurs near Rathfriland (ESCR Site 417). Contact metamorphosed Silurian country rock, lamprophyre dykes and granodiorite sheets occur at Shannaghan Hill (ESCR Site 415). The Tertiary Mourne Granites were emplaced in successive injections at two centres: LCA 76 covers the western centre where the early granite G1 is seen.

A cone-sheet extends in an arc through the southern edge of LCA 76. This was a late intrusion, forming as the granite solidified, cooled and the overlying ground collapsed and cracked in a crater-like manner, allowing late molten rock to inject in a thin sheet.

Drift Geology

The drift geology map for this LCA shows it to be underlain almost entirely by Late Midlandian till originating from ice that flowed south eastwards across the area from a centre in the Lough Neagh Basin. Evidence of this flow pattern is demonstrated by the numerous drumlins that compose much of the landscape. Although they also indicate in the south of the LCA that the ice was diverted to the west and east around the Mourne Massif. Further information on drumlins and inter drumlin hollows is provided in Appendix B

The drift geology map for the area also indicates the considerable extent of alluvial deposits associated with the Bann and its tributaries.

7.4 NEWCASTLE LOWLAND DRUMLIN FARMLAND (85)

Settlements: Annsborough, Bryansford, Dundrum, Maghera, Newcastle

Landscape Character**Key Characteristics**

- Long, smooth rolling ridges aligned NW-SE.
- Roads parallel to the linear river valleys.
- Diverse landscape pattern of medium-sized pastures with gorse hedgerows and broken stone walls.
- Stands of trees and shelter belts; woodlands along river corridors.
- Densely scattered housing, especially in valleys.
- Numerous archaeological sites.
- Exposed quality to the upper parts of higher landforms.

Landscape Description**Landform**

This is an area of rolling ridges of pasture which links the *Mourne and Slieve Croob Farmed Foothills* to the *Tyrella Coastal Dunes*. It includes the courses of the Burren, Ballybannan and Moneycarragh Rivers as far as Dundrum Bay, but which are inconspicuous features of the landscape. The landscape is smoothly undulating, quite steeply in places, with some distinctive smooth rounded knolls just inland from a flatter coastal plain.

Landcover

This is a diverse landscape, with a regular pattern of medium-sized pastures divided by broken stone walls and bushy hedgerows. Ivy bound roadside and hedgerow trees, shelterbelts around farms, narrowly wooded riparian corridors and occasional woodland topped knolls add some tree cover, but the landscape remains relatively open and quite exposed in upper parts. The wooded landscape of Tollymore Forest Park extends into the area from the steep sided Mournes, containing the landscape to the south.

Development

Houses are scattered throughout the area; occasional vernacular red and white painted cottages and farm buildings remain, and there has been a proliferation of modern bungalows, especially on the low ground around Newcastle. Newcastle is sheltered by the looming silhouettes of Slieve Donard and Slievnacloy, which dwarf the surrounding landscape. The scattering of individual roadside houses in the vicinity of Newcastle tends to blur the edges between the larger settlement and the distinctive neighbouring villages of Maghera, Bryansford and Dundrum. Extensive caravan parks are a feature of the A2 corridor north of Newcastle. The relatively dense road network has encouraged this pattern of piecemeal development. There are numerous archaeological remains including raths, standing stones, chambered graves and souterrains.

Perception

The landscape has an open, attractive and peaceful quality which is enhanced by the backdrop of the Mourne mountains, but which becomes busier and more fragmented on the approach towards the settlement of Newcastle.

Landscape Condition and Forces for Change***Landscape Condition***

The landscape is in fairly good condition, although broken stone walling and gappy hedgerows indicate some scope for improvement in management. The replacement of traditional styles of architecture with modern style bungalows of different shapes and sizes contributes to an overall degradation in landscape character. In particular, there is an ongoing decline in the distinctive character of settlements around the Newcastle area, due to nondescript urban sprawl along the network of narrow roads. Caravan parks detract from the rural character on the A2 north of Newcastle.

Forces for Change**Agriculture**

Gradual changes to farming practices may result in the loss of traditional stone or hedged field boundaries due to field enlargements, with a loss of landscape structure.

Trees and Woodland

Small woodlands, tree stands, shelterbelts and riparian woodland are important to the landscape pattern. Ongoing development, farming practices or neglect may result in the loss of these important landscape features.

Development

The area has historically been subject to a moderate level of pressure for new housing, concentrated around Newcastle and Castlewella, and this trend may continue.

Minerals

There is no large scale quarrying activity within the LCA, and little evidence to suggest this may change in the near future.

Tall Structures

The landscape has a very low level of wind energy development, however the coastal wind resource may lead to pressure for further developments, possibly on the more prominent higher landforms.

Tourism and Recreation

Coastal areas may continue to experience pressure for leisure and tourism developments including caravan parks, car parks and other visitor attractions and facilities.

Landscape Management and Planning Guidelines

Key Sensitivities

The sensitivity of the landscape is highest along the more exposed and visible ridges and skylines, and at the more exposed locations closer to the coast. The valleys are less sensitive in visual terms but have greater habitat value. They may accommodate some forms of development if woodlands provide screening and help integration. Much of the *Newcastle Lowland Drumlin Farmland* falls within the Mourne Area of Outstanding Natural Beauty; areas which are overlooked in views from the Mourne are also sensitive to change.

Guidance

Agriculture

- The maintenance of stone walls and hedgerows will ensure a robust field pattern is retained. The striking contrast with the smooth open summits of the Mourne Mountains is part of the distinctive character of the area and merits conservation.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.

Trees and Woodland

- The conservation and expansion of linear woodland along the river valleys would protect the setting of the villages and the integrity of the wider landscape pattern, with the woodlands providing links to the more extensive Forest Parks.
- The development of woodland to the fringes of Newcastle may assist with its integration into the landscape and definition of settlement limits.
- Small woodlands, tree stands and shelterbelts should be maintained as features of the landscape.

Development

- The siting of new build development in a concentrated form, around existing settlements, will avoid continuous urban sprawl along the roads.
- Built development, which is located within the valleys and avoids prominent ridge-lines, will be most easily accommodated.
- Traditional cottages should be conserved where possible to retain the character of the area.
- The traditional stone gateposts and wide stone walls should be conserved as features within the landscape.

- The use of native planting on the boundaries of developments and use of a limited range of building materials, for garden fences and walls, as well as for the buildings themselves, will improve the unity and integration of buildings within the countryside.

Minerals

- The undulating landform could potentially accommodate a level of quarry development, however such development should not be sited on the upper parts of higher ridges due to their prominence. Native woodland planting should be used to integrate any minerals development into the landscape.

Tall Structures

- SPG accompanying PPS18 assesses a high sensitivity to wind energy development.
- A level of domestic or farm scale wind energy development could be accommodated in this undulating landscape, with the north east of the LCA generally of lower sensitivity because of its greater separation from the Mourne mountains.
- Turbines should be sited so as not to affect key views towards the Mourne, which are important to the setting of the LCA.
- Turbines should be sited away from the more prominent hill tops and ridge lines.

Tourism and Recreation

- Holiday park and caravan development along the A2 requires careful control to avoid the domination of the coastal strip, including adverse effects to the setting of the adjacent *Tyrella Coastal Dunes*. Mounding, bunding and native woodland planting should be incorporated into caravan developments.



Slieve Croob seen from the relatively open, upper part of the character area.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- All 4,473 of the LCA is within the council boundary.
- long, rolling ridges aligned NW-SE, some with thin soils and less-intensively managed pastures, some of which is species-rich meadow; intensively managed pastures on deeper soils.
- pastures with gorse hedgerows and broken stone walls.
- small fens, some with willow carr, and damp grasslands between hills.
- extensive woodlands along the western border, including significant estate woodlands.

Key Sites

- SAC: Murlough
- ASSI: Ballybannan; Murlough; and Shimna River.
- AONB: Mourne

- SLNCl: Ballylough Grasslands; Burren, Shimna and Trassey Rivers; Dundrum Wood; Moneycarragh River; and Shaque Hill

Woodlands

Woodlands account for just over 5% of the land cover, evenly split between broadleaved/mixed woodland and coniferous woodland. Most of the woodland is along the western side of the LCA area, from part of Clarkhill Wood in the north, through Corry Wood, Burrenwood and a small part of Tollymore Forest, to Tipperary Wood in the south. The small parts of Castlewellaan and Tollymore Forests included are characterised by a mix of broadleaves, including beech, ash and oak (**mixed ashwoods**) and conifers (larch, Douglas fir and spruce). Conifer plantations also occur at Corry Wood (south of a very species diverse parkland around the house (**parkland and wood pasture**)), Burrenwood (which also has mature oaks and beeches from its parkland past) and Tipperary Wood (with oak, Norway maple and scrub around its edge). Common conifer species in these woods include larch, Douglas fir, and Scots pine.

From Tipperary Wood north-westward along the Shimna River, there is an extensive area of mixed planting around large houses. Common species include beech, sycamore, ash, oak, Douglas fir and pines, often with dense undergrowth of laurels and rhododendrons. The former parklands have in some cases been subdivided into housing, a process that continues and threatens further loss of trees with damage to both landscape quality and biodiversity. Further north at Annsborough, there is another concentration of parklands with similar species; here too there is a threat from further house building, but also there is general neglect and casual rubbish tipping.

Several other woods in the LCA are planted; for example, woodlands at both Dundrum Castle and at Shaque Hill have a high proportion of non-native species (including beech, sycamore, Scots pine and sweet chestnut) although Shaque Hill shows recent 'natural' regeneration. Examples of willow carr (**wet woodland**) include Collins Bog, where woodland cover has expanded, and Whistlebare Bog. Other areas of semi-natural woodland occupy stream sides, as along the Moneycarragh River where there are small hazel woodlands amongst scrub.

Grassland and Arable

Grassland accounts for around three-quarters of the land cover; much of this is managed pasture, but of varying levels of improvement and with an increasing proportion of re-seeded grassland. Except for the coastal area, soils are shallow in much of the LCA, but in some parts they become even thinner with bedrock at or near the surface; it is on these soils that some less improved pastures are found. Others occupy damper soils in basins or flat-floored valleys between the hills. These less-improved grasslands can have a diverse, species-rich meadow flora that is rare in this part of Northern Ireland (e.g. the rush pasture, east of Priest's Road at Ballylough) (**lowland meadows**). Rough grasslands occur in two belts - adjacent to the northern border where rocky outcrops are more common, and to the northwest of Newcastle where there are very steep slopes to stream sides. These less-improved pastures and rough grasslands tend to be more species rich, both in plants and animals; for example, the Irish hare finds a refuge in less intensively managed grasslands and some damp grasslands may retain suitability for **breeding waders**. In contrast, intensively managed grasslands have low biodiversity; hedgerows can add to the biodiversity but in this LCA many of the field boundaries are stone walls or if in hedges are of gorse.

Arable land occupies about 10% of the LCA, concentrated mainly on the deeper alluvial soils near the coast.

Heath and Bogs

There are no significant peat bogs remaining in the LCA, all have been cut-over and are now in fen or carr, or have been drained for pasture.

Wetlands and Lakes

Small patches of **lowland fen** and carr are scattered through the LCA especially between hills in the northeast. Although small, these patches are important representatives of a declining habitat and some contain species that are rare or of limited distribution. For example, Ballybannan ASSI fen contains a number of vascular plants with a restricted distribution in the British Isles, including bog pimpernel, dioecious sedge, lesser clubmoss and black bog-rush. The site also has a diversity of fen types and small species-rich pools.

Ballylough is the only sizeable lake in the LCA; it is important to anglers but of limited biodiversity interest. There are few records of Priority Species for the rivers of the area, but as elsewhere in Northern Ireland it is important to biodiversity that the water quality is maintained.

Coastal

The coastline comprises the urban sea front of Newcastle.

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: woodland cover of variable biodiversity value, but including the Priority Habitats parkland and wood pasture, and wet woodland.

Actions:

- management of lowland woodland pastures and parkland should be directed toward their survival; halt any further felling or pollarding; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna); encourage control of grazing to foster herb layer and regeneration
- further study of the history and ecology of broadleaved woodlands within the LCA, particularly any ancient and long-established, as a key to future management
- ensure conservation of wet woodlands such as Collins Bog and Whistlebare Bog, by allowing succession to take place and installing fencing to prevent trampling; ensure that they are not lost through drainage, reclamation, landfill or dumping/tipping

- improve biodiversity through measures in agri-environment and forestry grant schemes to improve and extend the woodland cover; management plans for demesne woodland should be directed toward their survival, through natural regrowth or planting of native broadleaf species

GRASSLAND AND ARABLE

Issue: managed pasture of varying levels of improvement, including the Priority Habitat lowland meadows.

Actions:

- maintain and improve field boundaries, especially hedgerows where they occur through relevant measures in agri-environment schemes, for example adoption of correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation
- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland; protect species-rich meadow flora in less improved grasslands such as Ballylough,
- maintain and enhance damp grassland by, where, possible, restricting field or arterial drainage
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to farmland birds

HEATHS AND BOGS

There are no areas of heath or bog in the LCA.

WETLANDS AND LAKES

Issue: potential loss of carr and Priority Habitat lowland fen.

Action

- prevent further loss of fen through drainage, reclamation, land-fill and encroachment by scrub woodland; prevent dumping and fly-tipping and encourage removal of rubbish; divert the inflow of nutrient rich water from agricultural land into fens

Issue: pollution of water quality at Ballylough and rivers within the LCA.

Actions:

- promote and ensure compliance with existing good farming practices, guidelines and legislation so that rivers are not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip
- monitor streams in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants
- recognise that monitoring of streams in relation to forestry and other operations upstream may be important

COASTAL

N/A

Geological Characteristics**Overview**

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm'.

The *Newcastle Lowland Drumlin Farmland* is an area of long, smooth rolling ridges aligned NW-SE that link the *Mourne and Slieve Croob Foothills* to the *Tyrella Coastal Dunes*. It includes the river courses of the Burren, Ballybannan and Moneycarragh Rivers as far as Dundrum Bay. This is a diverse landscape, with medium-sized pastures divided by broken stone walls and gorse hedgerows. The sensitivity of the landscape is highest along the ridges and skylines, where it is prominent in a predominantly rural area. The valleys are less sensitive in visual terms but are valuable wildlife corridors. Much of the *Newcastle Lowland Drumlin Farmland* falls within the Mourne Area of Outstanding Natural Beauty; areas that are overlooked in views from the Mournes are particularly sensitive to change.

Solid Geology

The area comprises 95% Lower Palaeozoic greywacke sandstones and shales, the remainder being Tertiary dykes and minor intrusives.

The greywackes are of sandstone grade and vary from a few centimetres to a few metres in thickness with a large proportion of rock fragments and a fine-grained matrix. The greywackes are commonly quarried as a source of aggregate; they are interbedded with thinner beds of siltstone or mudstone, commonly arranged as fining-up cycles. Minor conglomerates and volcanic ash-beds (or bentonites) occur.

Tertiary (late Intrusives) - felsitic (acid - composite) cone-sheet occurs in an arc-shaped outcrop on the southern tip of LCA 85. This was a late intrusion, forming as the granite solidified, cooled and the overlying ground collapsed and cracked in a crater-like manner, allowing late molten rock to inject in a thin sheet.

Drift Geology

The drift geology map for this LCA shows it to be predominantly underlain by Late Midlandian till associated with the large ice mass that was centred on the Lough Neagh Basin. The orientation of

a limited number of drumlins across the area can be used to show that the ice flowed predominantly from the northwest. Further information on drumlins and inter drumlin hollows is provided in Appendix B.

In the south of the LCA, the drift geology map highlights a considerable extent of raised beach deposits that are fronted by the dunes of the Murlough coastal complex. These deposits are the result of post-glacial flooding by a rising sea level, of a landscape that was still isostatically depressed following the disappearance of Midlandian ice.

7.5 RAVERNET RIVER LOWLAND DRUMLIN FARMLAND (90)

Settlements: Ballynahinch

The majority of this LCA falls within the Lisburn and Castlereagh City Council area to the north. This assessment applies to the minor part of the LCA falling within Newry, Mourne and Down.

Landscape Character**Key Characteristics**

- Lowland landscape of small drumlins, with a variety of irregular, elongated landforms.
- Occasional rocky outcroppings.
- Shallow slopes and broad, marshy valleys with a meandering river and areas of moss and regenerating willow and birch.
- Few woodlands but numerous scattered hedgerow trees.
- Large pastures and small paddocks on the valley floor; more consistent patchwork of mixed farmland on neighbouring drumlin slopes.
- Traditional small farmsteads on the mid-slopes of drumlins, often with stands of mature trees.
- Scattered linear development along winding narrow roads, which follow minor ridge-lines.

Landscape Description**Landform**

Within Newry, Mourne and Down the upper parts of the Raveret River are located north of Ballynahinch. Here the landscape is defined by the shallow and broad corridors of the Raveret and Ballynahinch rivers, the former flowing north-west towards the Lagan, and the latter east towards Strangford Lough. The lowland has an undulating landform, with numerous shallow drumlins and elongated, rounded hills either side of the flatter river valleys. Many of the drumlins have a rather amorphous form and are separated by shallow hollows. There are rocky outcroppings at the periphery of the landscape area close to the higher ground of the *Castlereagh Plateau Elevated Drumlin Farmland* towards the north of the LCA.

Landcover

Inter-drumlin hollows are often poorly drained, with patches of marsh and a hummocky, uneven terrain. The neat patchwork of fields and hedgerows on the drumlins is less predictable in the floodplains and is sometimes interrupted by patches of dense carr woodland, rush and gorse. This part of the landscape is characterised by several small irregularly shaped wood fringed loughs. Hedgerow trees are scattered thinly throughout the landscape and have an important visual presence. Stands of mature trees are concentrated around farmsteads and patches of damp woodland thrive in waterlogged areas.

Development

There are numerous small farms, usually sited on the mid-slopes of the drumlins, linked by winding, narrow roads which follow the higher ground. Recent development has been concentrated along these roads and forms a broadly linear pattern, while the lower lying river corridors are more sparsely populated. The large town of Ballynahinch extends into the character area from the south and several main roads radiate northwards from the town. Sizeable sandstone quarries extend north from the town along the A49, but are quite well integrated into the landscape.

Perception

The broader floodplains have a remote, tranquil character and the relatively long views in these areas contrast with the enclosure of the surrounding drumlin landscapes. Rivers and loughs are often hidden within the wooded and undulating terrain.

Landscape Condition and Forces for Change***Landscape Condition***

This agricultural landscape is in moderately good condition, although many of the hedgerows are neglected and gappy, and there are occasional pockets of derelict land within the more marginal areas subject to waterlogging.

Forces for Change**Agriculture**

The farming landscape appears relatively stable, but its more enclosed parts would be sensitive to the further loss of wooded field boundaries. Numerous wetlands are susceptible to the effects of run-off, grazing and drainage.

Trees and Woodland

Mature trees, tree clumps and small woodlands, including wet woodland, contribute to the landscape character, fringing lough shores and assist with integrating development into the countryside. Ongoing development, farming practices or neglect may result in the loss of these important landscape features.

Development

The area has historically been subject to relatively low demand for rural housing development, however the landscape may be susceptible to future outward expansion from Ballynahinch, or pressure for further housing developments along main road corridors, extending into more exposed parts of the landscape.

Minerals

Large scale hard rock quarrying has been undertaken to the north of Ballynahinch and it is possible that there may be pressure for other minerals development elsewhere in the LCA where geological conditions are also favourable.

Tall Structures

There has been very little wind energy development in the area. As a relatively low lying landscape there may be only limited future demand for wind energy here.

Landscape Management and Planning Guidelines

Key Sensitivities

The river floodplains and loughs are the most sensitive parts of this landscape and an obvious constraint for development; here there are often long, enclosed views across unspoilt, tranquil countryside. Elsewhere, amongst the drumlins, views are quite enclosed and the landscape has some capacity to accommodate development without detracting significantly from its character.

Guidance

Agriculture

- The identity and distinctiveness of the local landscape may be enhanced by replanting hedgerows and hedgerow trees.
- Waterlogged areas between drumlins and on fringes of loughs are vulnerable to drainage schemes; habitat conservation in these areas will also conserve landscape features.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.

Trees and Woodland

- The landscape is sensitive to the loss of woodlands and copses, but also it would be desirable to maintain more open parts of the landscape close to the river flood plain.
- Wet woodlands at lough fringes are important habitats which should be protected from browsing, drainage or other agricultural improvement.
- The management and creation of small farm woodlands would help to maintain landscape diversity and integrate new development into the landscape.

Development

- Attractive long views across the river floodplain may be conserved by restricting built development within these areas.
- New development should avoid local skylines and maintain extensive gaps of open countryside between groups of buildings along the roads.

- Buildings on drumlin slopes adjacent to broader floodplains will be particularly prominent in views; the siting, design and landscape treatment of these buildings will be particularly important.
- New development which is concentrated along the lower slopes of drumlins can be integrated more easily within the wider landscape and screened by new planting.

Minerals

- The cumulative effect of multiple quarrying developments throughout the LCA is likely to degrade its tranquil, rural characteristics.
- Minerals developments should not impact upon the setting of the more open lough basins and river valleys.
- The effects of minerals related development should be mitigated through the inclusion of bunding and native woodland planting, with consideration given to the effects from gateways, views to plant and other ancillary elements.

Tall Structures

- SPG accompanying PPS18 assesses a high to medium sensitivity to wind energy development.
- Valleys and lough basins would be particularly susceptible to intrusion from turbines on surrounding landforms.
- There may be greater capacity for wind energy towards the more developed parts of the landscape to the south near Ballynahinch.



Scrubby wetland within an inter-drumlin hollow.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- In total, 2198 ha (30.3%) of the LCA area is within the council boundary.
- woodland consists of scattered areas of wet woodland, but includes some more recent planting.
- grassland is the dominant land cover, most of which is improved and of little biodiversity interest.
- arable land is not extensive but is an important habitat for farmland birds.
- wetlands are common in the LCA area with several loughs and associated areas of reedbeds, marsh and wet woodland.

Key sites

- SLNCI: Bow Lough; and Glasdrumman.

Woodlands

Woodland accounts for just over 3% of land cover in this part of the LCA area. The majority is broadleaved and mixed woodland, with relatively small stands scattered throughout the area. The largest block, totalling over 7 ha, is on relatively wet peaty soil between the Ballykine Loughs, and other areas of **wet woodland** dominated by alder and willow are found on marshy ground, for example, at Glasdrumman and at Bow Lough. A 7ha block of recent broadleaved planting can be found on the hilltop just north of Lisbane, and other new blocks occur to the east of Laurel Lodge and on the hill above Ballynahinch cemetery. Patches of gorse scrub occur on drier slopes and hilltops, and these can be important for birds such as linnet, whinchat and stonechat.

Grassland and Arable

Grassland is the dominant land cover in this part of the LCA area, most of this being improved. These areas have generally low biodiversity as a result of relatively intensive management. High levels of grazing or repeated cutting for silage, high inputs of fertilizers and slurry, and selective herbicides serve to reduce diversity of both flora and fauna. Rough grassland is quite extensive and is found throughout the LCA area both on drumlin tops and in hollows where it is often marshy and potentially suitable for **breeding waders**.

Arable land is fairly localised and not extensive (although areas of grass reseeded are more common) and is mainly in the southern section of the area. Arable land is often of low biodiversity interest, but can support farmland birds such as song thrush, linnet and **yellowhammer**, with the former two having been recently recorded in this area.

Biodiversity in areas of improved pastures and arable is often concentrated in **hedgerows**. Indeed, they may be the most significant wildlife habitat over much of lowland Northern Ireland, especially where there are few semi-natural habitats. Hedgerows are a refuge for many woodland and farmland plants and animals. Generally, hedgerows are reasonably maintained and dense in this LCA area, although they become poorer and more gappy on poorer land.

Heaths and Bogs

There are no areas of heath or bog in the LCA.

Wetlands and Lakes

There are several loughs with surrounding wet grassland and carr woodland in this part of the LCA area. Ballykine Loughs have been characterised as a **Marl lake** - these are the cleanest, clearest hard water lakes with specialised flora and are rare in Northern Ireland. This lough also has associated areas of fen and reedbeds. Many of the other loughs in this LCA also have associated wet woodland, marsh and swamp areas all of which provide habitats for a wide range of flora and fauna, although the loughs themselves are not of great quality due to enrichment. Many wetland birds such as the mute swan, great crested grebe and snipe are also attracted to these wetlands.

There are no extensive areas of fen left in this LCA, some of the original areas have been drained and are now wet grassland or carr/scrub woodland. Existing areas are generally found around lake margins.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: low woodland cover of variable biodiversity value.

Actions:

- encourage control of grazing in broadleaved woodlands along streams to foster regeneration and if necessary, encourage replanting of canopy species.
- encourage new woodland planting (native broadleaves) through promotion and uptake of appropriate measures in agri-environment and forestry grant schemes, e.g. in field corners.
- ensure that the examples of wet woodland are retained and not lost through drainage or landfill.

GRASSLAND AND ARABLE

Issue: poor biodiversity of farmland; some hedgerows poorly maintained.

Actions:

- maintain and improve field boundaries especially hedgerows. This may be achieved through adoption of relevant measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leaving saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilizers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- encourage (through participation in agri-environment schemes) adoption of less intensive management of pastures to allow reversion to more species-rich grassland and protect unsown areas of species-rich grassland.
- maintain and enhance wet grassland by restricting field or arterial drainage.
- leave stubble over winter, rather than autumn ploughing, to increase food resources for farmland birds; spring sown cereals are also beneficial to breeding birds.

HEATHS AND BOGS

N/A

WETLANDS AND LAKES

Issue: important wetlands, especially lakes.

Action:

- improve water quality of lakes and rivers through nutrient management and reducing suspended sediments.

COASTAL

N/A

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm'.

The *Ravernet River Lowland Drumlin Farmland* landscape extends south from Lisburn to the NMDDC area, in the broad valley of the Ravernet River and its tributaries. The lowland has an undulating landform, with numerous shallow drumlins and elongated, rounded hills. Many of the drumlins have a rather amorphous form and are separated by shallow hollows, which are often poorly drained, with patches of marsh and a hummocky, uneven terrain. The broader floodplains have a more remote, tranquil character and the relatively long views in these areas contrast with the enclosure of the surrounding drumlin landscapes. There are some loughs on parts of the valley floor, particularly in areas where the valley floor has a slightly undulating landform. The group of loughs to the north of Magheraknock are particularly attractive. The area can therefore be summarised as a lowland landscape of small drumlins, with a variety of irregular, elongated landforms, shallow slopes and broad, marshy valleys with a meandering river.

Solid Geology

They comprise predominantly Lower Palaeozoic greywackes and shales with numerous minor igneous intrusions. The north-western tip covers the Permian succession. The vast majority (95%) of the LCA comprises Lower Palaeozoic (predominantly Ordovician Gala Group) greywacke sandstones and shales, the remainder being Permian and Tertiary intrusives.

Drift Geology

The drift geology map for this LCA clearly shows the drift free areas associated with the broad east to west ridges identified in the landscape description. However, most of the area is underlain by Late Midlandian till laid down by ice that moved rapidly across the area from a centre in the Lough Neagh Basin. As long ago as 1939, Charlesworth in his seminal paper on the glaciation of northeast Ireland identified a large number of drumlins in this area and their orientation can be used to confirm the south-eastwards flow of this ice. (see Appendix B for more information on drumlins).

Of considerable interest, though only of limited areal extent and beyond the NMDDC boundaries, are the alluvial deposits of the Raveret floodplain and the underlying series of glaciofluvial deposits that occur in the northwest of the LCA. The latter are part of the Lagan Valley Deglacial Complex.

River terrace deposits are found along the banks of rivers throughout the LCA.

7.6 QUOILE RIVER LOWLAND DRUMLIN FARMLAND (91)

Settlements: Ballykinler, Ballynahinch, Clough, Crossgar, Derryboye, Downpatrick, Drumaness, Kilmore, Loughinisland, Seaforde

Landscape Character**Key Characteristics**

- Extensive area of pronounced, broad drumlins divided by marshy hollows, loughs and bogs; the largest landscape character area within Newry, Mourne and Down.
- Winding rivers, fringed by trees and woodlands, are attractive local landscape features which provide a contrast to the undulating farmland.
- Estates and larger houses, with well maintained, robust stone walls and mixed woodlands.
- Avenues of beech and stands of pine.
- Occasional rocky outcrops and gorse.
- Dense, evenly distributed network of roads and lanes with scattered farms and houses.
- Rathes, standing stones and earthworks.

Landscape Description**Landform**

The drumlin landscape of the *Quoile River Lowland Drumlin Farmland* extends north-south down the centre of the former Down District, encompassing the courses of the Ballynahinch, Annacloy, Blackstaff and Quoile rivers. To the west, the land rises somewhat to the foothills of Slieve Croob, but otherwise there is a consistent pattern of broad, smooth, undulating drumlins. Shallow river valleys, wetlands and small loughs lie within the inter-drumlin hollows. Watercourses are inconspicuous, tending only to be revealed at bridge crossings.

Landcover

Improved pastures predominate with only occasional scrubby or rushy fields. There are some arable fields on the better drained drumlins. Fields are most often divided by neat clipped hedgerows with occasional trees, while at the fringes of the LCA such as close to Annalong and adjacent to the *Mourne and Slieve Croob Farmed Foothills*, there are stone walls. In the areas of better farmland fields tend to be relatively large. Woodland cover varies; estates at Seaford House, Ballydugan House and Rademon are well wooded, while elsewhere woodland is more fragmentary along watercourses, lough fringes and in clumps. Avenues of beech and stands of pine are characteristic features which stand out in the landscape, especially where they occur on the summits of the smooth drumlins.

Development

Throughout much of the landscape, houses and farms are quite well spaced, although there is a concentration of newer housing development towards the centre of the LCA around the settlements of Drumaness, Loughinisland, Annacloy and Ballynahinch. Larger farmhouses, cottages and

varying styles of newer housing are dispersed throughout the landscape, but there are relatively few traditional buildings. In places, such as the outskirts of Ballynahinch, clusters of new housing development on steep sloping drumlin sides appear prominently in the landscape. Houses and settlement are connected by a dense network of roads and lanes.

The drumlin landforms create distinctive landscape settings for the many clustered settlements, including Ballynahinch and Downpatrick. Small roads cross the numerous watercourses on stone bridges. Rathes, standing stones and mottes are prominent landscape features, creating a strong sense of landscape history. Wind turbines are a feature of parts of the landscape.

Perception

This undulating landscape of smooth, broad drumlins often has an open character. The relatively large and well-spaced farms, estates, and mature trees create an impression of a prosperous and well-tended landscape. Occasional views to hilltop rathes and the more distant Mournes, contribute further to landscape character.

Landscape Condition and Forces for Change***Landscape Condition***

The landscape is in good condition. It has a robust, consistent pattern comprising mostly of good quality pastures and well defined field boundaries. Away from the settlements, a relatively low level of conspicuous new houses and the occasional traditional farmstead means the landscape retains a strongly unified rural character.

Forces for Change**Agriculture**

The farming landscape appears stable, however gradual changes to farming practices may result in the loss of traditional field boundaries to post and wire fencing as a result of field enlargements. Numerous wetlands are susceptible to the effects of run-off or land drainage.

Trees and Woodland

There is low woodland cover within the LCA, but small tree clumps and woodlands are important for integrating farms and other developments into the landscape. Trees are susceptible to loss through agricultural improvements such as land drainage or field enlargement, or damage from stock. Mature clumps and specimens including Scots pine and beech may be lost and not replaced in the absence of succession management.

Development

Historical demand for the construction of new rural housing has been relatively low in the LCA. Given the open character of much of the landscape, there is a risk that even relatively low levels of new rural housing development would disrupt the existing landscape pattern.

Minerals

Only a limited amount of large scale quarrying has been undertaken in the LCA, close to the *Mourne and Slieve Croob Farmed Foothills*, however there may be pressure for further developments in the future, with the presence of mineral resources potentially suitable for high specification aggregates indicated on GSNi mapping.

Tall Structures

A level of smaller scale wind energy development has been undertaken throughout the character area, although turbines currently appear quite well spaced, and their impact on landscape character is limited. There may be ongoing pressure for smaller scale domestic or farm scale wind energy schemes.

Roads

The proposed Ballynahinch Bypass is likely to be constructed to the east of the settlement in the near future, diverting the A24 away from the town centre, with potential consequences for the rural setting of the settlement.

Landscape Management and Planning Guidelines

Key Sensitivities

Landscape sensitivity is lowest in the wooded areas where undulating topography and tree cover create opportunities to accommodate and screen development. The trees and woodlands along the river corridors and fringing the inter-drumlin hollows are valuable for nature conservation, as well as for their scenic contribution to the landscape; some inter-drumlin hollows and loughs have ASSI and SAC designations.

Guidance

Agriculture

- Priority should be given to the management of the river corridors, lough basins and their associated vegetation; buffer zones would help protect water channels from the impact of runoff from the surrounding fertilized farmland.
- Management of local estates (and their associated features), hedgerows and stone walls will ensure the robust landscape structure is maintained.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.
- Management of the damp hollows between drumlins, through control of drainage schemes, and vegetational succession, will conserve the character of these wetland habitats.

Trees and Woodland

- Wet woodland at lough fringes are important habitats which should be protected from browsing, drainage or other agricultural improvement.
- Coniferous plantation woodlands could only be accommodated if small and well-integrated into the landscape.
- An increase in woodland cover could be accommodated while maintaining the relatively open character of the landscape.
- Planning for the succession of clumps and avenues of beech and pine should be a priority.

Development

- The siting of new housing development on exposed drumlin tops or sides should be avoided.
- White painted cottages and farm buildings are characteristic of the area, and the incorporation of traditional styles and features into modern housing development would add to the unity of the character area.
- The setting of archaeological features should be identified and conserved; public access may be encouraged to raise their profile in the landscape and prevent neglect or erosion of their settings. Increased access to countryside should be carefully managed.

Minerals

- Quarrying is likely to be best accommodated closer to the *Mourne and Slieve Croob Farmed Foothills*, set within larger landforms, in comparison to the smoother drumlin farmland comprising the majority of the LCA.
- The effects of minerals related development should be mitigated through the inclusion of bunding and native woodland planting, with consideration given to the effects of gateways, views to plant and other ancillary elements.

Tall Structures

- SPG accompanying PPS18 assesses a high sensitivity to wind energy development.
- The tranquil rural character of the landscape is generally sensitive to intrusion from wind energy, however a level of smaller scale developments, typically well-spaced single farm scale turbines, could be accommodated as occasional landscape features.
- The siting of turbines on more prominent drumlin tops and ridges should be avoided.
- The siting of turbines should be sensitive to the settings of the various estate landscapes within the LCA.

Roads

- The undulating drumlin landform to the east of the settlement is likely to limit the landscape and visual effects of the proposed Ballynahinch Bypass, and the final road alignment should be optimised to pass between drumlins as far as possible.
- The development of a woodland framework with the road, connecting to the wooded landscape of Monalto and the Ballynahinch River corridor would help integrate the scheme into the landscape, along with benefits to woodland connectivity and habitat creation.



Smoothly undulating farmland to the north of the LCA with well separated farms and houses.



Magheralagan Lake towards the centre of the LCA.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- All 19,059 ha of the LCA is within the council boundary.
- lowland with pronounced drumlins overlying Silurian shales which are rarely exposed.
- land use is dominated by improved pasture.
- many inter-drumlin wetlands including an important concentration of lakes and fens.
- semi-natural woodland is limited and found mainly in wetlands and alongside rivers; most woodlands have been planted and are in demesnes.
- unimproved lowland grasslands and scrub are patchy and associated with steeper slopes, thin rocky soils or wet inter-drumlin areas.

Key Sites

- SAC: Hollymount; Ballykilbeg; Lecale Fens; and Murlough
- ASSI: Hollymount; Ballykilbeg; Corbally; and Murlough
- NNR: Hollymount Forest
- AONB: Mourne; and Strangford and Lecale
- SLNCI: Ballydugan Lake; Ballydyan; Ballygallum Ponds; Ballynoe Fen; Claragh Lough; Creevy Rocks and Loughs; Downpatrick Marshes; Drumgooland Lake; Glebe House; Knocksticken; Loughinisland; Magheralone; Moneycarragh River; Pollramer Lake; Rathmullan West; Seaforde Lakes; and Tullynacree.

Woodlands

Woodlands occupy just over 5% of the LCA, with nearly 70% of this classed as broadleaf or mixed woodland. Semi-natural woodlands are small and mainly restricted to steeper slopes and river valleys or are wet woodlands on poorly drained lower ground. In many parts of the LCA area, planted woodlands in demesnes, around farms and in field corners are the only form of woodland cover; the small size of these woodlands, outside demesnes, makes them vulnerable to tree felling, grazing and changes in land management, although recent losses do not appear to have occurred. **Wet woodlands**, dominated by willows, alder and downy birch are associated with inter-drumlin areas and low-lying land alongside the River Quoile. Wet woodland has increased over the last century, often replacing natural bog or fen vegetation as a result of past peat cutting, drainage and nutrient-enrichment. The best example in the LCA area is the wet alder and willow woodland at Hollymount SAC and ASSI, which is an Annex 1 habitat. Part of Hollymount is also an NNR. Wet woodlands often form part of a mosaic of habitats with lowland fen, swamp and open water that contributes considerably to the biodiversity of the LCA. At Hollymount, the wet woodland also grades into drier woodland on the raised drumlin areas, with this oak dominated woodland also classed as Annex 1 habitat (**oakwoods**).

The majority of priority woodland in the LCA area occurs in planted estate woodlands, small farm woodlands and parklands (**parkland and wood pasture**) and these form the bulk of woodland in the LCA area e.g. Mount Panther, Rademon and Seaford Estate. Often containing specimen exotic trees, they also have plantations of oak, beech, sycamore and some conifers. Rocky knolls and riverbanks have also been planted with these trees as part of the 'landscaping' of the estates. Elsewhere, trees are confined to hedgerows although there are examples of successful recent planting to create future woodlands, and thereby add to local biodiversity, at Glasswater near Crossgar, Tenement Hill near Seaford and Windmill Hill at Ballynahinch.

The total area of woodlands in the LCA area is not large, but they are frequent, of varied composition, and include several of Priority Habitats.

Grassland and Arable

Grassland is the dominant land cover in the Quoile Valley Lowlands occupying nearly three-quarters of the land area; the majority is improved pasture, which is particularly concentrated in the northeast, southeast and in the south around Lagamaddy. The biodiversity is relatively low and generally confined to the boundary **hedgerows**. Permanent pasture, of lower productivity but with greater species diversity, is found throughout, but concentrated in the area from the south and east of Drumaness through to Listoder. Semi-natural grassland is rare in the LCA area.

Arable fields are scattered throughout the LCA area, but more extensive areas occur around Seaford and in the north-west of the LCA area. This habitat is important for decreasing farmland birds such as **yellowhammer**, for which there are recent records throughout the area, skylark and tree sparrow.

Heath and Bogs

As a result of past peat cutting, only small patches remain of the once extensive inter-drumlin **lowland raised bogs**. Lowland fens, acidic marshy grassland and wet woodlands now form mosaics of habitats in many former bog sites whilst others have been drained and converted to improved pasture.

Wetlands and Lakes

Small, inter-drumlin wetlands are characteristic of the LCA; they consist of loughs, lowland fens, and wet woodlands - often intermixed at one site and some containing remnant patches of bog. These wetlands form some of the most important nature conservation sites in the LCA area and in Northern Ireland and are extremely significant in the biodiversity of the LCA area.

The loughs are mainly eutrophic (**eutrophic standing waters**) and usually have well-developed swamp and fen. Some contain rare plant species, such as the eight-stamened waterwort (at Loughinisland) but all have been affected by eutrophication as nutrient-rich surface waters have entered the lakes from surrounding farmland. **Lowland fens**, exceptionally well represented in this LCA area, have developed mainly through past peat cutting and although small, are often part of a rich mosaic of habitats - bog, fen, swamp, open water and wet woodland. Many are enclosed in inter-drumlin hollows, but in the south of the LCA are in more extensive open areas and there they

often include expanses of reed beds. Examples include Corbally ASSI, which is also part of the Lecale Fens SAC, where swamp habitat is dominated by common reed; this site also includes scarce fen meadow habitat, supporting plants such as lesser tussock sedge and blunt flowered rush. To the north of here, the Ballykilbeg ASSI also has reed dominated swamp, and a diverse range of plant communities with fen habitat, which support bottle sedge, bogbean and march cinquefoil; this site also has areas of wet grassland. Both these sites are particularly important for invertebrate species including the **marsh fritillary butterfly** at Ballykilbeg and water beetles at Corbally.

Lowland fens are vulnerable because of their small size; in the past many have been drained to produce improved pastures, others have been used as landfill sites or for building sites and many have been affected by nutrient enrichment through water flow from surrounding lands. Natural succession to wet woodlands also reduces the area of fen. **Rivers** in the LCA are generally small and floristically poor. However, the Quoile itself is a good example of a lowland river with well-developed associated habitats alongside, including marsh and wet woodlands. **Otters** have been recorded in most of the larger rivers.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: low semi-natural woodland cover of variable biodiversity value, but including examples of the Priority Habitats wet woodlands, oakwoods, and parkland and wood pasture.

Actions:

- enhance the biodiversity value of demesne woodlands by discouraging felling or pollarding; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna); ensure that hazel scrub is not cleared.
- encourage control of grazing in broadleaved woodlands to foster herb layer and regeneration and if necessary, encourage replanting of canopy species.
- further study of the history and ecology of broadleaved woodlands within the LCA, particularly any ancient and long-established, as a key to future management.
- ensure conservation of wet woodlands, e.g. Hollymount ASSI, by allowing succession to take place and installing fencing to prevent trampling; ensure that loss does not occur through drainage, reclamation, landfill or dumping/tipping.
- enhance biodiversity through appropriate measures in agri-environment and forestry grant schemes to improve and extend woodland cover; management plans for demesne woodland should be directed toward their survival, through natural regrowth or planting of native broadleaf species.

GRASSLAND AND ARABLE

Issue: improved pastures and arable of relatively low biodiversity value dominate the land cover in the LCA.

Actions:

- maintain and improve field boundaries, especially hedgerows where they occur through adoption of relevant measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland.
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to decreasing farmland birds such as yellowhammer and tree sparrow.
- ensure that further clearance of boulders does not occur on pastoral or arable land.

HEATHS AND BOGS

Issue: very limited patches of the Priority Habitat lowland raised bogs remain, the majority having been cut, drained or reclaimed for pasture.

Actions:

- maintain the integrity of the small remainder of lowland raised bogs by for example, preventing infilling, fly-tipping, fires, new drainage and mechanised peat cutting - applies particularly to intact bogs but cut-over bogs can provide important habitats for birds and invertebrates.
- consider restoration of lowland raised bog habitats through appropriate water level management, removal of individual colonising trees and phasing out peat cutting - applies particularly to formerly intact bogs affected by recent mechanical cutting.

WETLANDS AND LAKES

Issue: Priority Habitat lowland fens and eutrophic standing waters represent some of the most important nature conservation sites in Northern Ireland.

Actions:

- promote and ensure compliance with good farming practices, legislation and guidelines so that neither the Quoile nor loughs are polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip; ensure that further eutrophication does not occur as a result of nutrient-rich surface waters from surrounding farmland.
- monitor streams in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants.
- prevent further loss of fens through drainage, reclamation, land-fill and encroachment by scrub woodland; prevent dumping and fly-tipping and encourage removal of rubbish; care should be

taken to divert the flow of nutrient rich water from agricultural land away from fens, so that sites do not become damaged by a change in species composition.

- carefully assess any proposals for arterial and field drainage near to fens so that the water table is not lowered to the extent that fens are affected.
- monitor effects of recreation, including fishing and boating, on shoreline communities (reedbeds, fens etc.).

COASTAL

N/A

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm'.

The LCA extends north-south down the centre of Down District, encompassing the courses of the Ballynahinch, Annacloy and Blackstaff Rivers. To the west, the land rises to the summits of Slieve Croob and to the east, the numerous islands of the Strangford Drumlins and Islands stretch into the sea lough. The height and density of the drumlins varies; the landform becomes progressively shallower towards the south but the drumlins on the fringes of Strangford Lough are relatively steep and have a pronounced egg-shaped form. Water courses wind around the drumlins and form small inland loughs or bogs in the inter-drumlin hollows. The loughs often have wooded margins and the bogs show varying degrees of vegetational succession, from open heather and rushes to gorse scrub and small trees. The landscape can therefore be summarised as one of pronounced drumlins divided by marshy hollows, loughs, bogs and winding rivers.

Solid Geology

The area is dominated by predominantly Lower Palaeozoic greywackes and shales with numerous minor igneous intrusions. 99% of the LCA comprises Lower Palaeozoic with the northern 2/3 of Gala Group and the southern third comprising Hawick Group greywacke sandstones and shales, the remainder being Tertiary intrusives.

The greywackes are of sandstone grade and vary from a few centimetres to a few metres in thickness with a large proportion of rock fragments and a fine-grained matrix. The greywackes are commonly quarried as a source of aggregate; they are interbedded with thinner beds of siltstone or

mudstone, commonly arranged as fining-up cycles. Minor conglomerates and ash-beds (or bentonites) occur.

The southernmost area of LCA 91 comprises Silurian age Hawick Group greywacke (sandstones) and red shales. The greywackes vary from a few centimetres to a few metres in thickness with a large proportion of rock fragments and a fine-grained matrix. They are interbedded with thinner beds of siltstone or mudstone, commonly arranged as fining-up cycles.

Drift Geology

The drift geology map for this LCA shows it to be predominantly underlain by Late Midlandian till associated with the large ice mass that was centred on the Lough Neagh Basin. This ice flowed south-eastwards from an ice divide that lay approximately SW-NE along the line of the north Belfast Hills. Evidence for this flow direction is found in the orientation of the numerous drumlins that make up much of the landscape. However, within the LCA there are also significant outcrops of drift free bedrock that were scoured by the overriding ice. McCabe and Knight (in Knight 2002) have suggested that this area, and much of central Co. Down, was the site of an ice stream during the Drumlin Readvance that delivered a high sediment flux to the ice margin at areas such as the Lecale Coast to the southeast. This may go some way to explain the partial drift cover in the region and the widespread occurrence of rock cored drumlins. Further information on drumlins and inter drumlin hollows is provided in Appendix B.

The drift geology map also highlights the alluvial deposits associated with the Quoile and the streams that drain into Dundrum Bay.

7.7 SAINTFIELD LOWLAND DRUMLIN FARMLAND (95)

Settlements: Darragh Cross, Saintfield

Landscape Character**Key Characteristics**

- Smooth, rolling landform.
- Drumlins support pasture with some arable fields.
- Marshy patches occupy low areas between drumlins.
- Streams and rivers wind between drumlins, draining towards Strangford Lough.
- Farms and houses densely scattered across rounded hills.
- Rich in historic and archaeological sites.

Landscape Description**Landform**

The area is underlain by ancient Silurian rocks which have been covered by glacial deposits. It comprises an extensive drumlin plain stretching northwards to Dundonald, with only a minor part within the Newry, Mourne and Down boundary east of Saintfield. The smooth, rolling drumlin landforms create a dynamic landscape pattern and the eye is constantly drawn to landmarks, such as prominent houses and hilltop features. The landscape is flatter around Ballygeely Lough and the Carsons Dam River, and here drumlins are more widely spaced. This more waterlogged character distinguishes this LCA from the adjacent *Quoile River Lowland Drumlin Farmland* and the *Castlereagh Plateau Elevated Drumlin Farmland*.

Landcover

This is an open, rolling farmland landscape of large pastures and occasional arable fields divided by low, trimmed hedgerows or wire fences. Rush pasture and scrub are present in the lower lying and more waterlogged river corridors and lough basins. The occasional hedgerow tree stands out in silhouette against the sky. Woodland cover is generally very low, often restricted to small copses sheltering farms, scrubby woodland in damp areas and the occasional coniferous plantation. However, the estate landscapes of Rowallane and Saintfield House contain extensive deciduous woodland.

Development

Saintfield is a nodal point in the road network where the A7, A21 and B6 converge, and these fast, direct, roads add a sense of busyness to parts of the landscape. The landscape is quite well settled, with Darragh Cross the main settlement outside of Saintfield. The LCA is crisscrossed by straight major and minor roads with houses and farms at regular intervals, including some larger farm buildings. There are some traditional stone farm buildings, but more modern building styles predominate, often pale painted newer bungalow developments. There is a sandstone quarry to the south east of Saintfield (Doran's Rock), but which has limited influence on the surrounding landscape character.

Perception

The landscape still retains a relatively tranquil rural character, however fast roads, ribbons of housing and other larger scaled developments have an urbanising influence on the character of parts of the landscape.

Landscape Condition and Forces for Change***Landscape Condition***

The landscape is in a mixed condition, degraded in places due to hedgerow and tree loss, interspersed with areas of better quality farmland and arable cropping. In some places the pressure for built development has resulted in a dense pattern of housing with a diverse mixture of building styles.

Forces for Change**Agriculture**

Parts of the rural landscape have a somewhat degraded quality with marginal pastures and the loss of traditional field boundaries to post and wire fencing. Changes in agricultural practice may result in further degradation of the farming landscape.

Trees and Woodland

Woodland cover is low in the LCA. Mature trees, tree clumps and small woodlands, including wet woodland, contribute to the landscape character, fringing lough shores and assist with integrating development into the countryside. Ongoing development, farming practices or neglect may result in the loss of these important landscape features.

Development

Good road connections running through the LCA may result in ongoing pressure for housing, larger scale farming and other larger scale developments which may undermine rural characteristics.

Minerals

There is existing sandstone quarrying within the LCA and the potential exists for further larger scale quarry developments elsewhere in the LCA.

Tall Structures

There is a very low level of existing/ consented wind energy development within the LCA, but there may be ongoing pressure for small domestic or farm scale schemes, which could be quite prominent in this open landscape.

Landscape Management and Planning Guidelines

Key Sensitivities

The local river valleys, meadows, loughs and damp woodlands are the most sensitive and valuable parts of this drumlin landscape. Elsewhere, landscape sensitivity is relatively low due to a somewhat degraded landscape condition, especially in the area around Saintfield. Some shelter and potential screening for development is provided by the rolling landform, however the landscape is relatively open and susceptible to prominent new development.

Guidance

Agriculture

- The establishment of buffer zones along the margins of river valleys will help to minimise the impact of runoff from adjacent arable fields and to conserve the scenic and ecological value of the valley floor meadow landscapes.
- Selected field boundary saplings should be left uncut to develop into hedgerow trees.
- The pattern of field boundary hedgerows should be strengthened where possible, and the replacement of field boundaries by post and wire fencing alone avoided.
- The re-planting and management of hedgerows will reinforce the landscape pattern and improve landscape condition.
- Planting of hedgerow trees will improve wildlife value, landscape texture and screening opportunities.

Trees and Woodland

- The landscape could accommodate a greater level of woodland cover, assisting with the integration of development into the landscape, and contributing to the landscape structure.
- Wet woodland at lough fringes and river corridors are features and habitats which should be protected from livestock browsing, drainage or other agricultural improvement.

Development

- Siting of new housing should take account of the existing density of development in the countryside. Dwellings which are positioned too close together will create disharmony, but the careful use of materials and simple vernacular architectural features may be used to unify a group.
- The use of native planting on the boundaries of developments and use of a limited range of building materials, for garden fences and walls, as well as for the buildings themselves, will improve the unity and integration of buildings within the countryside.
- Further housing developments would be best accommodated within existing settlements and housing clusters to ensure dispersed rural housing development does not undermine rural characteristics. Linear roadside developments should generally be avoided.

Minerals

- Any further minerals developments should take advantage of natural topographic screening, supplemented by native woodland planting and bunding, to integrate such developments into the landscape. Consideration should be given to the effects of gateways, views to plant and other ancillary elements.

Tall Structures

- SPG accompanying PPS18 assesses a high to medium sensitivity to wind energy development.
- The landscape has some capacity for smaller scales of domestic or farm scale wind turbine development if appropriately spaced so as not to overwhelm the small landscape scale.
- The landscape sensitivity to wind turbines is greater towards the estate landscape to the north of the LCA.



Undulating pastures towards the centre of the LCA, with low, gappy field boundaries.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- In total, 3,564 ha (26.5%) of the LCA is within the council boundary.
- rolling drumlin topography.
- pasture fields dominate.
- loughs, fens and wet woodlands occupy many of the inter-drumlin hollows.

Key Sites

- SAC: Aughnadarragh Lough
- ASSI: Aughnadarragh Lough
- SLNCI: Lessans Cottage

Woodlands

Woodlands occupy just over 4% of the land in this part of the LCA area. Around half the woodland resource is broadleaved and mixed woodland associated with demesnes, and the remainder are small farm woodlands, shelterbelts and areas of wet woodland. Approximately 3.5 ha of broadleaved woodland has recently been planted around an artificial pond at Lessans in the north of the area.

Demesne woodlands (**parkland and wood pasture**) have a planted history and although usually dominated by broadleaved species such as beech, oak, sycamore and ash, most have conifers intermixed, often Scots pine. Some demesnes have small conifer plantations of Scots pine, larch or spruce. Demesne woodlands are found at Saintfield House and Rowallane Gardens.

Wet woodlands comprise those growing at fen sites and those that have colonised cut-over bog, such as at Aughnadarragh Lough. Alder, birch and willow dominate these woodlands and they form part of a complex of habitats that includes open water, reeds and lowland fen.

Grassland and Arable

Grasslands comprise the majority of the LCA area; most comprise grazing pasture, with a small number of fields used for arable production. Areas of rougher grassland and rush pasture are scattered throughout the area, with examples on thin rocky soils to the southeast of Saintfield, and in wetter hollows to the north west of Raffrey. The area of rushy pasture has expanded in the Ballycloghan area in the last decade. Although these grasslands are less productive than the improved pastures, they can have greater plant species diversity.

Heaths and Bogs

Intact heath and bog habitat in this part of the LCA area is restricted to small areas within the Aughnadarragh Lough SAC and ASSI. Here, a small area of **lowland raised bog** retains a good cover of heather, with adjacent areas of cut-over bog merging with wetland habitat to provide a diverse range of plant communities which support rare invertebrates such as the **marsh fritillary butterfly**. Other areas of peatland have been cut-over in the past, and most have been colonized by birch, alder and willow, such as at Ballygeely Lough and to the west of Raffrey, or have been converted to improved and rough grassland, such as fields just to the north-west of Darragh Cross.

Wetlands and Lakes

Inter-drumlin wetlands occur in this part of the LCA area; they comprise loughs, **lowland fens** and **wet woodlands** - habitats that are often intermixed - and Aughnadarragh Lough also has remnant patches of bog (see above). Aughnadarragh Lough is the most important nature conservation site in the LCA area and is a significant biodiversity resource in the council area and in a Northern Ireland context.

Most loughs have been enriched by nutrients from surrounding farmland. Aughnadarragh Lough has been classed as mesotrophic (**mesotrophic lakes**), an increasingly rare type of lake in Northern Ireland and one which, relative to other lake types, contains a higher proportion of nationally scarce and rare aquatic plants.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: low woodland cover of the Priority Habitat parkland and wood pasture, with areas of wet woodlands growing at fen sites and at sites of colonised cut-over bogs.

Actions:

- enhance the biodiversity value of demesne woodlands at Saintfield House, Rowallane and Ballyalloly, by discouraging any further felling or pollarding; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna); ensure that hazel scrub is not cleared.
- enhance biodiversity through appropriate measures in agri-environment and forestry grant schemes to improve and extend woodland cover; management plans for demesne woodland should be directed toward their survival, through natural regrowth or planting of native broadleaf species.

- encourage control of grazing in broadleaved woodlands to foster herb layer and regeneration and if necessary, encourage replanting of canopy species.
- further study of the history and ecology of broadleaved woodlands within the LCA, particularly any ancient and long-established, as a key to future management.
- ensure conservation of wet woodlands by allowing succession to take place and installing fencing to prevent trampling; ensure that loss does not occur through drainage, reclamation, landfill or dumping/tipping.

GRASSLAND AND ARABLE

Issue: improved pastures, mixed with intensively managed arable land of relatively low biodiversity value.

Actions:

- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland and protect unsown areas of grassland
- maintain and enhance damp grassland by where, possible, restricting field or arterial drainage
- maintain and improve field boundaries, especially hedgerows where they occur through adoption of relevant measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying
- with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to farmland birds
- ensure that further clearance of boulders does not occur on pastoral or arable land

HEATHS AND BOGS

Issue: this LCA features some of the last remaining Priority Habitat lowland raised bogs in Co. Down, including Aughnadarragh Lough SAC and ASSI.

Actions:

- maintain the integrity of existing lowland raised bogs by for example, preventing infilling, fly-tipping, fires, new drainage, encroachment by trees and mechanised peat cutting - applies particularly to intact bogs but cut-over bogs can provide important habitats for birds and invertebrates.
- consider restoration of lowland raised bogs through appropriate water level management, removal of individual colonising trees and phasing out peat cutting - applies particularly to formerly intact bogs affected by recent mechanical cutting.
- prevent new forest planting on lowland raised bogs, especially that which could be restored to active growth.
- monitor use of cut-over bogs to ensure that important micro-habitats are not lost, that the large tracts of land required by predator birds are not broken up by planting and other uses, and that the needs of over-wintering and breeding wetland birds are met.

Issue: potential loss of heather cover at Aughnadarragh Lough ASSI.

Actions:

- promote membership of agri-environment schemes through consultation with farmers and thereby.
- control grazing intensity on existing heathland to encourage development of heathland and of heather of different ages.
- discourage 'reclamation' to pasture fields around heathland margins.

WETLANDS AND LAKES

Issue: this LCA contains some of the most important wetland conservation sites in Northern Ireland including the Priority Habitats mesotrophic lakes, lowland fen and wet woodland.

Actions:

- promote and ensure compliance with good farming practices, guidelines and legislation so that mesotrophic lakes, fen and wet woodland are not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip; ensure that further eutrophication does not occur as a result of nutrient-rich surface waters from surrounding farmland.
- monitor streams in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants; monitor effects of recreation, including fishing, on shoreline communities (reedbeds, fens etc.).
- prevent further loss of fen through drainage, reclamation, land-fill, new woodland planting and encroachment by scrub woodland; prevent dumping and fly-tipping and encourage removal of rubbish; care should be taken to divert the flow of nutrient rich water from agricultural land away from fens, so that sites do not become damaged by a change in species composition.
- carefully assess any proposals for arterial and field drainage near to fens so that the water table is not lowered to the extent that fens are affected.

COASTAL

N/A

Geological Characteristics

The *Saintfield Lowland Drumlin Farmland* area is underlain by Silurian rocks which have been covered by glacial deposits. The smooth, rolling drumlin landforms create a dynamic landscape pattern. Ground levels fall gradually towards Strangford Lough and in more low-lying areas, the drumlins exhibit a relatively waterlogged character (and with a more extensive network of watercourses than amongst the drumlins of the adjacent *Castlereagh Plateau*). Loughs and damp woodland are found within lowland hollows between drumlins, providing an organic landscape element within a relatively regular landscape pattern. These marshy patches make a valuable contribution to the diversity of the landscape.

Solid Geology

Predominantly Lower Palaeozoic greywackes and shales with numerous minor igneous intrusions. 80% of the LCA comprises Lower Palaeozoic (Ordovician) Gala Group: the northern 15% of the LCA comprises Permian and Triassic, the remainder being Tertiary intrusives. The NE -SW strike of the Lower Palaeozoic Ordovician and Silurian beds at outcrop is produced by faulting and belies the fact that minor folds occur within each fault tract. North - south faults crosscut and thus post-date earlier faults. The greywackes are of sandstone grade and vary from a few centimetres to a few metres in thickness with a large proportion of rock fragments and a fine-grained matrix. The greywackes are commonly quarried as a source of aggregate; they are interbedded with thinner beds of siltstone or mudstone, commonly arranged as fining-up cycles. Minor conglomerates and ash-beds (or bentonites) occur.

The Permian - Enler & Belfast Group comprises red-brown sandstones, conglomerates, siltstones. A basal breccia, equivalent to the "brockram" of northern England is found at the base (1 - 50cm thick), here termed the Newforte Breccia Formation, the only outcrop of which is Ballyrainey (ESCR Site 261). The Belfast Group comprise calcareous mud rocks with thin sandstone and anhydrite lenses resting conformably on Enler Group, a gradual transition between the two groups occurs.

The Triassic - Sherwood Sandstone Formation comprises red, purple and brown cross-stratified sandstones, siltstones with minor clay beds and partings. The sandstones are either soft and poorly consolidated or well-cemented where they are and have been exploited for building stones in the past. These sandstones are well-exposed in the quarries of Scrabo Country Park (ASSI 091), beyond the NMDCC boundaries.

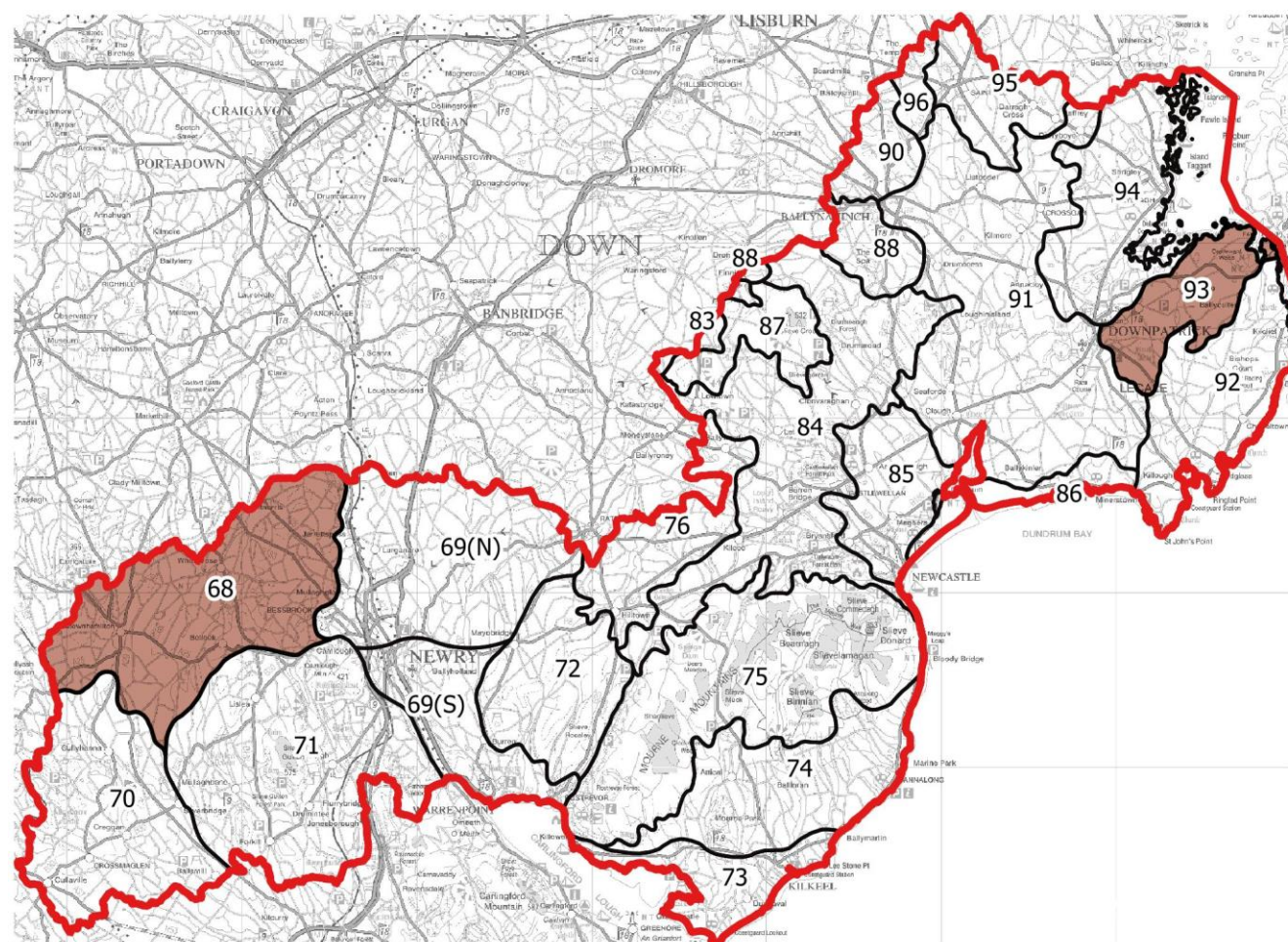
NE - SW trending lamprophyre dykes and NW-SE trending dolerite dykes occur throughout the area. The age of some of the lamprophyres is not proven as Tertiary. A Tertiary sill occurs in the north of the area where it forms the top of the crag and tail hill of Scrabo itself (ASSI 091).

Drift Geology

The drift geology map for this LCA shows it to be predominantly underlain by Late Midlandian till associated with the large ice mass that was centred on the Lough Neagh Basin. This ice flowed south-eastwards from an ice divide that lay approximately SW-NE along the line of the north Belfast Hills. Evidence for this flow direction is found in the orientation of the numerous drumlins that make up much of the landscape. However, within the LCA there are also significant outcrops of drift free bedrock that were scoured by the overriding ice. McCabe and Knight (2002) have suggested that this area, and much of central Co. Down, was the site of an ice stream during the Drumlin Readvance that delivered a high sediment flux to the ice margin at areas such as the Lecale Coast to the southeast. This may go some way to explain the partial drift cover in the region and the widespread occurrence of rock cored drumlins (further information on drumlins and inter-drumlin hollows can be found in Appendix B).

In the north of the wider LCA, beyond NMDDC boundaries, the drift geology map highlights glaciofluvial deposits associated with late-glacial deposition by meltwater along the Enler Valley between Belfast and Comber - the so-called 'Dundonald Gap'. Smith et al. (1991) describe these deposits as mounded outwash that consists of laminated sand and gravel with subordinate red clays. The map also identifies alluvial sediments infilling inter-drumlin hollows and overlying the glaciofluvial deposits of the Enler Valley.

8. Lowland Hills



Carrigatuke Lowland Hills (68)
North Lecale Lowland Hills (93)

8.1 CARRIGATUKE LOWLAND HILLS (68)

Settlements: Belleek, Newtownhamilton, Whitecross

This assessment applies to the more southerly part of the wider LCA which extends north into Armagh.

Landscape Character

Key Characteristics

- Uneven, medium scale landform, smooth rolling hills and deep wooded valleys.
- Extensive conifer plantations and residual peaty moorland create a series of geometric blocks on the highest and wildest hills.
- Many mature trees, tree-belts, and small woodlands on lower hills.
- Large houses, farms and buildings amongst rolling hills are linked by numerous winding roads.
- Long panoramic views over the surrounding lowlands.

Landscape Description

Landform

The Carrigatuke Lowland Hills extend across southern Armagh from the Ring of Gullion to Keady, with approximately half of the area within the boundaries of Newry, Mourne and Down. Within the District Council area, the landform comprises a raised plateau of medium scale smooth rolling green hills, drumlins and deep wooded valleys. The higher hills, at the northwestern District Council boundary, have a wild exposed character. The broad valleys of the Tullyvullan and Cusher Rivers cut across this rolling upland plateau, fed by a myriad of minor tributaries which wind between the hills.

Landcover

The lower rolling hills and valleys comprise good quality pastures with small woodlands, mature trees and tree belts, resulting in a more enclosed character, with a strong field pattern which enhances the distinctive landform of rounded hills.

On higher ground, gorse is prevalent in gappy field boundaries, and trees become less frequent, with pastures more susceptible to infestation with rush and other weeds. Large conifer plantations create a series of straight edged blocks on the highest hills, where they stand out clearly against open areas of blanket bog and heather moorland on the hill tops.

Wooded streams are attractive features of the valleys which drain from the hills, including the valley of the Ballymoyer Estate.

Development

Large houses, farms and buildings set amongst rolling hills are linked by numerous winding roads, which are often at the end of long tracks. Lowland areas include some larger farm enterprises such as poultry. Newtownhamilton is the local market town; Belleek, Whitecross and Camlough are smaller settlements. Farms and houses are distributed throughout the area, albeit less densely at higher elevations where there are occasional derelict properties and fewer new build houses. The whole area is crisscrossed by a dense network of minor roads, and a number of main routes including the A25, A27 and A29.

Wind turbines are currently a minor feature of the higher parts of the landscape to the north west, with medium sized farm-scale turbines seen against the backdrop of high ground at Carrigatuke. High voltage transmission lines pass through the landscape to the north and south of Newtownhamilton and also to the very east of the character area.

Perception

There are extensive views from the hill-tops over the surrounding lowlands towards the Ring of Gullion to the south. The upland areas have a remote, windswept quality, contrasting with the tranquillity of the more enclosed and lowland farmland.

Landscape Condition and Forces for Change

Landscape Condition

The landscape condition varies, with good quality pastures and a strong structure of hedgerows and trees in lowland locations, while the more marginal upland pastures have a scrapper quality with broken hedges, wire fencing and poorer pastures. New house building is a feature of the landscape, but so far is not so extensive such that it undermines rural characteristics.

Forces for Change

Agriculture

There is some risk to landscape structure with the loss of traditional hedge boundaries, particularly in the more marginal upland areas.

Trees and Woodland

Forestry tends to be situated on hill tops and upper hill slopes. There has been little change in the extent of forestry in the last 20 years, however there may be pressure for the further afforestation of marginal upland pastures and moorland in the future.

Development

There may be ongoing pressure for new housing development within the area. Housing developments and new larger scales of agricultural buildings can appear prominent, particularly in the less enclosed upper slopes of this landscape.

Minerals

No large scale quarrying has been undertaken within the LCA falling within the Council area, but hard rock quarries are located nearby in Armagh, and there is the potential pressure for quarry developments extending into the Local Authority area.

Tall Structures

There is likely to be ongoing pressure for wind energy development within more upland locations of the LCA. The low hills may prove suitable locations for telecommunications masts. There is the potential for significant cumulative effects with views to turbines, pylons and masts on prominent skylines.

Landscape Management and Planning Guidelines

Key Sensitivities

The tops of hills and upper slopes are particularly sensitive owing to their visibility, but which may be subject to increasing pressures for wind energy development. The wetlands and areas of blanket bog on the upland plateau are important habitats which are vulnerable to forestry and other land use changes.

Guidance

Agriculture

- Hedged field boundaries should be retained, with replacement by post and wire fencing alone discouraged.

Trees and Woodland

- While commercial forestry can be accommodated within this landscape, it should remain a relatively minor feature to ensure the open rural character is retained.
- The ongoing management of deciduous woodlands and shelterbelts would be beneficial to extend and conserve these important and characteristic landscape elements.
- The edges of upland forestry could be enhanced by irregular planting of deciduous and coniferous species to create varied edge and age profiles. Gaps should be left between areas of forestry to maintain a diverse landscape.

Development

- Large farm buildings require sympathetic siting so that they are sheltered by landform and existing vegetation. New native planting alongside developments would help with its integration into the landform. Non-native planting would not fit well into the landscape.
- The medium scale rolling hills provide opportunities to shelter pockets of development. Development is out of character on top of the higher hills and moorlands, but the lower hills and valley sides are more typical locations.

Minerals

- Quarrying has the potential to be intrusive on the more open upper slopes and would preferably be limited to more topographically contained parts of the landscape, with mitigation provided by native woodland planting.

Tall Structures

- SPG accompanying PPS18 assesses a medium sensitivity to wind energy development.
- The potential for larger scales of wind energy development potentially exists primarily in the larger scale more upland landscape close to the border with Armagh.
- Smaller scales of wind turbine can potentially be accommodated when sited away from prominent hill tops and ridge lines. However, there is the risk of undesirable cumulative effects from simultaneous views to smaller lowland wind turbines with larger scale upland developments.
- Radio and telecommunications mast should ideally be clustered to reduce their cumulative impacts of masts being sited on multiple hill tops.



Commercial forestry characterises the upper parts of the LCA.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier

Key Characteristics

- In total, 13,287 ha (51.7%) of the LCA Area is within the council boundary.
- conifer plantations and residual blanket peat create a series of geometric blocks
- some planted, landscaped, deep wooded valleys.
- many shelter-belts and small woodlands on lower hills.
- damp grasslands in hollows in the lowlands.

Key Sites

- AONB: Ring of Gullion
- SLNCl: Bessbrook; Aghanduff Lower Mountain; Black Hill; Cullywater; Eshwary Fen; Drumlit Railway; Lough Gilly and Dane's Lough; Ballintate Woodland; Dorsy; Drumilly; Dorsy Hearty Fen; and Cullywater

Woodlands

Woodlands account for just over 2.5% of the land cover of the LCA area, the majority of which is coniferous forest located in the western area. Many of these forests have been planted on peat but extend onto peaty and gleyed soils. Sitka spruce is the dominant species with Norway spruce, lodgepole pine and Japanese larch also common. Coniferous forests, here as elsewhere, have low biodiversity because of their limited species and simple structure; however, **red squirrel** has been recorded in several of the forests in the past.

Two forests have been centred on former estates, Drumbanagher and Ballymoyer Forests. Whereas conifers are dominant in these, at Drumbanagher, west of the Newry River, there are intermixed areas of conifers with oak and sycamore, and in the southern tip of the forest a section of beech and oak.

Ballymoyer Forest is part of a former demesne; this wooded glen was one of the first properties to be donated to the National Trust (**parkland and wood pasture**). Today, Norway spruce and European larch dominate. Conifers are mixed with beech in the southern leg of forest, and sycamore and oak are located in pockets in the section of forest alongside the main road. Wooded areas in other estates in the LCA have either been removed or have become very degraded, but there are several large gardens and small parks in the LCA, some with a diversity of tree species.

Much of the semi-natural woodland is sparse, degraded and in small patches on rocky hillsides, for example Ballintate Wood has oak and ash in an area of blackthorn and gorse scrub, but it is heavily grazed. The only other widespread woodland type is **wet woodland**, generally carr woodland of willow, sometimes with alder, that is colonising **lowland fen**. This is found not only on the more extensive fens, but also on many of the small fen patches in hollows within and between rocky ridges.

Small conifer plantations, less than 1ha and generally of Sitka spruce and larch, are common throughout the LCA area. Shelterbelts around active and abandoned farms are also very common; sycamore, ash and Sitka spruce are the most frequent species.

Grassland and Arable

Grassland covers most of the LCA, the vast majority of which is improved pastures or grass silage. These have low biodiversity as a result of their intensive management, although the level of management changes through the LCA depending on the physical environment and farming practices. Land classed as arable (which includes grass reseeding and has low biodiversity interest) appears to have become more widespread in recent years, especially in the western part of the LCA area. Field boundaries, which often have most of the biodiversity interest in areas of improved pastures and arable, are varied, with stone walls, hedges and fences, and most commonly, combinations of these. Generally, **hedgerows** are poorly managed, gappy and overgrown; nevertheless in places, for example at field corners and steep banks, shrubs and trees (predominantly ash) provide thickets which not only give a well-wooded appearance to the landscape but are valuable for birds and other wild life.

Rough grassland is found scattered throughout the LCA area, particularly in the central part. Underlying soils are often peaty or, on steeper slopes, are shallow with a thin organic surface layer;

these rough grasslands tend to be acidic. Rough grasslands are also found in damp hollows, often alongside fens or where fens have been drained. Some of these wet grasslands and fen meadows are species rich (**lowland meadows**) but are under threat from drainage, heavy grazing and eutrophication; some examples have been lost to re-seeding in recent years. Along with adjacent fens, these grasslands provide potential habitat for waders, including **curlew**. Species-rich dry grasslands are found in the LCA, as for example on the northwest slopes of Black Hill, but some are also under threat from grazing pressures and re-seeding. Areas of both wet and dry rough grasslands are associated with heath, sometimes of gorse, but also of heather. The Irish Hare finds refuge in these less-managed grasslands.

Lowland, less-managed grasslands are relatively rare in Northern Ireland and in this LCA. It is important that they are not lost through reclamation and more intensive management, heavy grazing or eutrophication. Adoption of sympathetic measures within agri-environment schemes should be encouraged. It should be noted also that land-fill and rubbish dumping affect not only fens but damp grasslands alongside, either directly or through leakage of nutrient rich waters.

Heaths and Bogs

Blanket bog is confined to uplands in the south-centre and west of the LCA.

Much of the blanket peatland has been forested and that unplanted has largely been cut-over. Former cut-over bogs have also been used as refuse tips. To the east of Newtownhamilton there is some intact bog at Cold Brae Bog and at Carrickacullion, set in extensive cut-over blanket bog. These have plant species typical of intact bog, including heather, deer and cotton sedges and the bog mosses.

There are no extensive examples of intact **lowland raised bog** in the LCA, all former bogs have been cut-over and are dominated by fen or carr woodland or have been reclaimed for pasture. As with blanket bog, some areas of cut-over lowland bog are used as refuse tips. Fly-tipping is common, both of household goods and general rubble.

Intact peat bogs, whether lowland or blanket, are important European habitats, are relatively rare in Northern Ireland, and also very rare in this LCA. It is therefore essential that the few remnants should be retained, not only as rare habitats with specific plant associations, but for their fauna, including breeding waders such as snipe and **curlew**. State planting of these bogs is no longer an issue as the Forestry Service has a presumption against new planting, however new coniferous plantations limit biodiversity.

Cut-over bog can have great diversity of habitats as a result of the different depths of peat that are left and the differing water levels. For example, drier islands of deeper peat left uncut can become dominated by common heather whereas other wetter sites where the acid peat has been removed may develop into fen and carr. The biodiversity of sites - both of habitats and species - should be taken into account before they are used for peat extraction, refuse tips or other uses (see also wetlands below).

Wetlands and Lakes

Fens are rare in this LCA and some may have a past history of cutting for fuel peat and draining for agriculture. Part of one priority fen at Tullyogallaghan has recently been lost to re-seeding.

There are only two freshwater bodies in the LCA area and neither are known to support significant biodiversity interest.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: low woodland cover of predominantly coniferous forests and poor biodiversity value; however this LCA also contains the Priority Habitats parkland and wood pasture, and wet woodland.

Actions:

- enhance the biodiversity value of broadleaved woodlands within Drumbanagher and Ballymoyer Forests by discouraging felling; by preventing loss of broadleaved woodlands; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna); consider replanting of broadleaved species on felling of conifer plantations possibly through appropriate grant schemes - selective felling of conifers could leave the broadleaves in inter-mixed plantings
- encourage control of grazing in broadleaved woodlands to foster herb layer and regeneration and if necessary, encourage replanting of canopy species; remove rhododendron and salmonberry where colonisation has taken place but ensure that hazel scrub is not cleared
- further study of the history and ecology of broadleaved woodlands within the LCA, particularly any ancient and long-established, as a key to future management; monitor sites
- prevent loss of willow and alder carr woodlands through drainage, reclamation, landfill or dumping/tipping

GRASSLAND AND ARABLE

Issue: both grasslands and arable have low biodiversity value due to intensive management but include species-rich Priority Habitat lowland meadows; hedgerows are poorly managed.

Actions:

- encourage (through participation in agri-environmental schemes adoption/continuance of less intensive management of grasslands and arable to allow reversion to/continuance of more species-rich grassland and protect unsown areas including dry, calcareous grassland

- maintain and enhance less managed lowland grasslands by where possible, restricting field or arterial drainage, reclamation, landfill and dumping, heavy grazing and eutrophication from surrounding agricultural land and farmsteads
- maintain and improve field boundaries, especially hedgerows where they occur through adoption of relevant agri-environment scheme measures, for example correct cutting cycles; hedge laying and replanting where necessary; leaving saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to farmland birds

HEATHS AND BOGS

Issue: this LCA contains rare examples of the Priority Habitats blanket bog and lowland raised bog, with limited areas of intact bog at Cold Brae and Carrickacullion.

Actions:

- maintain the integrity of intact blanket and raised bogs by for example, preventing infilling, fly-tipping, fires, new drainage and mechanised peat cutting - applies particularly to intact bogs but cut-over bogs can provide important habitats for birds and invertebrates.
- consider restoring peat bog habitats through appropriate water level management, removal of individual colonising trees and phasing out peat cutting - applies particularly to any areas of recent mechanical cutting.
- prevent new private forestry planting or reclamation for pasture on former bog.
- monitor the effects of drainage, fertiliser applications and felling on the water tables and nutrient levels of adjacent peatland; take full account of the biodiversity of peatland habitats and sites when considering new land use applications.

WETLANDS AND LAKES

Issue: Wetland habitats are rare in this part of the LCA area.

Actions:

- protect existing wetland habitat through nutrient management and by reducing suspended sediments; prevent particles being released through peat cutting or forestry operations; install sediment traps at large extraction sites.
- promote and ensure compliance with good farming practices, guidelines and legislation so that wetlands, lakes and rivers are not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip; it is essential that nutrient enrichment from agricultural and other sources is prevented.

COASTAL

N/A

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm'. (see Appendix B for information on drumlins).

The *Carrigatuke Lowland Hills* extend across southern Armagh from the Ring of Gullion to Keady. This is a large scale landscape of smooth rolling green hills and deep wooded valleys. The higher hills have a wild exposed character, with areas of blanket bog and heather moorland. The hills form a broad continuous upland area with few valleys. The rounded summits are separated by broad upland plateaux. Wooded streams and loughs are attractive features of the valleys that drain from the hills. These include the valleys of the Carnagh estate, Glen Anne and Ballymoye.

Solid Geology

The area comprises 90% Lower Palaeozoic (predominantly Ordovician) greywacke sandstones and shales, the remainder being late Caledonian Newry Granodiorite Tertiary dykes. The area encroaches onto the Ring of Gullion AONB.

Drift Geology

The drift geology map for this LCA shows a landscape that is largely underlain by Late Midlandian till deposited by ice that moved south and then south-eastwards across the area from a centre in the Lough Neagh Basin. The passage of this ice is indicated by the many drumlins that typify the landscape. Although in the south of the LCA, near to the Tertiary igneous massif of the Ring of Gullion, there are areas of streamlined, ice scoured bedrock associated with local topographic highs. Further information on drumlins and inter drumlin hollows is provided in Appendix B.

8.2 NORTH LECALÉ LOWLAND HILLS (93)

Settlements: Downpatrick, Raholp, Saul, Strangford

This assessment applies only to the southerly unit of LCA 93 falling within the Newry, Mourne and Down boundary, excluding the northerly unit on the Ards Peninsula.

Landscape Character**Key Characteristics**

- Undulating hills north east of Downpatrick rising to 120m and extending across 'the Narrows' to Portaferry.
- Hills form a 'gateway' entrance to Strangford Lough.
- Gorse scrub, pasture and woodland create a textured mosaic.
- A robust field pattern reinforced by stone walls and gorse hedgerows.
- Small conifer plantations and sheep grazing.
- Wooded estates towards shorelines.
- Numerous archaeological features.

Landscape Description**Landform**

The *North Lecale Lowland Hills* extend from Downpatrick, along the southern edge of Strangford Lough, to Portaferry on the Ards Peninsula, where they create a 'gateway' at the mouth of Strangford Lough. The strong visual connection between Strangford and Portaferry is reinforced by the wooded estates on both shores and the physical link provided by the ferry between the two settlements. The small scale, knobby, gorse covered hills form a highly visible undulating ridge which create a setting for Downpatrick at one end, and the setting to Strangford at the other. The hills rise to over 100m at Castlemahon Mountain and at Slieve Patrick, where the landmark of St Patrick's shrine is visible from the surrounding low ground. Lough Money lies between the two main upland areas of Slieve Patrick and Castlemahon Mountain.

Landcover

The lower slopes support grazing intermixed with some arable production in well-structured farmland of irregularly shaped fields. Grazing predominates on the upper slopes, where the mosaic of pasture, gorse and scrubby woodland results in a textured quality to the landcover. Stone walls are more prevalent in the higher areas, whereas at lower elevations full hedgerows with ivy choked ash trees are the norm. There are patches of deciduous and mixed woodland with well-maintained stone walls and white-rendered buildings. Estates and shoreline parkland, including Castleward House and Myra Castle, are an important influence in the landscape contributing stone walls, deciduous woodland and buildings of stature.

Development

The eastern suburbs of Downpatrick spread upwards into low hills in the western parts of the LCA. Strangford is the other main concentration of settlement, the pretty waterfront cottages and active quayside contributing to an attractive character. Beyond these settlements, housing is often concentrated into small groupings of well-spaced single properties and farms, with the overall impression of housing being relatively well dispersed and integrated into the landscape. Development is more concentrated to the north and west of the LCA, along the main routes between Downpatrick and Strangford. There is a mix of larger and more affluent housing in favourable sites with views to Strangford Lough, and some derelict smaller properties, typically in inland locations.

Perception

The overall effect is that of a well-managed and maintained landscape, with high scenic qualities, particularly from the upper hill slopes where expansive views across Strangford Lough can be enjoyed.

Landscape Condition and Forces for Change***Landscape Condition***

The landscape condition is generally good, including continuous stone wall and hedges, and with a strong rural character.

Forces for Change

The area falls within Strangford Lough AONB, forming an important part of the southern setting to the lough, and the landscape is therefore very sensitive to any change. Although the undulating topography and the presence of woodland provide screening opportunities, sensitivity is increased by the high visibility of the hills from surrounding lowlands.

Agriculture

More prosperous areas may be subject to pressures from agricultural improvements, involving the loss of traditional hedgerows and walled boundaries. The textured qualities of the more upland parts of the landscape may be vulnerable to grazing pressure.

Trees and Woodland

Larger areas of woodland are typically limited to estates, however small patches of woodland and field boundary trees are important, contributing to the texture of the landscape and assisting with the integration of new developments. Ongoing development, farming practices or neglect may result in the loss of these important landscape features. There may be pressure for the expansion of mixed or coniferous forestry on areas of marginal farmland.

Development

The area has potential to be subject to significant pressures, including from expansion of Downpatrick further into the LCA, and demand for further housing because of the scenic landscape qualities, proximity to Strangford Lough, and within easy reach of Downpatrick.

Minerals

The landscape has not been subject to any large scale quarrying, and there is no evidence of pressure for such development in the future.

Tall Structures

There is a very low level of existing/ consented wind energy development, however there may be pressure for further development, particularly in the more elevated parts of this landscape where a good wind resource is likely. There may be pressure for the siting of telecommunications masts on hill tops.

Tourism and Recreation

Scenic landscape qualities, a rich cultural heritage and attractions including Castle Ward are likely to result in an ongoing pressure for leisure and tourism development, particularly in coastal locations.

Climate Change and Coastal Erosion

Rising sea levels have the potential to affect coastal farmland, trees, woodland and coastal developments. This may include changes to the water table and increasing salinity. The general forces for landscape change relating to climate change and coastal erosion set out in Section 5.3, should also be referred to.

Landscape Management and Planning Guidelines

Key Sensitivities

The area falls within Strangford Lough AONB and the landscape is therefore very sensitive to any change. Although the undulating topography and the presence of woodland provide screening opportunities, sensitivity is increased by the high visibility of the hills from surrounding lowlands and from Strangford Lough.

Guidance

Agriculture

- The continued maintenance of stone walls and the management of woodland will help retain the special character of this area.

- Selected field boundary saplings should be left uncut to develop into hedgerow trees.
- The less intense management of more marginal pastures could be encouraged through agri-environmental schemes.
- Grazing pressure should be managed to maintain the textural qualities of the upland areas created by gorse and scrub.

Trees and Woodland

- Small copses and woodland polygons should be retained, and native woodland planted around farms and houses, to maintain landscape structure and integrate development into the landscape.
- Commercial forestry should be small scale and should not be allowed to overwhelm the craggy, textured quality of the upper slopes.

Development

- Modern housing following the vernacular style of low, white-finished cottages would be easier to accommodate in the landscape than larger non-traditional housing types, particularly in more elevated parts of the landscape.
- Small scale development of isolated rural dwellings or small clusters of buildings on lower slopes will be most easily accommodated; large scale built development is inappropriate.
- Elongated developments of roadside housing are present in places. Clustered housing developments are preferable to linear ones in order to maintain existing rural characteristics.
- There are relatively high concentrations of cultural heritage sites, the settings to which should be respected in the siting of new developments.

Minerals

- The landscape would generally be very susceptible to intrusion from any large-scale minerals development, particularly affecting views to the Lecale Hills or the setting to Strangford Lough, its coastal towns and estate landscapes.

Tall Structures

- SPG accompanying PPS18 assesses a high sensitivity to wind energy development.
- Sizeable wind turbines are likely to overwhelm the relatively small landscape scale of this LCA.
- Turbines would be best accommodated if small scaled, well separated, and associated with the farms and houses of the more lowland parts of the landscape.
- Wind turbines should be sited so as not to affect key views to the Lecale Hills, the setting of estate landscapes and Strangford Lough.

Tourism and Recreation

- There is potential for improved public access within the hills and some selective access to shoreline areas. Visitor pressure may be accommodated by providing parking facilities and signed footpaths through more robust areas; small, rough surfaced car parks and lay-bys,

which avoid urban elements, are most suitable. These may be sheltered by gorse, stone walls and shelterbelts which are typical of the area.

Climate Change and Coastal Erosion

- Limiting the amount of further coastal development will have benefits to landscape character and help mitigate against the possible effects of coastal erosion and flooding.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- In total, 4076 ha (85.4%) of the LCA area is within the council boundary.
- a spine of hills extending from Downpatrick to Strangford which rise to over 100m; some with scrub and patches of trees giving diversity to the LCA.
- lower ground in farmland, mainly pasture.
- demesnes, near the Strangford Lough shoreline give a wooded aspect.

Key Sites

- SPA: Strangford Lough
- SAC: Strangford Lough; and Lecale Fens.
- ASSI: Strangford Lough Part 2; Loughmoney; Carrowcarlin; Tullyratty; and Loughkeelan.
- Ramsar: Strangford Lough
- AONB: Strangford and Lecale
- SLNCl: Ardmeen Fen; Castlemahon Fen; Great Dam; Lough Money; Slievenagriddle; and Tullyratty



View from the Lecale Hills towards Strangford Lough.



View west into the Lecale Hills from the eastern fringes of the LCA.

Woodlands

Approximately 6.5% of this LCA is occupied by trees and woodland. Much of the woodland is associated with demesnes (**parkland and wood pasture**), in the northern part of the LCA area around Castleward and Myra Castle. Although these areas include specimen exotic trees and some conifer plantations, these demesne woodlands are dominated by broadleaves, in particular of oak, sycamore, beech, ash and elm (though some of the latter have been lost to Dutch elm disease). In the woodlands barn owl, song thrush and **red squirrel** have been recorded. A number of substantial blocks of mixed woodland occur to the west of Lough Money.

Grassland and Arable

Pasture is the dominant land cover in the LCA, accounting for around two-thirds of the area. In the lower parts of the LCA, pasture is relatively high-quality improved pasture, but in the higher areas tends to be of lower productivity permanent pasture, sometimes grading into semi-natural grasslands. Arable fields, including re-seeded grasslands, are intermixed with pasture throughout the lower parts of the LCA both north and south of the central spine of hills. Extensive areas of arable are rare.

One area of priority species-rich dry grassland (**lowland meadows**) is the Tullyratty ASSI adjacent to Castleward, which is formed by 12 adjoining pasture fields and patches of scrub. This ASSI has been managed through a conservation grazing initiative to maintain and improve species diversity.

Heaths and Bogs

In the past there were some small bogs between hills in the LCA, but today, as a result of past cutting, none remain. The former bog sites are now in carr (**wet woodland**) or have been reclaimed for agriculture.

Wetlands and Lakes

Eutrophic standing waters are highly productive because plant nutrients are plentiful either naturally or as a result of artificial enrichment. They can have a high biodiversity; planktonic algae and zooplankton are abundant, submerged vegetation is diverse and there are numerous species of invertebrates and fish. Great Dam (Tullyratty) is the only example in this LCA. It has been found to contain lesser bearded stonewort which is a priority species for Northern Ireland.

Lowland fens have developed through past peat cutting or infill of small lakes. Most are small but nevertheless can be part of a rich mosaic of habitats - fen, swamp, open water, wet woodland, scrub and semi-natural grassland - and some in this LCA are particularly important for species rare to Co. Down or to Northern Ireland. These include dioecious sedge-common butterwort wetland (a rare wetland type in Co. Down) at Ardmeen, which also has the blunt flowered rush and black bog-rush, both rare in Northern Ireland. The habitats also support bird species such as reed bunting. Another example occurs at the Carrowcarlin ASSI, which is also part of the Lecale Fens SAC; this area includes rush and sedge dominated wetland communities that support important invertebrate populations including water beetles and spiders. Fen communities also occur at Horse Park, east

of Downpatrick and in small patches to the east of Lough Money, one of which is a species rich fen designated as the Loughmoney ASSI.

Coastal

LCA 93 is also characterised by its coastal position and there are significant areas, at the mouth of Strangford Lough, with a relatively high faunal biodiversity such as Audleys Castle Rocks and Chapel Island Causeway. These areas are dominated by fucoids such as knotted wrack and feature excellent faunal diversity due mainly to underboulder habitats (**intertidal underboulder communities**). Mud snails, which graze on microscopic algae and bacteria on the surface of the **intertidal mudflats**, are eaten by shelduck and other waterfowl. Lugworms, ragworms, catworms, tellin shells and burrowing amphipod 'shrimps' live within the sediment. These organisms exist in enormous numbers and form an important part of the diet of the 45,000 wading birds that winter on Strangford Lough. (Strangford Lough has been designated as Northern Ireland's first Marine Nature Reserve). Small areas of **coastal saltmarsh** are also found along the Strangford Lough shoreline. One of the more extensive is located on the southern side of Dickson's Island where there is a clear zonation from the edge of the lough. Species present in this saltmarsh include common saltmarsh-grass, sea lavender and sea aster. Maritime grassland is found as a narrow fringe to some saltmarsh patches.

The sheltered waters, rocks and islands attract seabirds, particularly terns, black-headed gulls, black guillemots and eider duck all of which breed and feed within and close to the Lough. Strangford Lough is designated as a SPA, SAC and ASSI for its marine and intertidal habitats, breeding and wintering bird populations and common seal populations (**marine mammals**).

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: Priority Habitat parkland and wood pasture with records of Priority Species red squirrel.

Actions:

- enhance the biodiversity value of demesne woodlands by discouraging any further felling or pollarding; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna); ensure that hazel scrub is not cleared.
- enhance biodiversity through appropriate measures in agri-environment and forestry grant schemes to improve and extend woodland cover; management plans for demesne woodland should be directed toward their survival, through natural regrowth or planting of native broadleaf species.
- encourage control of grazing in demesne woodlands to foster herb layer and regeneration and if necessary, encourage replanting of canopy species.
- further study of the history and ecology of broadleaved woodlands within the LCA, particularly any ancient and long-established, as a key to future management.

GRASSLAND AND ARABLE

Issue: intensively managed pasture and arable dominate land cover in this LCA, but are of low biodiversity value.

Actions:

- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland.
- maintain and enhance any damp grassland by where, possible, restricting field or arterial drainage.
- maintain and improve field boundaries, especially hedgerows where they occur through adoption of relevant measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to farmland birds.
- ensure that further clearance of boulders does not occur on pastoral or arable land.

WETLANDS AND LAKES

Issue: this LCA features the Priority Habitats eutrophic standing waters (Great Dam) and lowland fens which support a range of rare species.

Actions:

- promote and ensure compliance with good farming practices, guidelines and legislation so that eutrophic standing waters and fens are not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip; ensure that further eutrophication does not occur as a result of nutrient-rich surface waters from surrounding farmland.
- monitor the nutrient status of eutrophic standing waters and fens; monitor streams in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants; monitor effects of recreation, including fishing, on shoreline communities (reedbeds, fens etc.).
- prevent further loss of fen through drainage, reclamation, land-fill, new woodland planting and encroachment by scrub woodland; prevent dumping and fly-tipping and encourage removal of rubbish; care should be taken to divert the flow of nutrient rich water from agricultural land away from fens, so that sites do not become damaged by a change in species composition.
- carefully assess any proposals for arterial and field drainage near to fens so that the water table is not lowered to the extent that fens are affected.

COASTAL

Issue: the entire coastline of this LCA lies within Strangford Lough, Northern Ireland's first Marine Nature Reserve and features areas of relatively high faunal biodiversity; these include the Priority Habitats coastal saltmarsh, intertidal underboulder communities and intertidal mudflats.

Actions:

- protect rare coastal saltmarsh communities from sources of pollution and waste tipping, in addition to damaging activities such as land-fill and construction.
- protect mudflats and mudflat communities such as lugworms, ragworms and amphipod shrimps, from potential impacts of nutrient enrichment, land claim, coastal defences, dredging and human disturbance.
- ensure that Priority Species, rare plants and Red List Species are protected from factors such as new development, erosion, waste tipping and pollution.

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm'.

The *North Lecale Lowland Hills* extend from Downpatrick, along the southern edge of Strangford Lough, to Portaferry on the Ards Peninsula, where they create a 'gateway' at the mouth of Strangford Lough and provide a strong visual connection between Strangford and Portaferry. The hills form a highly visible undulating ridge that creates a setting for Downpatrick at one end and settings for both Portaferry and Strangford at the other. The hills rise to over 100m at Castlemahon Mountain and at Slieve Patrick. The coastline of Strangford Lough has been described by Orford (in Whalley et al. 1985) as a mixture of glaciomarine shelf sediments with a superimposed two unit drumlin cover, lying on a low undulating basement of Silurian greywacke and mudstones. Strangford Lough is tidal with a distinctive straight east coast and a highly irregular west coast morphology. The lough contains numerous drowned drumlin islands that have been removed completely from the eastern shore to leave remnant shoals or 'pladdies'. On the western shore the drumlin islands are largely retained and linked by limited shoreline deposition. The difference between the lough shores is because of the prevailing south-westerly waves that vigorously attack the eastern shore, whilst leaving the western shore largely untouched.

Solid Geology

This area predominantly comprises Lower Palaeozoic greywackes and shales with numerous minor igneous intrusions. 95% of the LCA comprises Lower Palaeozoic (Silurian) Hawick Group: the northern 10% of the LCA comprises Gala Group, the remainder being Tertiary intrusives.

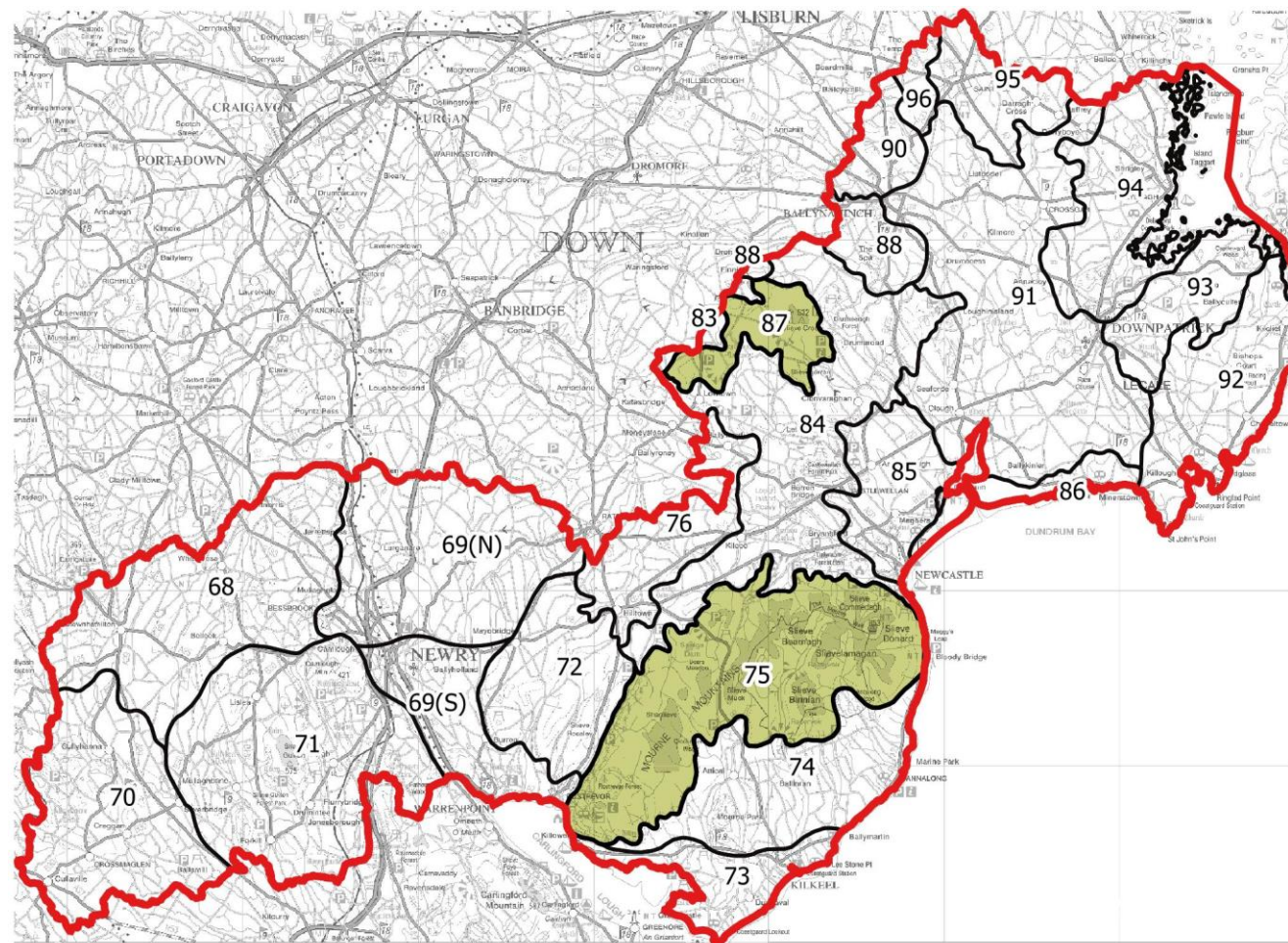
The greywackes vary from a few centimetres to a few metres in thickness with a large proportion of rock fragments and a fine-grained matrix. They are interbedded with thinner beds of siltstone or mudstone, commonly arranged as fining-up cycles. The Hawick Group also have numerous NE-SW

faults, breaking the stratigraphy into tracts. The NE -SW strike of the beds at outcrop is produced by faulting and belies the fact that minor folds occur within each fault tract. A fault-bounded sliver of Ordovician Moffat Shale occurs on the south-east of the LCA.

Drift Geology

The drift geology map for this LCA shows it to be predominantly underlain by Late Midlandian till associated with the large ice mass that was centred on the Lough Neagh Basin. This ice flowed south eastwards from an ice divide that lay approximately SW-NE along the line of the north Belfast Hills. Evidence for this flow direction is found in the orientation of the numerous drumlins that make up much of the landscape. However, within the LCA there are also significant outcrops of drift free bedrock that were scoured by the overriding ice. McCabe and Knight (in Knight 2002) have suggested that this area, and much of central Co. Down, was the site of an ice stream during the Drumlin Readvance that delivered a high sediment flux to the ice margin at areas such as the Lecale Coast to the southeast of this LCA. This may go some way to explain the partial drift cover in the region and the widespread occurrence of rock cored drumlins. Further information on drumlins and inter drumlin hollows is provided in Appendix B.

9. Rugged Uplands



Mourne Rugged Uplands (75)
Slieve Croob Rugged Uplands (87)

9.1 MOURNE RUGGED UPLANDS (75)

Settlements: No settlements within LCA

Landscape Character

Key Characteristics

- Dramatic jagged peaks, forming a striking backdrop to views.
- Steep rock and scree covered mountain slopes capped with granite tors, falling to the sea on their eastern edge.
- Rough grass and heather used for sheep grazing.
- Reservoirs and rocky mountain streams occupy steep combs and glens.
- No settlement on upper slopes and mountain tops, sparse farmsteads, including derelict stone cottages on lower fringes; very few roads.
- Panoramic views to sea, across the 'Kingdom of Mourne' and inland across foothills and basins.
- Popular area for tourism.

Landscape Description

Landform

The prominent pyramidal peaks of the Mourne Mountains form a stunning backdrop to views throughout south-eastern Northern Ireland. They comprise an area of distinct steep rocky summits rising to 853m at Slieve Donard, with eleven other peaks grouped nearby. The underlying geology is granite which is reflected by the characteristic tors which cap the mountain tops. It is an exposed landscape with thin grass cover, rock and scree slopes.

Landcover

The open mountain slopes are predominantly rough grass and heather, close-cropped by sheep. Stone walls snake up the lower slopes but higher up there are no field boundaries. Loughs, reservoirs and rocky mountain streams occupy the steep combs and glens, which dissect the mountain ridges. Areas of blanket bog on the narrow plateau between the peaks are punctuated by small rounded loughs, the sources of the many rivers and streams which radiate from the mountains.

In a small number of locations, broad-leaved woodland extends up the glens from the surrounding lowlands, such as along the Watergap River to the very south, and there is also some commercial forestry, particularly on the lower peaks of the range towards Slieve Croob, and at the Donard Forest near Newcastle. However, the area is overwhelmingly unforested and has few other trees.

Development

There is no settlement on the upper hillslopes and mountain tops, and only sparse stone cottages and barns on the lower hillside fringes, some of which are derelict. Very few roads penetrate the mountains, Spelga Pass being the only place where the landform allows the passage of a road.

Perception

There are long distance, panoramic views to the sea, across the unique stone wall landscape known as the 'Kingdom of Mourne' and across the lower land to the north. It is an open, exposed, wild mountain landscape and its distinctive character is reflected by its designation as an Area of Outstanding Natural Beauty. The Eastern Mournes are also designated as an ASSI, as a result of their geological and physiographical features as well as heathland and upland flora. The Mourne Wall is of historic interest, constructed in the early 20th century to protect the Mourne reservoir catchments.

The Silent Valley, containing the Silent Valley Reservoir, is a popular tourist destination and the whole area is a mecca for walkers and climbers.

Landscape Condition and Forces for Change

Landscape Condition

The Mourne Mountains are perceived as a wild upland landscape largely unspoilt by overt development. However, human activities, particularly sheep over grazing, has degraded the landscape condition in some locations, while demand for public access also creates issues such as footpath erosion.

Forces for Change

Agriculture

The majority of the landscape comprises upland, unenclosed grazing land, and no significant changes to farming practices are foreseeable. Intensive grazing by sheep has the potential to adversely affect valuable upland habitats such as heath or blanket bog.

Trees and Woodland

Lower slopes and enclosed valleys already include some areas of forestry, and it is possible that there may be further pressure for afforestation in lower parts of the landscape.

Development

The Mournes remain perceived as a largely undeveloped upland landscape; its large scale reservoirs do not greatly undermine this characteristic, appearing as semi-natural features, with their dams and other infrastructure having only a relatively localised effect on landscape character. The unsuitability of the landscape for most development types means that future development pressure is likely to be limited, other than from tourism and recreation.

Minerals

The western Mournes, west of the B27, have been subject to very little exploitation for minerals, while to the east there is significant industrial heritage associated with granite extraction, but no

active mineral workings. Significant mineral working in the foreseeable future seems unlikely, although GSNi mapping indicates the presence of both sand and gravel, and resources potentially suitable for high quality aggregates.

Tall Structures

The Mournes are currently free from wind turbines and with few other tall structures such as masts or pylons, however more accessible parts of the landscape, for example at the fringes of the LCA, may be subject to pressure for wind farm development.

Tourism and Recreation

Future development pressures are likely to arise from the importance of the mountains for leisure and tourism, requiring car parking, upgraded footpaths, toilets and other infrastructure.

Climate Change and Coastal Erosion

The LCA drops to a rocky, low coastline which is identified as potentially susceptible to coastal erosion. The general forces for landscape change relating to climate change and coastal erosion set out in Section 5.3, should also be referred to.

Landscape Management and Planning Guidelines

Key Sensitivities

The fragile upland ecosystems and the open skylines which are prominent in views from all around would be highly sensitive to change. Even small changes in this area would be visible from long distances. Damage to the vegetation on the steep slopes of the uplands would result in accelerating erosion of shallow soils which would be very difficult to halt and repair.

Guidance

Agriculture

- The monitoring of grazing pressure will help prevent damage to the grassland and ensure the rugged landform is fully visible in distant views.
- The ongoing maintenance and repair of dry-stone walls would prevent their loss from the landscape.

Trees and Woodland

- The expansion of commercial forestry onto the higher mountain slopes would be detrimental to the open character of the mountains. Some forestry may be integrated on lower slopes and hollows if designed in large scale patches with irregular edges and in association with native woodland planting.

- The regeneration of native woodland on lower slopes and sheltered valleys extending into the uplands would have benefits including enhanced landscape diversity and habitat creation, while maintaining the open character of upland areas.

Development

- It is only the very eastern part of the LCA, along the coastal strip, which may be suited to development. However, in order to maintain the character and outward views, development east of the A2 should be very limited.

Minerals

- All scales of minerals development are likely to be highly intrusive in this open and visually exposed landscape.
- Minerals development should not be allowed to affect key skylines or appear on exposed hill sides.
- Mitigation through woodland planting may only be appropriate to lower hill slopes, appearing out of place in the bare uplands.

Tall Structures

- SPG accompanying PPS18 assesses a high sensitivity to wind energy development.
- The visual prominence, steep slopes and craggy outlines of the Mournes are characteristics which would be susceptible to intrusion from wind energy developments.
- Only the more sheltered lowland fringes might be suited to small scales of wind energy when clearly associated with farms or houses.
- The Mournes should remain free from intrusion from other tall structures such as hill-top masts or electricity transmission lines.

Tourism and Recreation

- The provision of facilities and infrastructure for tourism could result in damage to the character of the area if not carefully controlled and sensitively designed.
- The sympathetic location of car parks and visitor centres in sheltered locations, using traditional characteristic materials, and including native tree planting, will help maintain landscape character.
- The sensitive repair of footpaths to avoid the erosion of upland vegetation would be beneficial. Repairs and upgrades to upland paths should be in keeping with the character of the upland landscape, using traditional materials and techniques.

Climate Change and Coastal Erosion

- Limiting the amount of further coastal development will have benefits to landscape character and help mitigate against the possible effects of coastal erosion.



The distinctive profile of the Mournes seen from the north.



The Mournes forming the backdrop to the Kingdom of Mourne.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- All 15,545 ha of the LCA is within the council boundary.
- woodlands account for about 7% of the land cover almost all in coniferous forest.
- Rostrevor oakwood of national significance as a long-established and possibly ancient woodland.
- rough upland grassland extensive - over 40% of the land cover - and extending at the expense of heather heath.
- one of the most extensive areas of upland heathland in Northern Ireland - a nationally important but declining habitat.
- one of the few locations in Northern Ireland of montane communities.
- only a few small patches of intact blanket bog remain.

Key Sites

- SAC: Eastern Mournes; Murlough; and Rostrevor Wood
- ASSI: White Water River; Western Mournes and Kilfeaghan Upper; Eastern Mournes; Rostrevor Wood; Shimna River; and Mournes Coast
- Nature Reserve: Rostrevor Forest
- AONB: Mourne
- SLNCI: Burren, Shimna and Trassey Rivers; Cassy Water; Kilbroney Park; Rostrevor River; Spelga Dam incorporating Spelga Dam Stream; and Western Mournes Habitat and Geology incorporating Rocky Mountain

Woodlands

Woodlands account for just over 7% of the land cover of the LCA, almost all in coniferous forests. Most of the coniferous forests are state forest, but the notable exception is Batt's Wood. This is a large plantation clothing the western slopes of Altataggart Mountain in Scots pine, larch and spruce. It is irregular in outline due to sporadic felling but can be broadly divided into the larger upper part (continuous for approximately 2km), a more discontinuous lower part and a band of scattered Scots pine and laurel beside the river. In addition to sporadic felling, there are several locations of severe windblow and no evidence of replanting.

Rostrevor Forest extends 8km on the west facing slopes of the Mournes above the Kilbroney valley. Planting is complex and although there are patches of mixed hardwoods, conifers predominate - in particular Sitka spruce, Douglas fir and European larch. Sections of the forest are being harvested and replanted, with consideration given to biodiversity in the replanting design. The forest supports **red squirrel**. Donard Forest on the north-east facing slopes of Slieve Donard above Newcastle, is equally complex, especially in the northern part where intertwined stands of Scots pine and Corsican

pine occur, and a shrubby understorey and herbaceous layer in this area supports the holly blue butterfly and a wide range of bird species. In the centre there is considerable mixed planting of beech and Scots pine whereas in the southern section Scots pine and lodgepole pine dominate. Other, smaller conifer forests or parts of forests crossing the LCA boundary occur; Scots pine, larch, noble fir, Sitka spruce and Corsican pine are the most common species.

The main broadleaved woodland is Rostrevor Wood ASSI, SAC and NNR, a mature oak woodland (**oakwoods**) at least 250 years old and possibly an ancient woodland. The dominant woodland type occurs on the upper, freely draining acidic slopes. The dense canopy of oak has an understorey of hazel and occasional holly with bramble, honeysuckle, bilberry and carpets of greater wood-rush below. The lower slopes are flushed and mildly base-rich resulting in the presence of ash; the ground flora is typically more diverse. The woodland flora includes rare plants such as wood fescue, toothwort and bird's-nest orchid. Nationally scarce species of lichen have been recorded including *Melaspilea granitophia*, a record new to Ireland. Invertebrate sampling has recorded important hoverflies and houseflies.

Juniper scrub occurs in the Mourne Mountains and a recent project coordinated by the Mourne Mountains Landscape Partnership is aiming to secure and expand the area of this habitat.

Grassland and Arable

Due to the upland character of this LCA, improved grassland is rare; indeed only small patches are included in the LCA boundary. Rough grassland therefore comprises almost all of the grassland land cover. It is acid grassland often dominated by mat grass with common bent, sheep's fescue, sweet vernal grass and heath bedstraw. These grasslands frequently form complex mosaics with dwarf shrub heaths, often indicating the degradation and fragmentation of former heath habitat as a result of persistent sheep grazing. Small pockets of **calcareous grassland**, rare in eastern Northern Ireland, with species such as wild thyme, and wet acid grasslands dominated by purple moor-grass, rushes and sedges (**purple moor grass and rush pastures**) provide additional habitat diversity.

Heaths and Bogs

The Mournes support some of the most extensive tracts of **upland heathland** in Northern Ireland, which is one reason for the area being designated as Western Mournes and Kilfeaghan Upper ASSI and Eastern Mournes ASSI and SAC. The dominant species, especially in the Eastern Mournes, are common heather and bell heather, the dominance of the latter being unlike similar communities in GB and reflecting the more oceanic, mild conditions. However, there is considerable diversity of habitats resulting from variation in physical conditions and land-use history.

The damp microclimate on lower, north-facing slopes allows wet heaths to develop that are characterised by cross-leaved heath, deer sedge, purple moor grass, carnation sedge and bog mosses. The rare northern Atlantic silky swan-necked moss (*Campylopus setifolius*) is abundant in this community.

There are also communities associated with springs and flushes (**upland flushes, fens and swamps**); for example, black bog-rush dominates some vegetation in acid and neutral flushes and

moss communities around springs include those dominated by fountain apple-moss (*Philonotis fontana*) which may have the scarce starry saxifrage present.

Montane heath is restricted in Northern Ireland to the highest mountains; in the Mourne it is often dominated by grasses such as sheep's fescue and bents with mounds of woolly hair moss (*Racomitrium lanuginosum*). This moss was probably once more widespread but is now confined in its distribution to those areas of light grazing. The rare alpine clubmoss (*Diphasiastrum alpinum*) is locally frequent and on the tightly grazed sward on the summit of Slieve Donard there is abundant dwarf willow, a scarce montane species.

On the eastern side of the LCA, upland heaths grade into **lowland heathland**, notably in the Bloody Bridge Valley. Whereas there is no major change in the flora, this is a major site for lowland heath fauna including the leaf-footed bug in its only known Irish site, hoverflies and the tiger beetle as well as large populations of the butterfly species dark green fritillary and grayling.

Much of the heathland has been affected by past and recent grazing; not only have heather dominated communities been reduced to coarse grassland (see Grasslands above), but much of the remaining heather is diminished in height and spread and there is an increase in bare ground, especially on some of the steeper slopes. There are indications that some of the heath and other upland habitats are recovering and the Healthy Heathlands Project coordinated by the Mourne Mountains Landscape Partnership is encouraging practical action to restore health habitat. Also, some habitats in the eastern area around Slieve Donard have suffered from increased erosion resulting from recreational activities, and projects are currently tackling this issue by managing path networks.

In addition to the heathland communities, and sometimes grading into them, there are expanses of **blanket bog** in the Mourne. Northern Ireland has a high proportion of the UK and Ireland total areas of this nationally and internationally important habitat that in Europe is confined to its north-western margins. However, very little of the blanket bog in the Mourne remains intact, most has been eroded and is thin and other areas of deeper peat have been cut-over or indeed cut-away. For example, the Bog of Donard is largely eroded, and Red Bog, Kilbroney Red Bog and Castle Bog are all cut over, as are large parts of the surrounds of Spelga Dam. Remnants of intact bog are small and found at Kilbroney Red Bog (one of the two known NI sites of the few-flowered sedge), Castle Bog and at the Rowan Tree River. The Healthy Heathlands Project has undertaken restoration of eroded peatland near Binnian Lough.

Upland heathlands and blanket bogs are important habitats for upland birds, including the rare ring ouzel and red grouse as well as invertebrate communities. The montane heaths support one of the largest assemblages of montane invertebrate species recorded in Ireland; species include predatory ground beetles *Notiophilus aesthuans* and *Miscodera arctica* and the sawfly (*Pontania crassipes*) that feeds on the dwarf willow. Slieve Donard is the only known Irish site for these three species.

Wetlands and Lakes

Three reservoirs (Silent Valley, Spelga Dam and Ben Crom) and a number of base-poor, upland lakes occur within the mountain range. The natural water bodies have clear waters and are generally devoid of aquatic plants. Exceptions include Binnian Lough and Blue Lough, which are characterised by the presence of quillwort and water lobelia. The marginal vegetation associated

with these water bodies tends to be sparse and restricted to a swamp and poor acid fen fringe. Nevertheless, there are some uncommon upland invertebrates including the beetle *Potamonectes griseostriatus* and the water bug *Glaenocoris propinqua*.

The Mourne are the source of many **rivers**, but few have records of Priority Species. The White Water has **otter** and the keeled skimmer dragonfly is present in others.

Coastal

In the east of the LCA the coast consists of semi-natural cliffs with a rocky shore and shingle communities below. The **coastal vegetated shingle** between William's Harbour and Green Harbour is of note because it is one of the best examples in Northern Ireland of a habitat which is poorly represented here. Good populations of yellow-horned poppy and oyster plant are found. Lower cliff slopes are flushed with base-rich water to give species-rich communities of **purple-moor grass and rush pasture**.

To the west of the LCA, the shore north of Killowen is of fucoid dominated boulders of low floral diversity but good faunal diversity under the boulders.

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: maintenance of woodland diversity.

Actions:

- historic loss of trees through felling and windthrow in Batt's Wood with little sign of regeneration; encouragement to replant/regenerate with similar species but consider increased proportion of native broadleaves such as birch and oak.
- ensure that small patches of trees and of juniper are not lost from the High Mourne; ensure protection against grazing to allow regeneration and spread.
- ensure future of Rostrevor oakwood by monitoring status of regeneration and that ground flora does not become depleted to continuous wood rush.

GRASSLAND AND ARABLE

Issue: extensive and extending upland rough grassland at the expense of heather heath.

Actions:

- continue policy to control grazing intensity and timing and policies on burning; encourage membership of agri-environment schemes as appropriate.
- promote attempts to return rough grassland to heath.
- monitor and protect rare examples of calcareous grassland.

HEATHS AND BOGS

Issue: maintenance of one of the most extensive areas of Priority Habitat upland heathland in Northern Ireland, particularly of heather-dominated communities.

Actions:

- continue policy to control grazing intensity and timing and policies on burning; encourage membership of agri-environment schemes as appropriate to safeguard existing upland and montane heath habitats.
- continue to monitor numbers of hill walkers and their effects on vegetation and soil erosion.
- continue to manage access to prevent degradation and loss of sensitive upland heath habitat.

Issue: maintenance of rare montane communities.

Actions:

- monitor extent and effects of grazing on montane communities and apply suitable grazing levels.
- continue to monitor numbers of hill walkers and their effects on vegetation and soil erosion.
- continue to manage access to prevent degradation and loss of sensitive montane habitat.

Issue: maintenance of the few small areas of intact Priority Habitat blanket bog remaining

Action:

- attempt to limit activity of the few remaining peat cutters.

WETLANDS AND LAKES

Issue: maintenance of water quality of rivers and lakes.

Action:

- continue to maintain water quality for wildlife as well as for human consumption.

COASTAL

Issue: LCA includes the best example of Priority Habitat coastal vegetated shingle in Northern Ireland.

Action:

- continue management aimed at maintaining this rare habitat.

Geological Characteristics

Overview

This LCA lies within the region described as the Igneous Massifs of Down and Armagh. This region consists of two igneous complexes that rise above the broken foothills of a largely Silurian basement and are separated by the fault-guided and glacially modified inlet of Carlingford Lough. To the northeast are the rounded, Tertiary granite domes of the Mourne Mountains, whilst to the southwest are the mixed Caledonian and Tertiary igneous intrusions that comprise the ring dyke complex surrounding the central mass of Slieve Gullion. Separating the two are the drumlin covered Newry lowlands and the fault-guided Newry River.

The prominent pyramidal peaks of the Mourne Mountains form a stunning backdrop to views throughout south-eastern Northern Ireland. They comprise an area of distinct steep rocky summits rising to 850m at Slieve Donard. The underlying geology is an intrusive complex of five different granites (G1 - G5). It is a landscape of exposed, thin grass cover, rock and scree slopes. There are 12 high peaks grouped close together near the highest summit of Slieve Donard. The open mountain slopes are predominantly rough grass and heather, close-cropped by sheep. Loughs, reservoirs and rocky mountain streams occupy the steep combs and glens, which dissect the mountain ridges. Areas of blanket bog on the narrow plateau between the peaks are punctuated by small rounded loughs, the sources of the many rivers and streams that radiate from the mountains. Morphologically, the Mournes consist of two mountain blocks.

In the east, the High Mournes are found on the G1, G2 and G3 granites, whereas in the west, the Low Mournes are underlain by the G4 and G5 granites. Between the two is the col of Deer's Meadow, now largely covered by the Spelga reservoir. The col is underlain by Silurian shales and mudstones of the country rock. Outliers of this also occur high on Slieve Donard and it appears that the unroofing of the complex is both incomplete and recent in geological terms. Because of this, the major elements of the landscape are still greatly influenced by the structural characteristics of the underlying geology, in particular the prevalence of curvilinear sheet jointing that formed in response to pressure release or 'dilatation' as the overburden was removed. These joints not only contribute to the dome shaped outlines of many of the peaks, but also facilitated the past quarrying of the granite. Pressure release at a microscopic scale might also help to explain why the granites typically weather directly from large boulders into the sandy regolith or 'grus' that mantles much of the landscape, especially beneath any peat cover.

A feature of the mountains are their particularly steep slopes. This is partly structural control by the granites but is also associated with previous glacial erosion during the early part of the last glacial phase in the area. During this, the Mournes existed as an obstacle to a readvance of regional ice that flowed from the north and butted against the northern slopes and separated into two lobes around 15ka B.P. (see LCA 84). The western lobe was deflected westwards down Carlingford Lough and the eastern lobe curved around the eastern slopes of the Mournes as far south as Dunmore Head (see LCAs 73 and 74). This left the highest peaks largely ice free, although individual valleys held glaciers that are associated with the many steep-walled corries to be found in the High Mournes, including ones at the heads of the Glen and Annalong rivers. Within many of the major valleys (e.g. the Attical, Silent Valley, Annalong and Bloody Bridge) the retreat of these valley glaciers left arcuate ridges of moraine. (see below). Slope steepening was also associated with

freeze/thaw action, which produced numerous rugged cliffs standing above talus (scree) deposits, and possible snow patch accumulation.

Colhoun, for example, identified what he considered to be a 'pro-talus rampart in the Pigeon Rock River area that accumulated below a snow patch and now lies below a steep cliff. Other possible evidence of periglacial activity could include spreads of frost-shattered debris blanketing the upper slopes of Slieve Donard and Chimney rock Mountain, and the many summit and valley-side tors that characterise the mountains. These represent arguably the best developed suite of tors in Ireland and notable examples can be seen at Hen and Cock mountains in the west, Slieve Bearnagh in the north and Slieve Binnian in the south. The area is generally characterised by an open, exposed, wilderness mountain landscape and its distinctive character is reflected by its designation as an Area of Outstanding Natural Beauty. The Eastern Mourne are also designated as an ASSI, as a result of their geological and physiographical features as well as heathland and upland flora. For further information on this area and the Tertiary history of Ireland, see Davies and Stephens (1978).

Solid Geology

This LCA comprises the central part of the Mourne Mountains and has 25% Lower Palaeozoic Hawick Group (intruded by felsites and dolerites) in the north and south, with Tertiary Mourne Granites (G1 to G5) through the central part of the LCA (ASSI 095).

The Mourne Granites were emplaced in successive injections at two centres: LCA 75 covers the boundary between the eastern and western centre. To the east of LCA 75, isolated inliers of the earliest granite, G1 are remnant stocks that have been enveloped by G2. The eastern granite - country rock succession can be observed at Bloody Bridge (ESCR site 94). G2 contains the unusual dark quartz crystals known from this area of the Mourne. The nature of the G4 and G5 intrusions can be elucidated in the western part of LCA 75, where the remnant roof of the granite chamber is still intact as pendants of Hawick Group (with dolerite dykes). A felsitic (acid - composite) cone-sheet extends in an arc through the Hawick Group exposure on the western edge of LCA 75, where it is best observed along the coast. This was a late intrusion, forming as the granite solidified, cooled and the overlying ground collapsed and cracked in a crater-like manner, allowing late molten rock to inject in a thin sheet. ESCR Sites 103 (Rocky Mountain) and 102 (Spelga Dam) occur in this LCA.

Faulting

A NE-SW trending fault forms the western boundary of LCA 75. This is one of a suite of post-granite faults of this trend, in this area.

Drift Geology

Although it principally consists of an upland area stripped of drift deposits by glacial erosion, LCA 75 is characterised by a series of glaciofluvial complexes within the headwater sections of the incised valleys that drain the massif to the south and east. In the east, there is a narrow component of the coastal plain covered by the Northeast Mourne Moraine and Raised Beach Complex.

The southwards flowing rivers that drain the Mourne contain three important glaciofluvial complexes: The Attical Valley Complex (6.5km² in area in this LCA), The Annalong River Moraine Complex (2.5km² in area in this LCA) and Silent Valley Complex (1.1km² in area in this LCA). Although individually variable, the complexes all characteristically comprise well-preserved, cross-valley, arcuate recessional moraines. These are associated with a Late Midlandian advance through the mountains, and subsequent retreat of ice up the valleys. Those in the Annalong Valley are seen to postdate moraines of an earlier Late Midlandian phase which records the retreat of ice northward across the Mourne Plain. In the Attical region, the moraines are related to proglacial outwash in inter-moraine areas.

The Northeast Mourne Moraine and Raised Beach Complex (3.7km² in area in this LCA) comprises two zones. This LCA is restricted to the southern zone that is roughly triangular and extends from Ballymartin north to Newcastle and west to Ballyveagh Beg Upper. The complex consists of two main morphological elements. Recessional moraines that were linked to ice that initially advanced southwards around the eastern flank of the Mourne as far as Ballymartin. Deposition followed the lowering of the ice sheet and its retreat northwards and eastwards during the Late Midlandian. Shoreline notches cut into moraine ridges on the coastal lowlands and in the Newcastle area during late- and postglacial marine high stand are associated with spreads of beach sand and gravel. The rest of the southern zone lies in LCA 74.

The Western Mourne moraine and drumlin complex (1.5km² in area in this LCA) occupies the valleys of the three south-westward flowing rivers and adjacent lowlands of the Western Mourne. The western margin of this LCA runs along the axis of the Kilbroney, Glen and the upper Shanky's Rivers, all of which contain recessional moraines associated with Late Midlandian ice retreat. The lowlands southwest of the Mourne are characterized by south eastward trending drumlins. These are related to Late Midlandian fast ice flow into Carlingford Lough, through the western valleys of the Mourne and across the lowlands to the ice limit at Cranfield Point. This probably indicates rapid drawdown of marine-based ice. Chaotically distributed hummocks and occasional kettle holes on the lower slopes of the drumlins and in inter-drumlin areas record local ice stagnation. Most of the Complex occurs in LCA 72, with minor elements in LCAs 69 and 84.

9.2 SLIEVE CROOB RUGGED UPLANDS (87)

Settlements: No settlements within LCA

Landscape Character**Key Characteristics**

- Distinctive and prominent rugged summits.
- Open grassland with rocky screes.
- Narrow passes link valleys via tortuous routes.
- Small stone cottages, many derelict.
- Sheep grazing on marginal pastures and grassy summits.
- Conifer plantations, notably the Drumkeeragh Forest.
- Archaeological sites on upland fringes.
- Good panoramic views over the surrounding area.

Landscape Description**Landform**

The *Slieve Croob Rugged Uplands* are a series of rugged summits formed from intrusive igneous rocks within a surrounding lower area of sedimentary rocks. They stand out as distinct massive rocky summits with thin grass cover and shattered rocky screes. The land rises to a height of 534m at Slieve Croob.

Landcover

The lower slopes comprise marginal rushy pasture divided by broken stone walls, giving way to upper slopes of rough grass, patches of gorse and bracken, which together with rocky outcrops provide an interesting textured appearance. Stunted, wind-sculpted trees nestle in the more sheltered slopes of this exposed environment. The summits are an open, rugged landscape, but there is a substantial conifer plantation at Drumkeeragh to the east, and smaller ones at Slievegarran towards the south.

Development

Small farm buildings and some new houses and bungalows are present in the farmed lower slopes, along with the stone ruins of older properties. Housing tends to be prominent on the exposed slopes. Few roads cross the landscape but viewpoints such as Windy Gap allow panoramic views over the surrounding lowlands, as well as across to the Mourne Mountains. Cashels, raths and standing stones are found on many of the slopes leading to the *Slieve Croob Rugged Uplands*. The most important is the Legananny Dolmen, an important chambered grave site. Telecommunications masts sited at the summit of Slieve Croob, and wind turbines at the upper edge of the farmed landscape, are prominent features.

Perception

This is a windswept and remote landscape, the prominent ridge-lines of which are visible from miles around, particularly those formed by the Slieve Croob/Slievenisky complex and Slievegarran.

Landscape Condition and Forces for Change**Landscape Condition**

The uplands have a wildness of character, with derelict cottages contributing to a sense of desolation. While largely devoid of development, masts on the summit of Slieve Croob are prominent features that are widely visible from the surrounding landscape. Grazing pressures keep grass close-cropped, revealing subtle variations in landform and texture.

Forces for ChangeAgriculture

Much of the landscape comprises upland, unenclosed grazing land, and no significant changes to farming practices are foreseeable. Intensive grazing by sheep has the potential to adversely affect valuable upland habitats such as heath or blanket bog.

Trees and Woodland

Lower foothills include some areas of forestry and it is possible that there may be further pressure for afforestation in parts of the landscape.

Development

The hill slopes in the lower parts of the character area are exposed and sensitive to built development, however there may be an ongoing demand for replacement of older dwellings, and for new housing.

Minerals

The landscape has not been subject to any large scale quarrying, and there is no evidence of pressure for such development in the future.

Tall Structures

A number of relatively small scale wind energy developments, including commercial schemes, are located close to the outer foothills of the LCA, and there may be ongoing pressure for further developments.

Tourism and Recreation

The area is accessed for its outward views and for hill walking to the summit of Slieve Croob, albeit the area is less popular than the Mournes.

Landscape Management and Planning Guidelines

Key Sensitivities

The landscape is highly sensitive to change as a result of its openness and high visibility over great distances. Much of the area falls within the Mourne Area of Outstanding Natural Beauty; its scenic qualities are therefore recognised and merit continued conservation.

Guidance

Agriculture

- Maintenance of stone walls would ensure they remain characteristic features of the landscape and would help to retain the important linkages in the settlement pattern.
- Ongoing management of grazing pressures will help to conserve the upland grassland habitat and characteristic views of the rugged, textured landform.

Trees and Woodland

- Commercial forestry should not be permitted to extend into the upper reaches of the exposed landscape, softening distinctive skyline views.
- Forestry should be sensitively sited and designed to respond to the landform and avoid obliterating field or other textural patterns in the landscape.
- Upland areas with a relatively rolling landform may accommodate larger scale plantations more easily than small blocks of woodland, which may seem incongruous. A deciduous edge may help to integrate the plantation into its context.

Development

- Modern housing following the vernacular style of low, white-finished cottages would be easier to accommodate on lower hill slopes than larger non-traditional housing types.
- Housing should include native or naturalised tree and hedge species in favour of exotic species, especially in more exposed locations, to aid with landscape integration.
- The landscape setting of the many archaeological sites should be a priority for conservation and landscape management action.
- Car parks and viewpoints which reflect traditional landscape patterns and features, such as stone walls and small, rough surfaced parking places, will be integrated most easily into the landscape.

Minerals

- All scales of minerals development are likely to be highly intrusive in this open and visually exposed landscape.
- Minerals development should not be allowed to affect key skylines or appear on exposed hill sides.

- Mitigation through woodland planting may only be appropriate to lower hill slopes, appearing out of place in the bare uplands.

Tall Structures

- SPG accompanying PPS18 assesses a high sensitivity to wind energy development.
- Turbines should not be sited on the more exposed upland parts of the landscape.
- Parts of the landscape may be close to capacity if landscape objectives aim to limit the number of wind turbine developments to an occasional landscape feature.
- Wind turbines should be sited away from craggy skylines and other more complex landforms, in favour of simpler landscapes.
- A cluster of tall radio masts is a feature of the Slieve Croob summit, and the siting of further masts on other nearby hill tops should generally be avoided to lessen cumulative effects.

Tourism and Recreation

- Car parks and viewpoints which reflect traditional landscape patterns and features, such as stone walls and small, rough surfaced parking places, will be integrated most easily into the landscape.
- Repairs and upgrades to upland paths should be in keeping with the character of the upland landscape, using traditional materials and techniques.



Slievegarran, with Slieve Croob in the background, seen from the Farmed Foothills to the south.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- 2,980 ha (98.7%) of the LCA is within the council boundary.
- centred on the Slieve Croob mountain mass with its dominant cover of rough grassland mixed with heath and rocky outcrops.
- little peat even at higher altitude and fen confined to a few small patches.
- semi-natural woodland scarce and opportunity for new woodland at lower altitudes.
- adoption of measures to maintain and re-establish heather cover could be a priority in developing the biodiversity of this LCA.

Key Sites

- AONB: Mourne
- SLNCl: Drin Wood; and Slieve Croob.

Woodlands

Woodlands occupy just under 1% of the LCA, most of it in a 20 ha section of Drumkeeragh Forest where Sitka spruce is dominant. Elsewhere, semi-natural broadleaved woodland is rare. Small patches of scrub-woodland, including small hazel coppices, occur on some of the steeper slopes at lower altitudes on Slieve Croob. Shelterbelts of ash and sycamore with Scots pine and beech surround some farmhouses - both active and abandoned.

Grassland and Arable

Arable land is no more than occasional in this LCA. Grassland accounts for the majority of the cover, and partly as a result of altitude and soils, much of this is in rough grassland. The rough grassland itself varies and not only with physical conditions. There are extensive tracts of acid grassland, especially on the western and southern sides of the mountain mass, but grazing history is in part responsible as can be seen at land-ownership boundaries - to one side of a boundary heather can form a significant part of the cover whereas on the other side, with a history of heavier grazing, grasses dominate and there is little or no heather. On the eastern side of the mountain mass, the terrain is much rockier; unlike the western and southern slopes that seem not to have been glaciated, the eastern slopes were scraped and plucked by ice to leave rocky outcrops and small basins. The rough grassland on the eastern slopes has within it a mix of bracken and gorse among the rocks and damp, peaty hollows and fen.

Hedges form the field boundaries on the deeper soils of the southern and western slopes but they are generally poorly maintained and gappy - most are reinforced with wire. Field reclamation and

amalgamation, with consequent loss of hedges, has taken place on some of these slopes. Where hedges occur, they are normally accompanied by post and wire fencing.

Heath and Bogs

Blanket bog is not extensive or deep on the Slieve Croob mountain mass on account of only limited height and wetness and the steep slopes. It is confined to the summit of Slieve Croob and Slievenisky and small pockets within the glaciated eastern slopes. Easy access on all sides explains why peatland is cut-over.

Wetlands and Lakes

Few wetlands exist, although pockets of lower land to the west that have been drained and converted to pasture, have reverted to damp, rushy pastures; these provide potential habitat for **breeding waders**.

Rivers in the LCA, including the headwaters of the Lagan, have few records of Priority Species, nevertheless, to foster wildlife, water quality must be maintained. There are few obvious threats to water quality except from pollution incidents related to agriculture.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: low woodland cover, predominantly of coniferous woods in Drumkeeragh Forest of poor biodiversity value.

Actions:

- enhance the biodiversity value of semi-natural broadleaved woodlands by discouraging felling; halt any further felling or pollarding; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna).
- encourage control of grazing in broadleaved woodlands to foster herb layer and regeneration and if necessary, encourage replanting of canopy species.
- further study of the history and ecology of broadleaved woodlands within the LCA, particularly any ancient and long-established, as a key to future management.
- enhance biodiversity through appropriate measures in agri-environment and forestry grant schemes to improve and extend broadleaved woodlands at lower altitudes, especially from scrub and abandoned shelterbelts; ensure that hazel scrub is not cleared.

GRASSLAND AND ARABLE

Issue: the majority of this LCA is comprised of pastoral grassland, mainly rough grassland of variable quality.

Actions:

- encourage (through participation in agri-environment schemes) adoption/continuance of less intensive management of pastures to allow reversion to/continuance of more species-rich grassland and protect unsown areas of acid grassland; adoption of sympathetic grazing regimes could lead to maintenance or re-establishment of heather cover.
- maintain and improve field boundaries, especially hedgerows where they occur through adoption of relevant measures in agri-environment schemes, for example correct cutting cycles; hedge laying and replanting of hedges on the western and southern slopes; leave saplings uncut to develop into hedgerow trees.
- avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.
- maintain and enhance damp grassland among fen and peaty hollows by, where, possible, restricting field or arterial drainage.
- ensure that further clearance of boulders does not occur on pastoral or arable land.

HEATHS AND BOGS

Issue: blanket bogs on Slieve Croob and Slievenisky are Priority Habitats and are of national and international importance.

Actions:

- maintain the integrity of existing blanket bogs by for example, preventing infilling, fly-tipping, fires, new drainage and mechanised peat cutting - applies particularly to intact bogs but cut-over bogs can provide important habitats for birds and invertebrates.
- consider restoration of blanket bog habitats through appropriate water level management, removal of individual colonising trees and phasing out peat cutting - applies particularly to formerly intact bogs affected by recent mechanical cutting.
- prevent new forest planting on blanket bogs, especially that which could be restored to active growth.
- monitor use of cut-over blanket bog to ensure that important micro-habitats are not lost, that the large tracts of land required by predator birds are not broken up by planting and other uses, and that the needs of over-wintering and breeding wetland birds are met.

WETLANDS AND LAKES

Issue: few wetlands remain in this LCA.

Actions:

- prevent further loss of wetlands, through drainage, reclamation, land-fill and encroachment by scrub woodland; prevent dumping and fly-tipping and encourage removal of rubbish; divert the inflow of nutrient rich water from agricultural land into fens.

- promote and ensure compliance with existing good farming practices, guidelines and legislation so that rivers are not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip.
- monitor streams in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants.
- recognise that monitoring of streams in relation to forestry and other operations upstream may be important.

COASTAL

N/A

Geological Characteristics

Overview

This LCA lies within the region defined in the NILCA 2000 as the Uplands and Drift Covered Lowlands of Down and Armagh. The generally subdued relief associated with the underlying basement complex of highly folded Palaeozoic strata provides the unity of this region. Relative relief is provided in the north by the Silurian hills that overlook the lower Lagan Valley, the Newtownhamilton Plateau in south Armagh, the Caledonian igneous complex of Slieve Croob and the structural depression that underlies and defines Strangford Lough. Below ca 350m, there is an almost complete mantle of drumlins forming an internationally acknowledged example of a 'drumlin swarm'.

The *Slieve Croob Rugged Uplands* are a series of rounded summits formed from intrusive igneous rocks within a surrounding lowland area of sedimentary rocks. They stand out as distinct massive rocky summits with thin grass cover and shattered rocky screes. The land rises to a height of 534m at Slieve Croob. The lower slopes are marginal pasture divided by broken stone walls and small stone cottages. The summits are an open, rugged landscape, with only a few conifer plantations. Drumkeeragh Forest, on the slopes of White Hill, is the largest. Few roads cross the landscape but viewpoints such as Windy Gap allow panoramic views over the surrounding lowlands, as well as across to the Mourne Mountains. The prominent ridge lines are visible from miles around, particularly those formed by the Slieve Croob/Slievenisky complex and Slievegarran. Much of the area falls within the Mourne Area of Outstanding Natural Beauty; its scenic qualities are therefore recognised, and merit continued conservation.

Solid Geology

The area comprises 60% Gala Group (Lower Palaeozoic), 20% Mourne granite and the remainder being a variety of Caledonian and Tertiary intrusives.

Lower Palaeozoic greywacke sandstones and shales dominate the northern and western area. The greywackes are of sandstone grade and vary from a few centimetres to a few metres in thickness with a large proportion of rock fragments. The greywackes are commonly quarried as a source of

aggregate; they are interbedded with thinner beds of siltstone or mudstone, commonly arranged as fining-up cycles. Minor conglomerates and volcanic ash-beds occur.

Slieve Croob, is composed of Caledonian (probably Devonian age) Newry Complex diorite (an igneous rock like a granite). The eastern outcrop contact between Gala Group greywackes and Slieve Croob diorites has formed hornfels metamorphism of the country rock greywackes, exposed at Slieve Croob itself (ESCR Site 414).

Tertiary-aged dolerite and felsite dykes occur throughout the area. Certain trends dominate. In the Lower Palaeozoic Gala sediments to the north of LCA 87, these dykes are either NW-SE or NE-SW. Far fewer dolerite dykes are observed cutting the Mourne granites, suggesting that the main emplacement of the Tertiary dykes was pre-granite.

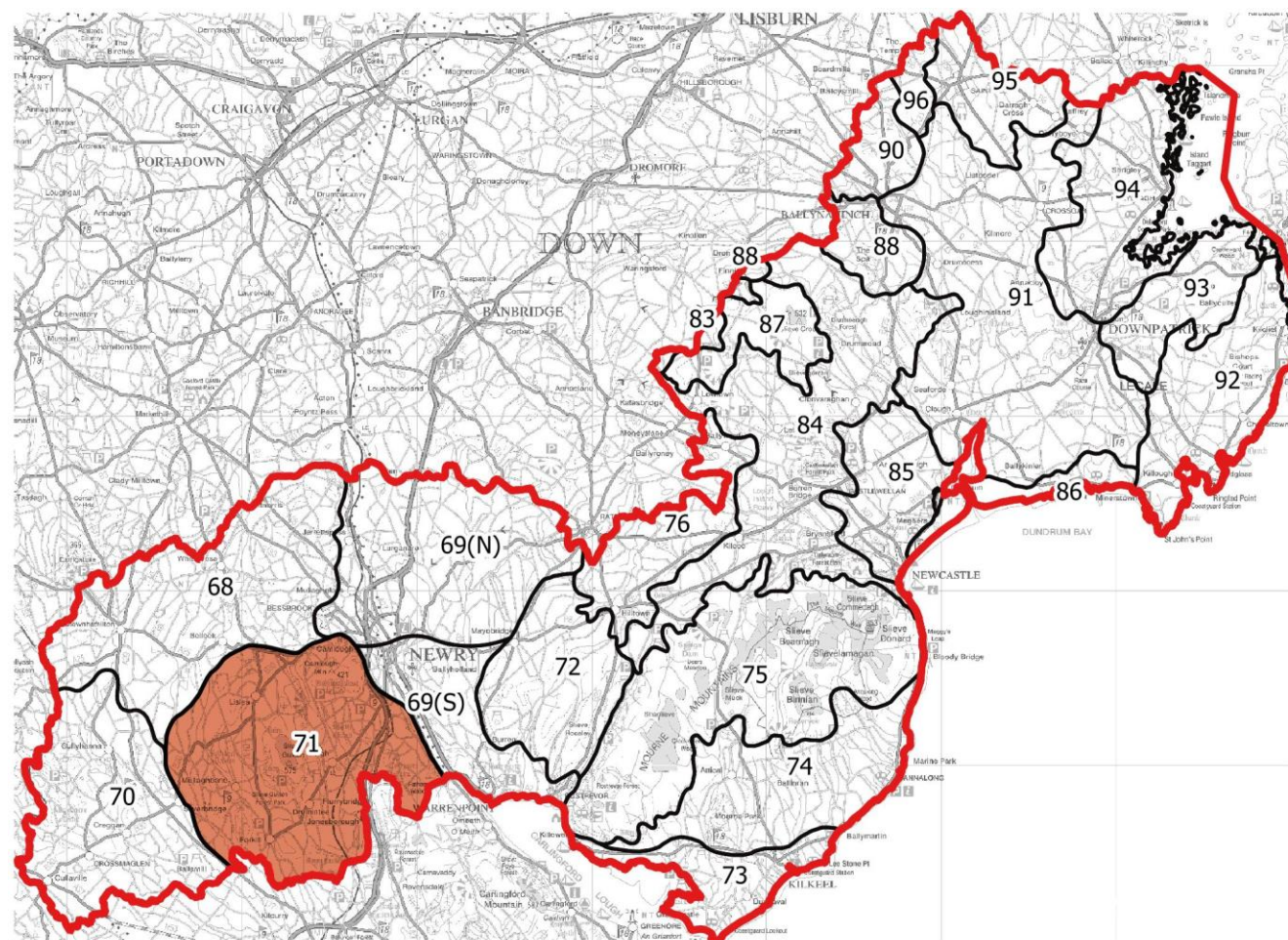
Mourne Granites (Tertiary)

The Mourne Granites were emplaced in successive injections at two centres: LCA 87 covers the first granite (G1) of the eastern centre. G1 comprises a felspathic, hornblende granite.

Drift Geology

Davies and Stephens (1978) consider that the final stages of ice-wasting in the east of Northern Ireland probably involved wide scale stagnation, down wasting and withdrawal inland towards the Lough Neagh lowlands (p.176). This would have left upland areas such as the Slieve Croob as ice free areas surrounded by encircling ice. The drift geology map for this LCA confirms the drift free character of the upland area of Slieve Croob that was overridden by Late Midlandian ice. However, around the base of the upland, that same ice has left a depositional record of tills that reach upwards into the massif along its valleys. Although upland areas were scoured clear by the ice it is possible to find within the landscape pockets of deeply weathered granodiorite that can exceed 10m in depth (Smith in Whalley et al. 1985). This sandy, disaggregated material has previously been described as a fossil soil dating from pre-Quaternary times, when the climate over what is now Northern Ireland was tropical in nature. However, current thinking on these 'arenaceous' deep weathering profiles suggests that they can form under temperate climatic conditions, especially if drainage conditions are acidic. It is possible therefore that the material might represent deep weathering during an interglacial phase or phases, or possibly under warmer conditions during and since the Midlandian cold period. In the absence of any datable material capping the profiles - as with the inter-basaltic beds of the Antrim Plateau - it is unlikely that it will be possible to attach a definitive date to these profiles.

10. Volcanic Hills



Ring of Gullion Volcanic Hills (71)

10.1 RING OF GULLION VOLCANIC HILLS (71)

Settlements: Camlough, Drumintee, Forkhill, Meigh, Jonesborough, Mullaghbane

Landscape Character

Key Characteristics

- Ring of volcanic hills with a knobby, uneven skyline and many rocky outcrops.
- The central volcanic plug of Slieve Gullion forms a distinctive landmark within the enclosed, broad circular basin.
- Open moorland on hilltops with pasture on the lower land, bordered by gorse hedgerows and derelict stone walls on the upper slopes. 'Ladder farms' form distinctive patterns on some hill slopes.
- Extensive coniferous forestry plantations on the hillsides.
- Enclosed landscape with a distinctive sense of place and rich association with myths and legends.
- Scattered development on lower slopes, and frequently settled lowlands.
- The special landscape qualities are recognised through AONB designation.

Landscape Description

Landform

Situated on the southern border of Northern Ireland, the Ring of Gullion is a distinctive circle of hills around the striking landmark of Slieve Gullion, which originated as a volcanic plug. The 'Ring' is underlain by a dome of intrusive igneous rocks. The volcanic hills create a knobby, uneven skyline with many rocky outcrops. Between the steep hills are river valleys and extensive areas of bog. Cam Lough is a linear lough within a valley to the north of Slieve Gullion.

Landcover

The vegetation is predominantly lowland pasture, extending to upland grass, bracken, heather and moorland on the hilltops. Small lowland pastures are bounded by bushy hedges or wire fencing where hedges have been removed or are gappy. At higher elevations pasture becomes rougher, enclosed by stone walling and scrub before abandoned fields give way to unenclosed moorland. Field boundaries form striking patterns on some hill sides, particularly in areas where there are long 'ladder farms'.

Commercial forestry plantations occur in large blocks on many of the hillsides. In most cases hilltop sky lines remain free of forestry, retaining their craggy outlines, although some smaller hills to the south such as Slievebrack have forested summits and a softened profile.

Development

Roads across the valley floors are often straight and aligned north to south, becoming more winding where traversing lower hills. Small settlements including Mullaghbane, Forkhill, Drumintee and Meigh sit below Slieve Gullion and the surrounding ring of hills, however frequent housing extends

across the lowland road network, either by the roadside or commonly set back from the road accessed by long tracks and driveways. A variety of bungalows, two storey houses and small farm complexes pepper the lowland countryside, and the majority of the new development is sited in an ad-hoc fashion. The siting of housing developments on lower hill slopes or small hill tops to take advantage of views increases their prominence. Occasional traditional whitewashed dwellings remain, but are vastly outnumbered by newer dwelling types.

Important communication links including the busy Belfast to Dublin dual carriageway and rail link thread through the hills forming the 'Gap of the North' towards the east of the character area near Newry, an important historical gateway from the south to Ulster.

The area is extremely rich in archaeological and historical features, including a variety of cairns, castles and cashels. Most hill tops are free from visible development, although radio masts are a feature of Camlough Mountain.

Perception

The area has an enclosed and somewhat unique character isolated from the surrounding lowlands by the containing ring of hills. Derelict stone walls and abandoned fields of the upper slopes contrast with the more settled and busier lowlands, the rural characteristics of which have been changed by the level of housing development, and to the east the busy A1 corridor.

There are excellent views from the many high points and hill slopes where the form of the volcanic ring can be appreciated. The Ring of Gullion has a special visual character resulting from its unique physical structure and the way in which the land has been farmed and settled through thousands of years of occupation.

Landscape Condition and Forces for Change

Landscape Condition

The rural characteristics of lowland areas have been degraded by the extensive piecemeal development of housing, for example along the lowland valley of the Forkhill River. Lowland pastures appear mostly well maintained, gradually transitioning to poorer quality pastures on the upper slopes, where walls are often in poor condition and some pastures have been infested by scrub and rush. More isolated rural roads on the lower slopes have been blighted by fly tipping.

Forces for Change

Agriculture

The farming landscape appears stable, however gradual changes to farming practices may result in the loss of traditional stone or hedged field boundaries as a result of field enlargements or neglect. Sensitive wetland habitats are susceptible to runoff from neighbouring farmland, while upland habitats may be affected by the effects of grazing.

Trees and Woodland

There may be further pressure for commercial forestry on the more marginal farmland of the hill slopes, potentially affecting their upland characteristics including their distinctive craggy skylines.

Development

In recent years there has been significant new house building outside of settlements in lowland locations, with houses also extending onto the lower hill slopes, or sited prominently on smaller landforms. This trend for development may continue.

Minerals

There is a substantial quarry at Croslieve which is currently not operational, but which may re-open or expand, or there may be pressure for expansion of minerals development elsewhere.

Tall Structures

Wind turbines appear as a minor feature of the landscape, however there are a number of consented turbines and there may be further pressure for domestic or farm scale wind energy developments. Pressure for larger scale wind energy development in the area seems unlikely given the limited extent of the upland landscape. There may also be ongoing pressure for the siting of telecommunications masts on hill tops.

Roads

Part of the LCA, east of the A1 south of Newry, is likely to be affected by the construction of the Newry Southern Relief Road. While not affecting the core of the LCA, part of the road would be constructed on the steep escarpment marking the transition from this LCA to the Newry Basin, and has the potential to be prominent when viewed from the east.

Tourism and Recreation

The scenic qualities of the Ring of Gullion, recognised through AONB designation, may result in increasing visitor numbers taking advantage of walking, cycling and equestrianism opportunities, and water sports activities at Cam Lough. Upland paths are susceptible to erosion.

Landscape Management and Planning Guidelines

Key Sensitivities

Ridge-tops, skylines and the higher open hill slopes are the most sensitive components of the landscape as they are so prominent. However, all development is highly visible in the long views into the central basin from the roads which cross the distinctive enclosing uplands. The whole area is very sensitive to change.

Guidance

Agriculture

- Restoration of stone walls would improve the landscape quality and visual structure of upland slopes, avoiding the loss of these important landscape features.
- Sensitive upland landscapes such as the Slieve Gullion ASSI/ SAC require protection from the effects of agriculture.
- The management of loughs, streams and wetlands through the monitoring of water quality, careful grazing management, natural regeneration and the planting of riverside and lough-side trees and shrubs would increase their scenic, ecological and recreational value.

Trees and Woodland

- Forestry fits relatively well with the landform and existing plantations could be used as models for the development of new forests. There are opportunities to create well-integrated forests as existing plantations are progressively felled and replanted. Irregular edges, the inclusion of deciduous native species and some areas of open space would be of benefit.
- With any new forestry, care should be taken to ensure that the craggy bare profiles of the hill-tops are retained.

Development

- The retention and restoration of the few remaining traditional dwellings should be encouraged.
- Development on ridges and lower hill slopes is highly visible; low lying undulating parts of the landscape have greater capacity for accommodating small scale development.
- The proliferation of scattered piecemeal development throughout the inner basin of the Ring is already threatening the special scenic qualities of this distinctive landscape; further ad hoc development should be discouraged.
- Appropriately scaled and sited new development incorporating vernacular building styles and traditional materials may promote the development of a more unified character to the area.
- Woodland should be used to integrate new houses into the landscape.
- The settings to the relatively high numbers of important heritage sites should be protected from housing and other types of development.
- The concentration of development within settlements, or the careful expansion of settlements, would be preferable to continued piecemeal development in the countryside.

Minerals

- Quarry development on the slopes of Slieve Gullion, or those of the outer ring hills is likely to be highly prominent; less prominent lower hill slopes may be more suitable locations.

Tall Structures

- SPG accompanying PPS18 assesses a high sensitivity to wind energy development.
- The landscape has capacity for a low level of small scale domestic or farm scale wind turbines, however wind turbines should be an infrequent feature of the lowland landscape. The

complex craggy form of hills and ridges, and their importance to views, heightens their sensitivity to wind energy development.

- Tall electricity pylons should not be routed through the 'ring dyke'. The alignment of such features to the main rail and road corridors to the east would be preferable.
- The hill tops of the 'ring dyke' and Slieve Gullion should be protected from the development of masts or other tall structures.

Roads

- Parts of the Newry Southern Relief Road would be situated between the A1 and the Newry River and canal. If constructed on the preferred route alignment, the road is likely to be quite exposed to view when traversing the steep escarpment west of the Newry River, and requiring significant earthworks to accommodate the route on a sloping landform.
- The inclusion of robust native woodland planting along these most exposed parts of the road corridor are likely to be essential in assisting with the integration of the road development into the landscape.
- The design of the route should also give consideration to the use of traditional materials in the construction of some highway features, particularly stone walling in prominent locations such as junctions.

Tourism and Recreation

- Sensitive development and improvement of the upland path network should be undertaken in keeping with the upland landscape character.
- Repairs and upgrades to upland paths should be in keeping with the character of the upland landscape, using traditional materials and techniques.
- Tourist facilities should be in keeping with what is a relatively small-scaled landscape. Local materials and native planting should be used to construct and integrate such development into the landscape, particularly in more upland land locations.



View across the lowland of the Ring of Gullion, backdropped by hills.



Cam Lough seen from the lower slopes of Slieve Gullion.

Biodiversity Profile

In the following account of this LCA it should be noted that for consistency, the biodiversity section follows the standard order for all LCAs even though some of the communities discussed later may have more importance for biodiversity than those discussed earlier.

Key Characteristics

- All 14,614 ha of the LCA area is within the council boundary.
- woodlands account for approximately 7.5% of the land cover, but the majority is in state forests that are predominantly coniferous.
- improved pasture dominates the LCA but there are important sites of dry and wet- species rich grasslands.
- broadleaved woodlands are in estates and in small patches on hillsides and cut-over bogs.
- no intact lowland or blanket peat remains, it is all cut-over, but there are some important fen sites.
- upper slopes of Slieve Gullion have one of the most extensive areas of upland heath, a rare habitat in Northern Ireland.

Key Sites

- SAC: Slieve Gullion
- ASSI: Cam Lough; Levallymore; Slieve Gullion; Cashel Loughs; Fathom Upper; Carrickastickan; and Clermont and Anglesey Mountain
- AONB: Ring of Gullion
- SLNCI: Aghadavoyle Ponds; Ahganduff Lower Mountain; Aghmakane Fen South; Aghmakane Fen West; Aghmakane Fen; Anglesey Mountain; Aughadanove; Aughanduff Upper Mountain; Ballymacdermot Mountain; Bernish Rock; Bunarilla; Camlough Mountain; Carrickastickan Grassland; Carrickbroad; Carrigans Grassland; Cashel; Clarkill; Coghoge; Clontygora; Crosslieve Pond Fen; Cullywater; Drumilly; Drumintee; Dublin Road Bridge; Duburren Pastures; Fathom Lower Woods and Grasslands; Flagstaff; Foughhilletra Fen; Foughhilletra East and Foughhilletra Mountain; Garvagh Lough; Hawthorn Hill Upper; Hawthorn Hill; Jonesborough Fen and Grasslands; Killeen Fen North; Levallymore Grassland; Longfield Grassland; Longfield Road; Mullaghbane Mountain; Slievegullion Grassland; Slievenacappel; Tamnaghbane; Tievecrom; Tullydonnell Grassland; and Ummeracam

Woodlands

Woodlands account for approximately 7.5% of the land cover of the LCA; the majority of this is in three state forests that are predominantly coniferous. In all three - Camlough, Fathom and Slieve Gullion - Sitka spruce, lodgepole pine and Japanese larch are the most common species, but all have some areas of broadleaves and Camlough and Slieve Gullion have stands of mixed woodland.

Upland **mixed ashwood** may be found at Fathom where ash comprises over half of the canopy trees in these stands, with beech, sycamore and wych elm also present. The understorey is of hazel,

hawthorn and some willow. Nearby is a mixed woodland of beech, ash, Scots pine, Norway spruce, European larch, wych elm and oak.

Outside of the state forests, coniferous trees occur in small patches and whereas some are recent, many have their origins in nineteenth century landscaping - particularly of circular planting on artificial mounds and knolls; these are predominantly Scots pine and larch.

Broadleaved semi-natural woodland is, apart from the upper slopes of Slieve Gullion, scattered throughout the LCA. However, almost all the sites are small and are either **wet woodland** or alternatively patches on rocky hillsides or stream-sides. Wet woodlands are found predominantly in broad valley floors on cut-over bogs and are associated with fen communities. Willow is dominant, sometimes forming almost pure stands, but otherwise mixed with alder and, on drier peat remnants, birch. Examples include valley floors at Longfield, Drumintee and Aghadavoyle. The latter is extensive (6 ha) birch-willow woodland, but because of the range of water levels and soil moisture has several other species including oak, ash, rowan and Scots pine. Hillside and stream-side semi-natural woodlands are dominated by hazel. On the hillsides these woodland patches are associated with hawthorn and blackthorn scrub, and in addition to hazel may have a range of species present. Ash, sycamore and rowan are common, but willows are also found on pockets of wetter soils. More extensive hillside woodland occurs on the northern slopes of Ballymacdermott Mountain; this is developing from scrub and is dominated by rowan with scattered ash and sycamore trees.

Wet woodlands are best managed by allowing succession to take place, but there is a need for fencing in some locations to prevent too much trampling and a general need to eliminate dumping. Hillside woodlands would also benefit from fencing so that grazing and trampling can be limited to that which would allow regeneration of trees and development of ground flora.

Most of the areas of mature, tall, broadleaf woodland have a planted history, either in demesnes or from landscaping of the countryside. Hawthorn Hill Forest Nature Reserve conserves part of one of these estates. Throughout beech is the most frequent species, but there are stands also of oak and of mixed broadleaves and conifers, that include sycamore, Scots pine and larch, and in the upper part pure stands of old Norway spruce. Ground flora also changes with height from grass and rush at lower altitude to heather-bilberry heath in the higher areas. Killeavy Castle, also on the eastern slopes of Slieve Gullion, adjoins Hawthorn Hill and similar species are dominant. There are plantations of oak and beech, but the extensive parkland (**parkland and wood pasture**) has a wide range of species that also includes ash, sycamore, lime, wych elm and horse chestnut, as well as larch, Norway spruce, Scots pine, Douglas fir and Sitka spruce. There are several other parklands in the LCA, often with similar or greater species diversity, but characteristically they are often only remnants of their former extent and/or have been neglected; many plantations within them are grazed, trees are post-mature and there is little regeneration of canopy species.

Outside of the parks, landscaping is evident in small plantations of oak and beech as near to the old cornmill at Forkhill and the flaxmill at Silverbridge, or on mounds and knolls as at Carrickastickan and Tullydonnell.

Management of parks and other areas of tall broadleaf woodland could include control of grazing, removal of invasive species that are changing the species balance (e.g. sycamore), planting of saplings of canopy species, and removal of rhododendron and laurel so that the understorey and ground flora can develop. Veteran and fallen trees should be left to encourage biodiversity of flora

and fauna. Dumping, including of cars and machinery, needs to be discouraged. Some areas may be long-established woodland and require research.

Grassland and Arable

Grassland accounts for nearly 75% of the land cover of the LCA; of this the majority is improved pasture. Although there is variation in intensity of management, improved pastures generally tend to have relatively low biodiversity as does arable land. Land classed as arable, which includes grass re-seeding, appears to have become more widespread throughout the LCA in recent years and occurs to the west and south-east of Slieve Gullion and west of Croslieve.

Although most of the improved pastures have high levels of management, there are pasture fields in this LCA where traditional management is still practised. These less-managed and traditionally managed grasslands (**lowland meadows**) are rare in Northern Ireland, especially in the east. On sloping sites where soil drainage is good, species-rich dry grassland has developed in these fields, such as in Levallymore ASSI at the northwest foot of Slieve Gullion. Sites like this have herbs typical of traditionally managed grasslands on slightly base-rich soil conditions. A variety of butterflies have been recorded in the area including meadow brown and common blue and, more generally, these grasslands can provide valuable feeding and roosting sites for a range of birds and invertebrates. However, grassland at Carrickastickan ASSI, where the two fields were managed for hay and contained a rich herb layer, is likely to be in relatively poor condition, with ploughing having taken place in one field and a house now occupying part of the site.

Species-rich wet grasslands and fen meadows are also found scattered through the lower parts of the LCA where they merge with fen and reed communities.

Rough grasslands are found throughout the LCA and occur broadly in two situations, either on rocky outcrops or in damp, lower areas. Rough grasslands associated with rocky outcrops are found throughout the LCA, but occur in extensive areas in the northwest; grass is intermixed with patches of heather, bracken or gorse and pockets of bog. In damp, lower land, rough grassland, often with abundant rushes, merges with fens or represents reversion in previously drained land.

Heaths and Bogs

There are no significant areas of intact lowland bog remaining in the LCA; all have been cut-over in the past. Some have subsequently been reclaimed into grassland whereas others have developed into diverse sites with fen, carr woodland, and remnant patches of bog.

As with lowland bogs, there are no intact blanket bogs remaining. Only the summit of Slieve Gullion would have qualified as blanket peat, but this shows evidence of having been cut-over and is now part of the larger area of upland heath which occupies most of the un-forested upper surface of the mountain.

The **upland heathland** on Slieve Gullion is one of the largest expanses of this rare habitat type in Northern Ireland. It is dominated by heather and, where there is no intervening forestry, there is a transition downslope to lowland heaths and acid grasslands and fens. There is evidence of historic overgrazing, particularly on those lands that were not included in agri-environment schemes; thus there has been an increase in sheep's fescue grass, a decline in deer sedge, and a higher frequency

of bare ground. The Clermont and Anglesey Mountain ASSI supports a range of upland habitats including heathland habitats which exhibit a well-defined altitudinal sequence. Burning has taken place over large areas in recent years although the overall area of heather cover may have increased, presumably as a result of grazing controls.

However, loss of heathland cover at other sites has continued in recent years. Losses have occurred on the north side of Slieve Gullion, although there may have been some recovery on the upper slopes. Other areas of priority heathland habitat occur on the higher hills throughout the LCA area, but loss of cover has occurred at Cashel, Mullaghbane Mountain, Slievebrack, Croslieve and the north-eastern section of Slievenacappel.

Wetlands and Lakes

Many of the **lowland fens** in the LCA have developed in former cut-over lowland bogs so that there is diversity and complexity of habitats at individual sites. A community of bottle sedge, white sedge and common sedge often forms the main part of the fen. This may be accompanied by small patches of bog with, depending on wetness, heather, cotton sedge, bog asphodel and sundews. Yet other parts can be species-poor wet grassland dominated by soft rush or under developing wet woodland of willow. Cashel Loughs ASSI is an example; the wetlands include a range of communities from the open waters of the three loughs to adjoining fen, cut-over bog, wet heath and rush pasture. The site contains a number of vascular plants with a restricted distribution in the British Isles, including marsh St. John's-wort, western gorse and a number of notable mosses. The diversity of wetland habitats typically supports a rich invertebrate community including many species of water beetle, spiders and ground beetles. These fens and the associated wet grasslands also provide habitats for birds, including waders and reed bunting.

Although fens are widespread in Armagh and Down, together with those in the west of Northern Ireland they form a large proportion of the UK total. It is therefore important that they are retained. However, they continue to be under threat in this LCA and measures are required to prevent change and loss. Several have recently cut drains within them and around their edges as part of improvement of pastures - this will affect species composition and diversity of communities; others are unfenced and the edges are heavily poached by grazing animals; and there has been in-fill and adjacent development, particularly of those fens and cut-over bogs near to the Dublin road in the east, for example east of Killeen Bridge, and Camlough in the north.

Cam Lough and Cashel Lough Lower, both designated as ASSIs, are classed as **mesotrophic lakes**, that is, characterised by having a middle level of nutrients between nutrient poor (oligotrophic) and nutrient rich (eutrophic). Mesotrophic lakes potentially have the highest macrophyte diversity of any lake type. Furthermore, relative to other lake types, they contain a higher proportion of nationally scarce and rare aquatic plants. This is an increasingly rare type of lake in Northern Ireland because the nutrient status of many is being increased through input of water from agricultural land that has had applications of fertilizers and slurry. The occurrence of such lakes in the LCA is important to the biodiversity of the LCA and Northern Ireland and it is essential that nutrient enrichment from agricultural and other sources is prevented. Cashel Upper Lough and the un-named lough close by are examples of lakes, often in the uplands, that have very low plant nutrient concentrations and the most diverse aquatic macrophyte flora of the upland lakes; it is important that these too are protected against nutrient enrichment.

Similarly, water quality in **rivers** and streams must be maintained or improved and pollution incidents avoided if the biodiversity of the waters, and of the lakes into which they flow, is to be retained or enhanced. Care must be exercised in application of fertilizers, slurry, pesticides and herbicides and in the avoidance of leakage of silage effluent into streams. It is also important that the increase in rural housing, with associated septic tanks, and of small towns and villages should be considered in relation to water quality.

Coastal

N/A

Key Issues

General actions for **Priority Habitats** and **Priority Species** are detailed in the **NMDDC Local Biodiversity Action Plan** for 2017 to 2022.

WOODLANDS

Issue: coniferous woodland of low biodiversity value dominates the LCA, however, there are broadleaved areas, including the Priority Habitat wet woodland and mixed ashwood.

Actions:

- enhance the biodiversity value of broadleaved woodlands by discouraging felling; by preventing loss; by retention of fallen and veteran trees (particularly for bryophytes, ferns, fungi and fauna).
- encourage control of grazing in broadleaved woodlands to foster herb layer and regeneration and if necessary, encourage replanting of canopy species.
- further study of the history and ecology of broadleaved woodlands within the LCA, particularly any ancient and long-established, as a key to future management.
- encourage planting of broadleaved woodlands through appropriate measures in agri-environment and forestry grant schemes rather than the conifer plantations and shelterbelts that are of poor biodiversity and landscape value; ensure that hazel scrub is not cleared.
- ensure conservation of wet woodlands by allowing succession to take place and installing fencing to prevent trampling; ensure that they are not lost through drainage, reclamation, landfill or dumping/tipping.

GRASSLAND AND ARABLE

Issue: improved pastures and very limited arable of poor biodiversity, although there are also examples of traditionally managed Priority Habitat lowland meadows at Levallymore ASSI. Meadow at Carrickastickan ASSI has been lost through development and re-seeding.

Actions:

- safeguard existing areas of lowland meadow and other species rich grasslands.
- maintain and improve field boundaries, especially hedgerows where they occur through adoption of relevant measures in agri-environment schemes, for example correct cutting

cycles; hedge laying and replanting where necessary; leave saplings uncut to develop into hedgerow trees; avoidance of spraying with fertilisers, slurry, herbicides; provision of wildlife strips and conservation headlands around fields; and limitation of field amalgamation.

- encourage (through participation in agri-environment scheme) adoption/continuance of less intensive management of pastures on lowland meadows to allow reversion to/continuance of more species-rich grassland and protect unsown areas of grassland including dry, calcareous grassland.
- maintain and enhance damp grassland by, where possible, restricting field or arterial drainage; limit grazing on rough grasslands.
- leave stubble over winter, rather than autumn ploughing to increase food resources for farmland birds; spring-sown cereals are beneficial to farmland birds.

HEATHS AND BOGS

Issue: remnant patches of bog may be in a transitional state to fen and carr woodland and can continue to provide valuable habitats for birds and invertebrates.

Actions:

- previously cut-over sites should be considered as possible Sites of Local Nature Conservation Importance.
- maintain the integrity of remnant bogs by for example, preventing infilling, fly-tipping, fires, new drainage and mechanised peat cutting.
- consider removal of individual colonising trees and phasing out peat cutting - applies particularly to any areas of recent mechanical cutting.
- prevent new forest planting on remaining blanket and lowland bog.

Issue: this LCA contains one of Northern Ireland's most extensive areas of the rare Priority Habitat upland heathland.

Actions:

- promote membership of agri-environment schemes through consultation with farmers.
- limit grazing on existing heathland around Slieve Gullion, to encourage development of heathland and of heather of different ages, and to encourage the development of species such as deer sedge.
- discourage 'reclamation' to pasture fields around heathland margins.
- discourage new forestry plantations.

WETLANDS AND LAKES

Issue: this LCA contains examples of the Priority Habitats lowland fens and mesotrophic lakes, which require protection.

Actions:

- prevent further loss of fen through drainage, reclamation and land-fill; prevent dumping and fly-tipping and encourage removal of rubbish; divert the inflow of nutrient rich water from

agricultural land away from fens so that sites do not become damaged by a change in species composition.

- protect the water quality of fens, mesotrophic lakes and rivers through nutrient management and by reducing suspended sediments; prevent the release of particles released through peat cutting or forestry operations; install sediment traps at large extraction sites.
- promote and ensure compliance with existing good farming practices, guidelines and legislation so that water is not polluted by releases from silage effluent, herbicides, pesticides, fertilisers or sheep dip.
- monitor rivers and streams in relation to peat cutting (sediment load and deposition) - important for salmon that nursery and spawning beds are clear; in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants; recognise that monitoring of forestry and other operations upstream may be important.

COASTAL

N/A

Geological Characteristics

Overview

This LCA lies within the region described as the Igneous Massifs of Down and Armagh. This region consists of two igneous complexes that rise above the broken foothills of a largely Silurian basement and are separated by the fault-guided and glacially modified inlet of Carlingford Lough. To the northeast are the rounded, Tertiary granite domes of the Mourne Mountains, whilst to the southwest are the mixed Caledonian and Tertiary igneous intrusions that comprise the ring dyke complex surrounding the central mass of Slieve Gullion. Separating the two are the drumlin covered Newry lowlands and the fault-guided Newry River.

The Ring of Gullion is situated on the southern border of Northern Ireland, and is a distinctive circle of hills around the striking landmark of Slieve Gullion. The landscape of the Ring of Gullion shows a remarkable coincidence with, and control by, the underlying geology and is a truly 'geological landscape'. As such it is an internationally recognised example of a ring dyke complex. The underlying country rock is the Caledonian Newry Granodiorite, into which have been intruded a series of Tertiary igneous rocks to form a ring complex approximately 10km across. Subsidence of the central block produced alternating beds of granophyre and dolerite that now form the steep slopes of Slieve Gullion. The central mountain is surrounded in turn by a poorly drained lowland underlain by the Newry Granodiorite. Beyond this, the intrusive rocks, mainly granophyres and felsites, form a ring of rugged hills. Gaps in the ring are invariably associated with faults that offset the hills, for example at Camlough. To the southeast of Slieve Gullion is a 'tail' of glacial deposits laid down in the wake of the complex and in response to regional ice flow from the north at the end of The Midlandian. The scenic value and landscape quality of the area has been recognised by its designation as an AONB. For further information on this area and the Tertiary history of Ireland, see Davies and Stephens (1978).

Solid Geology

The area is centred on Slieve Gullion (ASSI 198), the LCA boundary roughly following the Newry Granodiorite - Lower Palaeozoic country rock contact (exposed in Cam Lough Quarry, ESCR Site 422). This is an exceptional area in terms of geology.

The area of Slieve Gullion is dominated by a 11km diameter ring complex or series of arcuate fissures along which various intrusions have occurred. The ring complex is of Tertiary age and is centred on the south-western end of the Caledonian Newry Granodiorite (ESCR Site 421). Thus part of the complexity of the geology is the fact that young (Tertiary) volcanic and subterranean intrusives occur in the same place as older Caledonian (probably Devonian).

Key Sites include the porphyritic granophyre with Newry xenoliths that is exposed at Crooked Road (ESCR Site 37). A dolerite plug cuts the Newry Granodiorite and is itself cut by granitic veins (Mullaghbane South, ESCR Site 40).

Along the inner arc of these northwestern breccias and extending intermittently on around the ring, the main ring dyke of porphyritic granophyre occurs. Exposures include Crooked Road (ESCR 37); Mullaghbane North (ESCR 38) and Mullaghbane Central (ESCR 39). Porphyritic felsites with vent agglomerate are seen at Glendesha (ESCR Site 41).

At Cloghinny (ESCR Site 43) evidence of magma mixing can be observed and the Slieve Gullion ASSI (198) as a whole covers the Tertiary igneous features at Slieve Gullion itself, Sarah Daly's Bridge and Forest Quarry.

Interpretation

The Tertiary central complex of Slieve Gullion is emplaced within an almost detached lobe of the older Caledonian 'Newry' Granodiorite at its SW end. Little remains of the basaltic shield volcano which once covered the site, but in the volcanic hearth now exposed by erosion one can see evidence for subsidence of the volcanic pile along a ring-fault some 20 km in diameter. This probably resulted in a summit caldera, though movement on the ring fault probably resulted from resurgence as well as subsidence. Movement of an acid magma up the SW quadrant of the ring-fault accompanied by explosive degassing produced spectacular vents filled with fragments of country rock. These vent agglomerates can be traced from Mullaghbawn Mtn. round to Slieveboiea; in places they are composed almost entirely of Newry Granodiorite or Lower Palaeozoic greywackes, elsewhere they carry large slumped masses and smaller fragments of lava. The acid magma congealed in the ring-fracture and in the vents as a Porphyritic Felsite; flow structures within the rock indicate a steep outward dip to the ring-dyke - the outer felsite, but the vent intrusions emplaced within the bounding ring-fault are irregular in outcrop and apparently sheet-like with a dip of flow bands to the SW. Confocal banding in the rock points to feeding channels within the ring-dyke. In places the Porphyritic Felsite contains broken phenocrysts and shows eutaxitic flow banding; some disruptive vesiculation of the rising magma may have produced ash flow material now welded and

compacted to a tuffsite. A slightly later Porphyritic Granophyre ring-dyke occupies the ring-fault in the remaining quadrants. It may be a multiple intrusion with a xenolithic core to the NW near Lislea.

Drift Geology

The Drift Geology map for this LCA confirms the strong control exerted by the underlying geology on the landscape. This is revealed as a series of concentric, drift free ridges running around the central core of Slieve Gullion. Lowland areas within the ring are covered by Late Midlandian till, which at a regional scale flowed southeastwards across the region from a centre in the Lough Neagh Basin. It is unclear, however, whether any of this till was derived from locally centred ice masses towards the end of the Midlandian. In terms of its Quaternary history, this area is relatively unexplored, especially in comparison with the nearby Mourne Massif, and it would benefit from targeted research into its glacial and post-glacial history. The Drift map does, however, highlight numerous local pockets of alluvium within the ring complex, indicative of the broken terrain and intricate drainage pattern of the area.

9.0 SETTLEMENT ASSESSMENTS

The following part of the assessment describes, analyses and provides development management guidance for the following twelve towns¹⁶ in relation to their landscape setting:

- Newry
- Downpatrick
- Newcastle
- Warrenpoint
- Kilkeel
- Ballynahinch
- Saintfield
- Killyleagh
- Castlewellan
- Crossmaglen

The locations of towns are shown on Figure 8.

Newry

Landscape Setting

Newry has a superb landscape setting. The town is sited on the Newry River at the head of Carlingford Lough and is flanked by strong ridge-lines with a north-south alignment. The eastern fringe of the Ring of Gullion dominates views to the west and Slieve Roe is prominent to the east. To the east, long shallow valleys of the Derryleckagh area contain a series of bogs and loughs of ecological value. To the north, the ridges are influenced by drumlins, but the valley of the Newry River is a strong feature. The settlement is located within the *Newry Lowland Drumlin Farmland*, split between units 69(N) and 69(S).

Newry's historical town centre lies to the east of the canal, and has attractive Georgian and Victorian era stone buildings, squares and streets dating from when the town was at the height of its importance as a prosperous port. The central bridges, canal and churches are focal points. Traditional buildings are rendered and built of the local light grey stone. To the west of the river the character is less defined, with older buildings mixed with modern shopping developments and car parks.

The town has expanded from its centre along the river valley to the north and south, extending from the narrow flat valley floor to the slopes of the ridges on either side where gradients allow, and the settlement has a somewhat sprawling character. The A1 provides a strong containing feature along the valley to the north, and an obvious one to the west; albeit development has expanded beyond the road, extending towards Bessbrook such that the two settlements are almost contiguous.

Principles for the Siting and Design of New Development

Newry has in places spread up to and beyond the ridges and low hills of its immediately containing landforms. It would be desirable for the settlement not to spill beyond these landforms and into the more rural landscape, particularly towards the east where this seems more likely.

Expansion to the north, along the Newry River valley, would be a continuation of its natural pattern of growth and would have more limited effects compared to development on enclosing ridges and hill sides; The A1, where crossing the Newry River, provides a strong feature to define the edge of the urban area. To the south, steep topography provides a natural constraint to development.

The steep slopes on the fringes of the Ring of Gullion and facing Carlingford Lough (to the south west) are extremely sensitive and the upper slopes are within the AONB. The lower slopes of Camlough Mountain, largely to the east of the A1, are within the settlement boundary, and can expect to be developed; this would be appropriate as it would continue the natural pattern of growth of Newry. However, buildings on these slopes are prominent in views from many parts of the town and must be carefully integrated with the sweeping ridge landscape. Housing should be sited along the natural grain of the land, following the contour lines and avoiding blocky layouts (roads at right angles to the slope and buildings set directly above one another). Existing hedgerows should be kept and new hedgerows planted along the contours within housing areas. It is unlikely that significant settlement expansion can be accommodated beyond the A1 without affecting key characteristics of the Ring of Gullion fringe.

The ridge to the south east of Newry is much lower than the slopes to the west, but it is nevertheless extremely sensitive. The ridge has a rugged, open landscape of small fields divided by stone walls, scattered farms and clumps of gorse. This part of the landscape is much affected by new housing development, and is prominent in views from the town and from the AONB to the west. The entire ridge should be protected from further development, and the small settlement of Ballyholland prevented from becoming subsumed into the wider urban area of Newry. The prominent west facing slopes would benefit from some subtle planting to help integrate existing intrusive buildings. Extensive tree cover would be inappropriate but there is scope for planting carefully sited small copses and individual trees, while retaining the natural open pattern of vegetation.

The villages of Camlough and Bessbrook, to the north west of Newry, have a separate, distinctive landscape setting and should not be allowed to coalesce with Newry. Camlough is one of the principal gateways to the Ring of Gullion AONB. It is surrounded by sweeping scenic slopes and open views and also has little scope for expansion.

The Derryleckagh valleys, to the east of Newry, feel quite separate from the town and outside its natural setting. They should be protected from development, particularly as Derryleckagh Bog is an ASSI.

Downpatrick

Landscape Setting

Downpatrick has a distinctive and historic landscape setting. The town is set amongst the drumlins and low hills at the western end of the Lecale Hills, and south of the Quoile River. The settlement is mostly divided between the *Quoile River Lowland Drumlin Farmland (91)* and *North Lecale Lowland Hills (93)*, but extending a short distance north into the *Strangford Loughs and Drumlins (94)*. The oldest part of the town lies within an inter-drumlin hollow, and some of the older streets at the centre of the settlement have an attractive character. The cathedral occupies a distinctive hilltop just west of the town centre, while the motte and bailey is a feature of the edge of the river corridor. Newer parts of the settlement have spread outwards unevenly, occupying drumlins and hillsides to the south, east and north, avoiding the lower lying river flood plain to the west which has helped preserve the setting of the cathedral and the motte and bailey castle. Newer housing and other developments are often prominently sited, particularly those on the larger hills to the east of the

¹⁶ Towns which are included are existing and proposed towns included in the Newry, Mourne and Down Local Development Plan 2030 Preferred Options Paper.

town. The development of the town in response to the constraints of topography has resulted in an irregular form to the settlement.

Principles for the Siting of New Development

Downpatrick has a particularly diverse range of features, of landscape, wildlife and heritage importance, which together create a unique sense of place which is susceptible to change from further development of the town.

To the north and west the Quoile estuary, the Finnebrogue Estate woodlands and shoreline of Strangford Lough represent some of the finest landscapes in the Strangford Lough AONB. The Quoile River forms a natural barrier to expansion of the settlement, however the character of the river corridor would be very susceptible to intrusion from any significant northwards expansion towards the river. Here the low hill immediately south of the river, east of Portland House, provides useful containment to the settlement and is important to maintaining the setting to the river corridor.

To the east, the open, undulating landscapes towards the ridge-tops of Slievegrane Hill and Struell Hill are extremely prominent and form an essential part of the town's wider landscape setting. Future expansion of the settlement is likely to occur towards here, and future development should avoid being sited on the tops of more prominent landforms, make use of topographic containment, and include a robust landscape framework of native woodland.

There has been extensive development of the town to the south-west including an industrial estate. This is a relatively low sensitivity sector of the town in landscape terms, but the natural limit of development is at the edge of the drumlins (by the racecourse). Development beyond this point is likely to be disconnected with the main settlement.

The steep slopes above the race course to the east (to the south-west of the town) should remain mostly undeveloped; the summit is already partially developed with housing estates, but the retention of the historic pattern of woodlands and fields, and the rural character of these slopes, is vital to the landscape setting on the western and southern approaches to the town.

The Flying Horse area (Flying Horse Road/ Struell Heights) has been developed close to the settlement limits with housing and industrial development. The landscape sensitivity here is also relatively low, with undulating landforms and woodland providing useful containment and screening. There is scope for further mixed use development here which could lead to a higher quality built environment. Mass planting (of native species) is essential as a fundamental part of any development in this area to integrate it with the surrounding landscape context; there is a stronger visual relationship with the countryside to the south than with the town.

In general, further development of the town should respect views to important features, including the motte and bailey, cathedral, and church spires. It may be desirable to maintain views to some features, such as the motte and bailey, through selective management of vegetation impeding key views. The essential character of Downpatrick as a town set amongst drumlin pasture should be retained as far as possible through the avoidance of prominent hilltop development, maintaining important landforms development free, and through the use of woodland planting.

Newcastle

Landscape Setting

Newcastle is dwarfed by its dramatic mountain setting and is characterised by strong contrasts between the mountains, the sea, pastures and coastal dunes. The settlement is located within the *Newcastle Lowland Drumlin Farmland (85)*, and adjacent to the *Tyrella Coastal Dunes (86)*. The settlement developed from the mouth of the Shimna River, originally as a port and from the 19th

century, with the coming of the railway, as a seaside resort. Tourism remains a mainstay of the local economy.

The settlement initially developed in a linear form along the narrow coastal strip between the Shimna River and the harbour further to the south, but later expanding northwards to the railway, and then inland behind the Murlough dunes and along the Shimla, Burren and Tullybranigan River corridors which have become infilled with suburban housing development, but the town retains a relatively compact form. Caravan park developments are a feature of the outer edges of the town. Views to the forested foothills of the Tollymore Forest and uplands of the Mourne are widely available throughout the town.

Principles for the Siting and Design of New Development

To the south, the mountains are an absolute constraint on further development. To the west and north the constraints are less clear-cut, but still there remain relatively few opportunities for significant development.

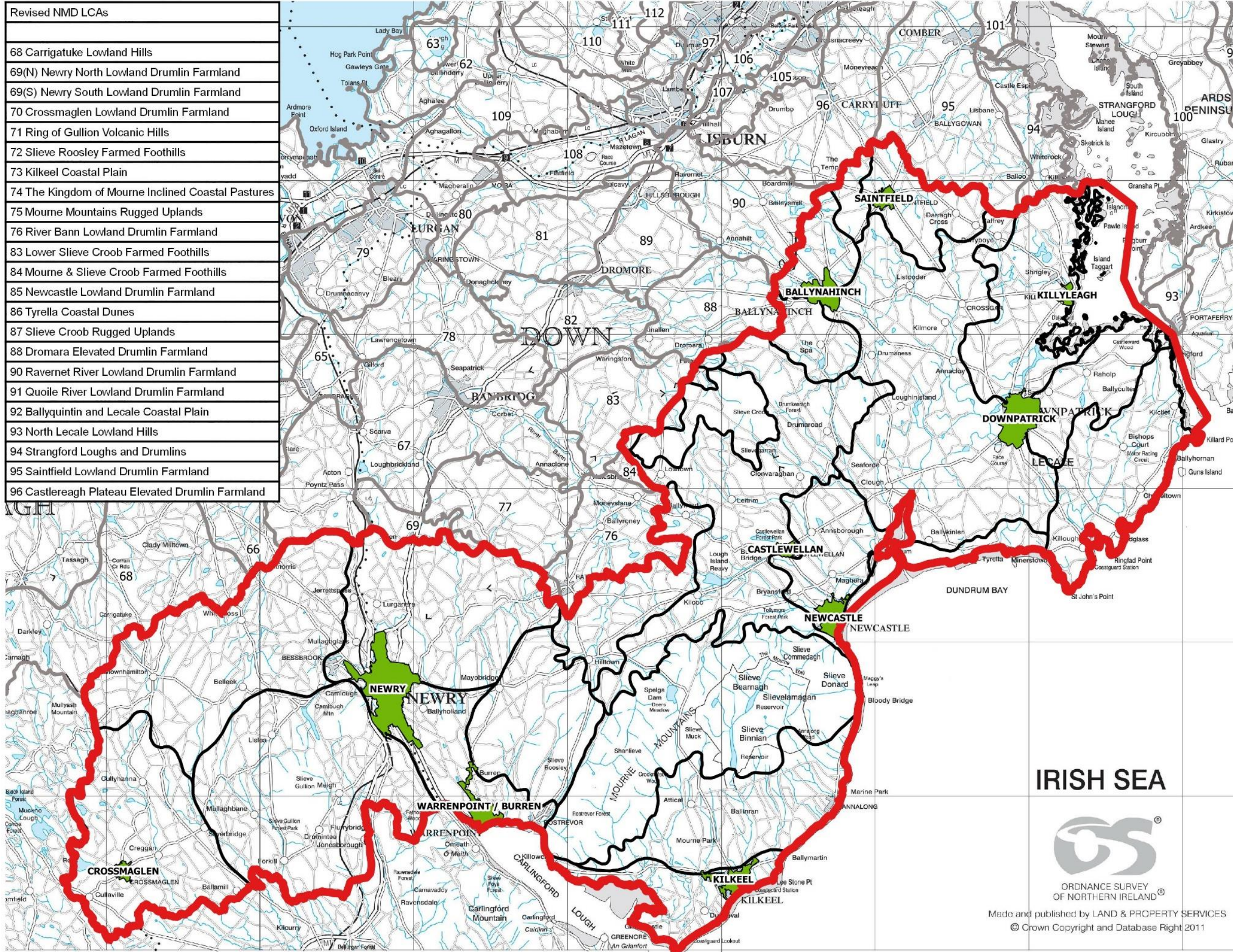
The eastern fringes of the Shimna valley (the Bryansford Road) are fully developed with large properties set within extensive grounds. Further significant development south of the Shimna River risks the siting of potentially prominent development on ground rising to the Mourne foothills and interrupting views to the Mourne on the approaches to the town from the Bryansford Road.

It is also desirable to maintain the separateness of Newcastle and Bryansford; there is a risk that piecemeal development along Bryansford Road between the two settlements creates a suburbanising effect which undermines the rural characteristics of the setting to both settlements. Development on the ridge of higher ground north of Bryansford Road has the potential to be prominent.

The northern fringes of the town, close to the A50, are characterised by a fairly scattered form of mixed development including larger houses and housing groups, leisure development and other commercial development. Mature trees and stone walling of larger properties contribute positively to the settlement gateway, however there is a risk that piecemeal development beyond the settlement edge will undermine the settlement setting and gateway here.

Inland from the coastal dunes, east of the A50 and along the A2 corridor there are already extensive housing estates, with caravan sites on the edges of the town. There are few physical features to constrain outward development, however there is a risk that the continued expansion of this area will create a district which is out of proportion to, and rather separate from, the rest of the town, and also affecting the setting and views from the Murlough dunes. Tree planting here would be beneficial for the integration of housing and caravan park developments into the landscape.

| |
|--|
| Revised NMD LCAs |
| 68 Carrigatuke Lowland Hills |
| 69(N) Newry North Lowland Drumlin Farmland |
| 69(S) Newry South Lowland Drumlin Farmland |
| 70 Crossmaglen Lowland Drumlin Farmland |
| 71 Ring of Gullion Volcanic Hills |
| 72 Slieve Roosley Farmed Foothills |
| 73 Kilkeel Coastal Plain |
| 74 The Kingdom of Mourne Inclined Coastal Pastures |
| 75 Mourne Mountains Rugged Uplands |
| 76 River Bann Lowland Drumlin Farmland |
| 83 Lower Slieve Croob Farmed Foothills |
| 84 Mourne & Slieve Croob Farmed Foothills |
| 85 Newcastle Lowland Drumlin Farmland |
| 86 Tyrella Coastal Dunes |
| 87 Slieve Croob Rugged Uplands |
| 88 Dromara Elevated Drumlin Farmland |
| 90 Ravernet River Lowland Drumlin Farmland |
| 91 Quoile River Lowland Drumlin Farmland |
| 92 Ballyquintin and Lecale Coastal Plain |
| 93 North Lecale Lowland Hills |
| 94 Strangford Loughs and Drumlins |
| 95 Saintfield Lowland Drumlin Farmland |
| 96 Castlereagh Plateau Elevated Drumlin Farmland |



Legend

- Local Authority Boundary
- Main Settlements
- NILCA 2000 Excluding NMD
- Revised LCA Boundaries



**Newry, Mourne and Down
Landscape Character Review**

IRISH SEA

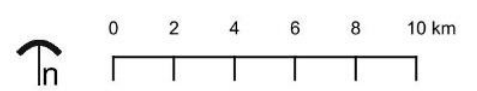


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Figure 8

Main Settlements

October 2020



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Warrenpoint

Landscape Setting

Warrenpoint has an exceptional landscape setting on the shores of Carlingford Lough at the entrance to the Newry River. The settlement is located to the south of the *Newry South Lowland Drumlin Farmland (69S)*. The port town and seaside resort is backed by the foothills of the Mournes and has views to the steep, wooded slopes of Anglesey Mountain on the opposite shores. The industrial port is on the flat strip of land to the west of the town and its cranes are prominent on the approach road from the north. Narrow Water Castle and the Narrow Water estate form the gateway to Warrenpoint from the north. There are long views along the waterfront from the coastal road to the east. The town is backed by the steep slopes of Slieveacamane. The lower slopes have an intricate pattern of streams, with numerous archaeological sites on local ridge-tops.

Principles for the Siting and Design of New Development

There is very little opportunity to expand Warrenpoint beyond the town's existing development limits without detriment to the landscape setting. The ridge-top of Clonallan Glebe remains undeveloped at present and should be conserved as it provides a backdrop for recent development and is an important local skyline. It is also of archaeological interest.

Suburban housing development has climbed up the ridges and valleys north of the waterfront. Continued outward expansion would tend to result in significant disconnection with the core settlement, and an undesirable spilling out of the settlement into the undulating rural landscape.

There is a need to maintain green buffers separating Warrenpoint from the industrial estate at Donaghogue to the north and from the neighbouring settlement of Rostrevor along the coastal road, avoiding coalescence of these areas of settlement.

The coastal road from Warrenpoint to Kilkeel and Newcastle is an important and attractive tourist route. It would benefit from management to conserve and enhance the character of the landscape immediately alongside the road and to maintain the standard of the walls, pavements and development associated with the road. The use of local building materials and plant species would help promote a distinctive and unified character to the road.

Kilkeel

Landscape Setting

Kilkeel is an important fishing port on the flat coastal perimeter of the open stone wall country to the south of the Mournes. The settlement is located in the *Kilkeel Coastal Plain (73)*. The harbour is close to the confluence of the Kilkeel River and the Aughrim River, which flow in narrow wooded corridors that are relatively inconspicuous within the town. The town centre is located a short distance inland from the harbour. There are long, dramatic views to the Mournes to the north and expansive views along the low lying coast.

Other than the river corridors and coast, there are few natural constraints to the expansion of the settlement, and the town has spread from its core into a series of outlying suburbs and pockets of housing. This form of development blurs each of the entrances to the town and detracts from the character of the open stone wall landscape surrounding the town.

Principles for the Siting and Design of Development

Ribbon development should be restricted, particularly on the northern fringes of the town and along the coastal road, where it has a detrimental influence on an important tourist route and the unique open stone wall landscape typical of the area.

The narrow, wooded corridors of the Kilkeel and Aughrim rivers are relatively inconspicuous within the town. However, they may provide opportunities to develop public open spaces within the housing areas to the north of the town and for attractive walks into the open stone wall country at the foot of the Mournes.

A programme of tree and woodland planting, particularly at the settlement fringe, would assist with integrating the settlement into its relatively open landscape setting; existing occasional stands of Scots pine are striking features, the further planting of which could enhance gateways and focal points.

Ballynahinch

Landscape Setting

Ballynahinch has an attractive landscape setting amongst undulating drumlins, located mostly within the *Quoile River Lowland Drumlin Farmland (91)*. The core of this busy market town lies in an inter-drumlin hollow, but the settlement has expanded outwards in all directions, with development usually but not always located between drumlins and on their lower slopes. Approaches across and around drumlins give sudden and unexpected views and the Monalto Estate provides a wooded backdrop to the west. Towards the north west the drumlin landscape is less defined as the ground rises gradually to the Dromara Hills along the wide Ballynahinch River corridor.

Principles for the Siting and Design of New Development

The topography of the larger drumlins, particularly those extending towards the east/ south east, provides good containment to the settlement. Further development of the settlement should aim to retain the perception of the settlement as set amongst drumlins, with drumlin tops and upper slopes free from development, retained as farmland or greenspace.

Monalto Estate to the south west, and ground rising gradually upwards towards the Dromara Hills to the west of the town provide a natural constraint to development in this direction. Further to the west and towards the north, along the Ballynahinch Road, the settlement edge is less contained, however development in this direction, with fewer topographical constraints is likely and could be accommodated in the landscape with native woodland planting at the settlement edge and attention to the quality of development at the new gateways. The Ballynahinch River provides an excellent opportunity for a green corridor connection into the town centre which could be integrated into the design of existing or future housing development.

Large quarry development to the north provides a barrier to further expansion in this direction, and expansion of the town here risks being of a fragmentary nature due to the constraints of existing or former quarry workings. The eventual restoration of the minerals sites provides opportunities to enhance the northern setting of the settlement and potentially greenspace provision.

Significant expansion of the settlement towards the east risks being disconnected from the settlement core because of the drumlin landforms, with the risk of the settlement appearing to spill uncontained into the surrounding rural landscape.

Saintfield

Saintfield is an attractive small town with a vibrant centre, nestled amongst the outer drumlins of the vast drumlin field west of Strangford Lough stretching from Newtonards to Dundrum Bay. The

settlement is located within the *Saintfield Lowland Drumlin Farmland (95)*. It is a compact settlement and the undeveloped pastures of the Town Hill drumlin are a feature of the southern part of the town. Rowallane Garden, managed by the National Trust, lies a short distance south of the settlement edge, separated by a drumlin, while the estate of Saintfield House abuts the settlement to the north.

Principles for the Siting and Design of New Development

With the exception of Town Hill, the settlement is mostly contained within those drumlins immediately surrounding the core of the settlement. Any significant expansion beyond this topographic containment is likely to result in a more sprawling character to the town, with areas of housing potentially disconnected from its core.

Towards the south, the undeveloped drumlin immediately north of Rowallane contributes to both the setting of the town and the garden, and should remain undeveloped. The estate landscape of Saintfield House provides a well-defined limit to development towards the north.

Any new development should be small in scale and sited within the small valleys on the fringes of the settlement. Tree planting will help to integrate buildings within the surrounding small scale field patterns. However, care should be taken to avoid extensive linear development along the roads converging at the town.

The open drumlin hill tops should be conserved as they form the setting to existing and any further development.

Killyleagh

Landscape Setting

Killyleagh is a distinctive and very diverse town which sits within a series of large undulating drumlins on the western shore of Strangford Lough. The town is located within the *Strangford Loughs and Drumlins (94)*. The historical core of the town lies between Killyleagh castle to the west, and the quay to the east. The prominent castle and wooded estate form a backdrop to the west, and the harbour is a focus on the shores of Strangford Lough to the east.

20th century suburban housing development has spread the settlement across the undulating landform towards the south, however a detached pocket of newer housing has also developed on a drumlin north of the town centre (north of the Bridge Centre). The mill village of Shrigley is a secondary core in the low-lying areas to the north west.

Principles for the Siting and Design of New Development

Undulating topography results in some sense of separation between the older settlement and its newer parts towards the south. While there are no absolute constraints to the onward expansion of the settlement in this direction, significant expansion to the south/ south east would most likely result in a further sense of detachment.

The impact of any settlement expansion should be considered in relation to the effect on the immediate setting to Strangford Lough. Killyleagh is the largest settlement on the lough shore within Newry, Mourne and Down. The setting to the lough will be least affected when the settlement remains relatively compact, but would be susceptible to any perceived spread of development along the lough shore either to the north or south.

From some locations (e.g. Ballytrim Road), parts of the settlement can be seen to spill into the adjoining countryside beyond containing landforms, having some adverse effect to the landscape

providing the setting to Strangford Lough. Reinforcement of the settlement edges with woodland planting would assist greatly with the integration of the settlement into the landscape.

The stands of mature trees around the church and other locations close to the waterfront, provide an attractive backdrop to the harbour. The rows of terraced houses leading from the town centre onto the fishing pier are a very distinctive feature of the townscape which should be maintained.

The church and castle are important features of the town, the settings of which would be very sensitive to encroachment from housing and other development types. The church in particular is a focal point in views from the shore.

Maintaining the separation between Killyleagh and the nearby small settlement of Shrigley is beneficial to the settings of both settlements, which should not be eroded by development along the Shrigley Road.

Castlewellan

Landscape Setting

The small market town of Castlewellan occupies a commanding position on a saddle of higher ground below the forested slopes of Castlewellan Forest Park to the north west, and the rounded Bunker Hill to the south east. The settlement is located at the transition between the *Mourne and Slieve Croob Farmed Foothills (84)* and the *Newcastle Lowland Drumlin Farmland (85)*. The town centre has a formal layout, with terraces of town houses enclosing the two main squares set along the main A25 through road. The prominent St Malachy's Church is a central landmark and a focus in views along the straight approach roads. The wooded slopes of the Castlewellan Country Park are a strong backdrop, while stands of mature trees on Bunker's Hill provide further enclosure and add to the southerly setting of the settlement.

Newer parts of the settlement have expanded to the south, and to a lesser extent north east between Bunker Hill and the A25, however the form of the settlement remains fairly compact. The small, separate settlement of Annsborough is a short distance to the north east along the A25.

Principles for the Siting and Design of New Development

The southwards expansion of the town extends into the flatter land at the top of the Burren river valley. Further southwards expansion would extend onto the steeper slopes of the valley side, affecting the rural character of the valley and most likely appearing prominently on the western approaches to the town. In landscape terms, further settlement expansion in this direction is likely to be undesirable. Reinforcement of the existing settlement edge here with native woodland structure planting, ideally linked to woodland at the Forest Park and Bunkers Hill, would assist with integrating the settlement into the adjoining countryside.

Steep ground west of the A25 and south of the A50 seems to provide little scope for development, while Castlewellan Forest Park to the north west of the town provides a significant constraint to further development in this direction.

To the east, Bunker Hill provides a strong containing feature which the settlement largely sits behind. Development extending around and east of Bunkers Hill would most likely be disconnected from the main settlement, and adversely affect the Ballybannan River valley. Development towards the upper slopes of Bunkers Hill risks being highly prominent.

Industrial areas and piecemeal development on the edge of the town do not provide a strong entrance when approaching the settlement from the east along the A25. Separation between

Castlewellan and Annsborough is minimal, although intervening mature trees and woodland do contribute positively to the settings of both settlements.

Due to the contained setting of Annsborough, expansion here may be favourable to significant expansion into the more exposed landscapes around Castlewellan.

Crossmaglen

Landscape Setting

Crossmaglen is a border market town, located around a large square and the convergence of several roads. The town is centred on a rising part of a hummocky landscape within the *Crossmaglen Lowland Drumlin Farmland (70)*, with housing suburbs extending outwards across the undulating terrain. The town is relatively compact, but with some ribbons of housing development extending along roads beyond the settlement limits.

Principles for the Siting and Design of New Development

In general, there is considerable scope for development to be accommodated within the undulating terrain around the town, however ribbon development should be discouraged, concentrating instead on consolidation, rejuvenation and infill.

Entrances to the town are relatively indistinct and would benefit from additional planting, gateway features and carefully designed new buildings.

There is space for development to the north of the settlement between the B135 and the B30, with a stream providing a defined settlement boundary feature, which it would be beneficial to retain along with existing trees where possible. Development in this area should be relatively low level, so as not to detract from views to the church from the north.

South of the settlement is a plateau of slightly higher ground, but development could be accommodated here if suitably integrated into the landscape within a framework of native woodland and avoiding more sensitive natural heritage sites such as the Site of Local Nature Conservation Interest (SLNCI).

Crossmaglen could promote its historic and nature conservation sites and has some potential for leisure and tourism related development such as at Ross Lough.

10.0 LOCAL LANDSCAPE DESIGNATION REVIEW

Special Countryside Area (SCA)

DoE Strategic Planning Policy Statement (SPPS) and Planning Policy Statement 21 (PPS 21) require Councils to identify those areas of exceptional landscape quality and amenity value. Within these areas, designated as Special Countryside Areas (SCA), regional policy states that development should only be permitted in exceptional circumstances, and local plans and local policies brought forward to protect their unique qualities.

As described in Section 3, the existing SCA designations incorporating the uplands of Slieve Croob and the eastern Mourne, do not extend into the former Down District, and a review has been undertaken to consider the appropriateness of extending the SCA designations into these locations.

The existing SCA designations incorporate unenclosed upland landscapes, where development and other man-made features are typically limited to minor roads, tracks, car parking, reservoirs and some commercial forestry. Existing SCA boundaries have been deliberately drawn to exclude houses and farms, and usually commence at the uppermost boundary feature of the enclosed lowland landscape, such as a wall.

It is certainly the case that the SCAs are located within areas of exceptional landscape quality and all are located within the AONBs of Ring of Gullion or Mourne. It is also the case that the areas of SCA designation alone do not define the special qualities of these landscape areas; it is the contrasting qualities and interrelationship between the upland, lowland and coastal landscapes which make these landscapes special.

However, the SCA designation serves a useful purpose in managing the character of an important component of these wider landscapes. SCA extensions are therefore proposed to encompass the parts of the landscape in the former Down District which have similar characteristics to those within the existing designation boundaries. Proposed extensions are shown in Figures 9 and 10.

Area of High Scenic Value (AoHSV)

The Ards and Down Area Plan 2015, originally adopted in 2009, identifies an AoHSV within the Ravernet River valley centred around the Magheraknock Loughs. The majority of the AoHSV designation lies within the Lisburn and Castlereagh City Council (LCCC) area, with a small part of the designated area within Newry, Mourne and Down forming the setting to Bow Lough and Dumb Lough. The designated area is shown in Figure 11.

The landscape of this designated area is defined by smoothly undulating drumlins, pastures and small loughs enclosed by fen and wet woodland. The area has a peaceful, tranquil quality, with some scenic value, and is a locally designated Site of Local Nature Conservation Importance (SLNCI). The landscape area as a whole including that within LCCC is small; only 50ha falls within

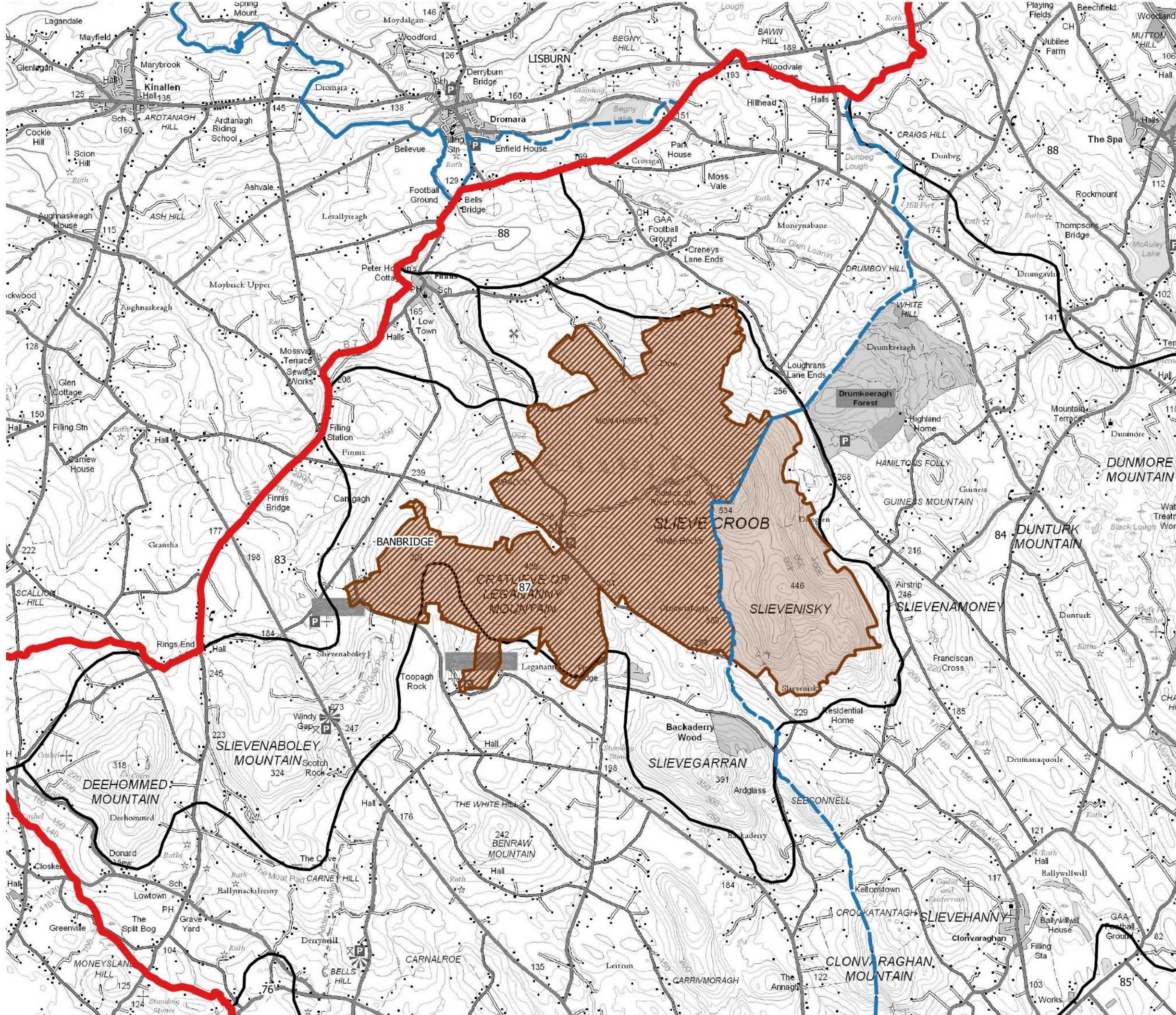
Newry, Mourne and Down District. There is no public access beyond the road network and no known promotion of the area as a visitor attraction.

Scottish guidance on local landscape designation¹⁷, considered to be equally applicable in Northern Ireland albeit not formally adopted, describes how landscape designations should be based on a range of criteria including opportunities for enjoyment, rarity, and cultural importance alongside scenic qualities. Designated landscapes also typically incorporate areas at wide landscape scale, often encompassing variations in landscapes which interrelate, contributing to special landscape qualities.

While the area undoubtedly has some scenic value and natural heritage interest, no special quality is identified which might justify its designation within Newry, Mourne and Down when also taking into consideration the wider range of commonly used landscape designation criteria. It is also the case that similar landscapes exist elsewhere; landscapes with a combination of drumlins, small loughs and woodland are quite commonly found in South Armagh and the Quoile valley, also lessening the justification for special recognition.

¹⁷ DRAFT – Guidance on Local Landscape Areas (Scottish Natural Heritage, 2017)

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- Legend**
-  Local Authority Boundary
 -  2009 LA Boundaries
 -  Revised LCA Boundaries
 -  Existing SCA
 -  Proposed SCA Extension

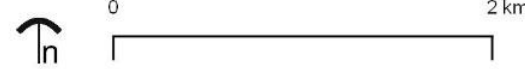


**Newry, Mourne and Down
Landscape Character Review**

Figure 9

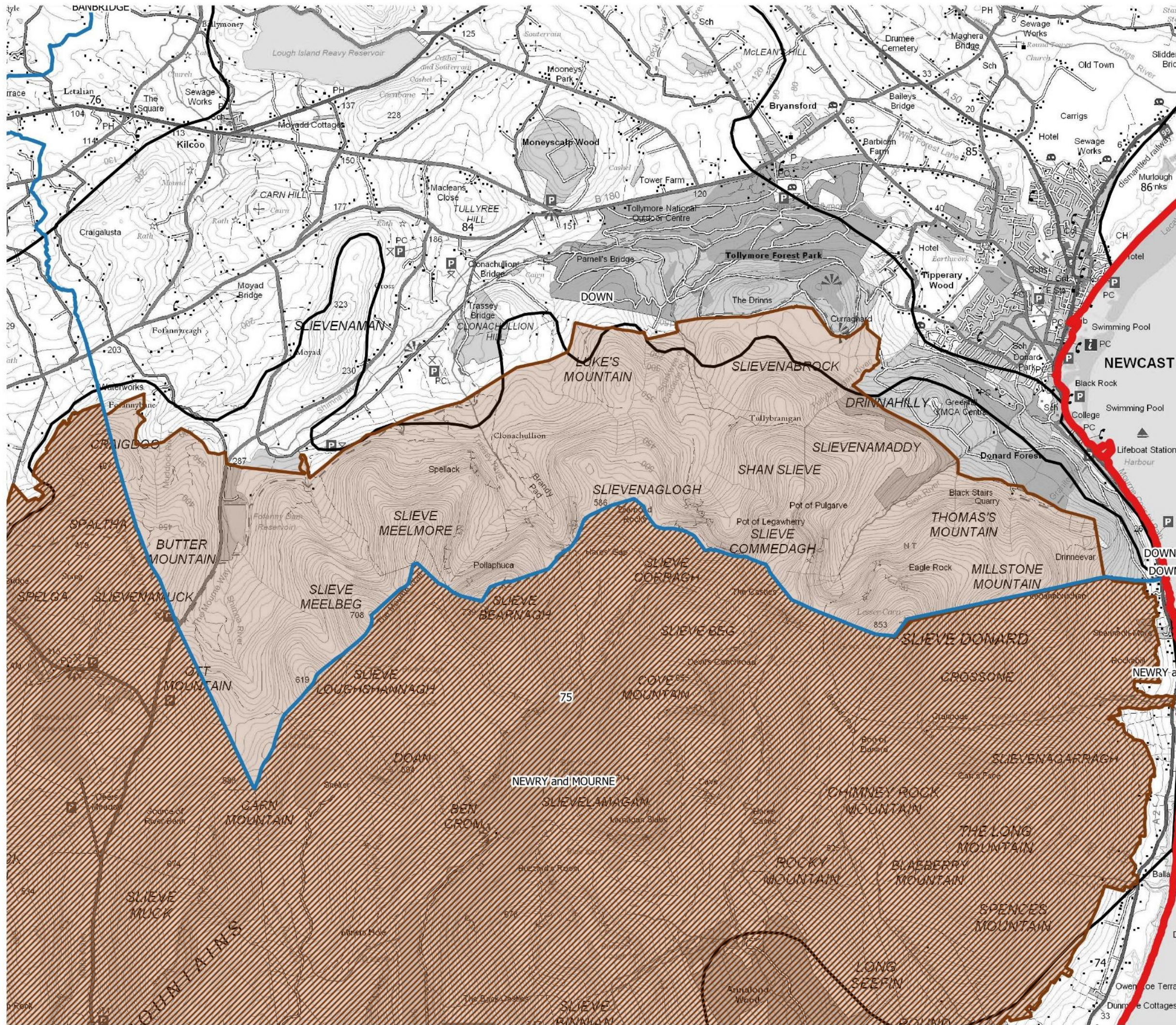
**Slieve Croob SCA
Proposed Extension**

April 2020



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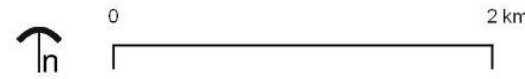
- Legend
-  Local Authority Boundary
 -  2009 LA Boundaries
 -  Revised LCA Boundaries
 -  Existing SCA
 -  Proposed SCA Extension



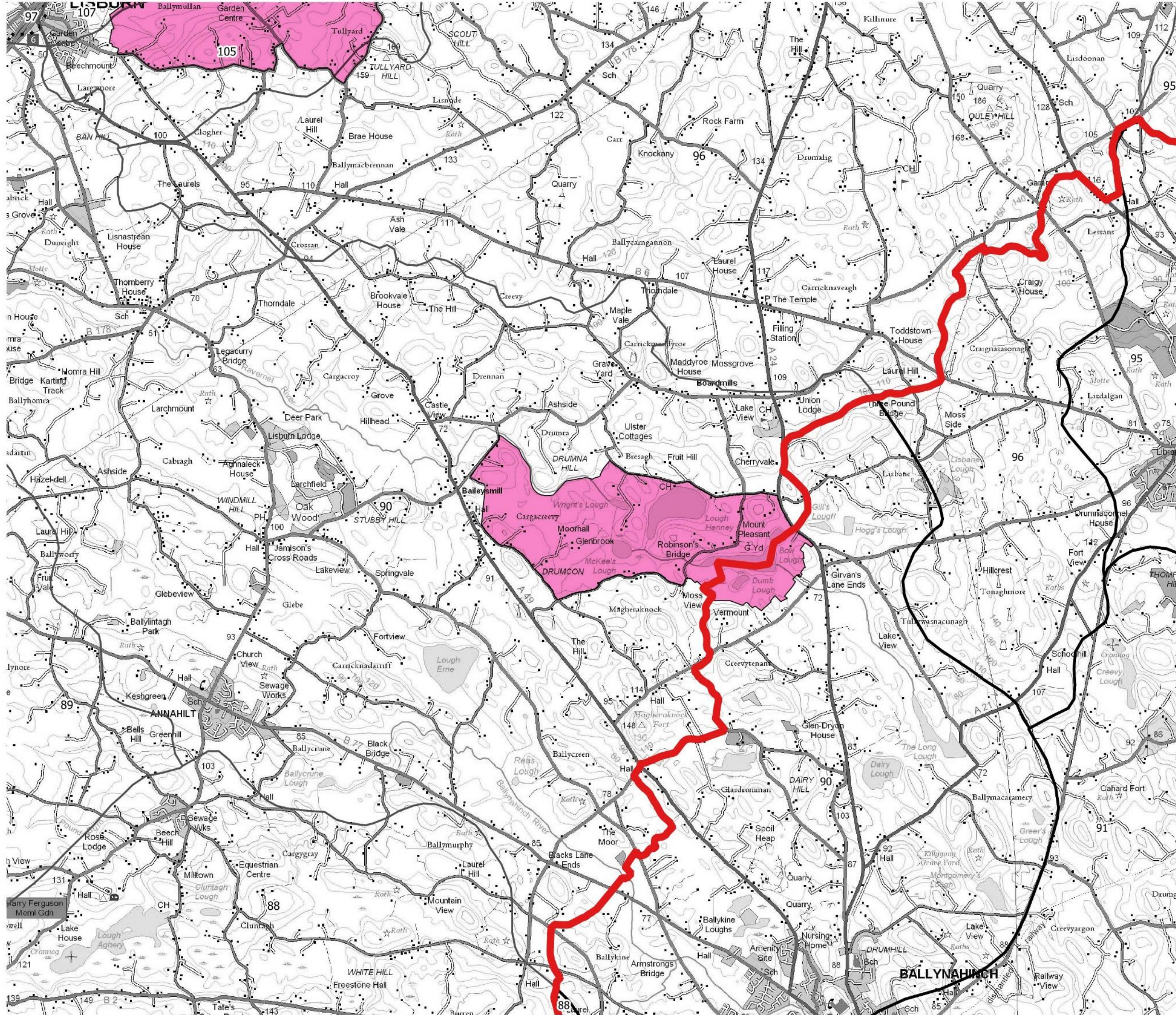
**Newry, Mourne and Down
Landscape Character Review**

**Figure 10
Mourne SCA
Proposed Extension**




October 2019



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Legend

-  Local Authority Boundary
-  AoHSV
-  Revised LCA Boundaries

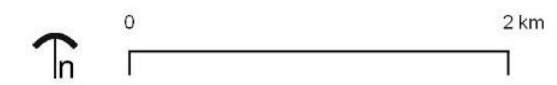


Newry, Mourne and Down Landscape Character Review

Figure 11

Current AoHSV

October 2019



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Appendices

Appendix A: Descriptions of Igneous Complexes

A1. Late Palaeozoic Igneous Complex

Newry Igneous Complex

The Newry Igneous Complex consists of late orogenic I-Type (Caledonian) granitic rocks. Their intrusion at, or just before, 400Ma post-dated both the closure of the Iapetus Ocean and continental collision in the end Silurian-early Devonian period. The complex lies between Slieve Croob and Forkill and was emplaced in Silurian greywacke and mudstone (Gala Group). The complex predominantly comprises three overlapping granodiorite plutons, in addition to which there is an earlier intrusion of intermediate and ultramafic rocks at the north-eastern terminus of the complex. The intrusion of the Newry Igneous Complex was associated with the injection of dykes and sills of largely lamprophyric composition in two separate episodes. The complex itself is arranged as a bank of plutons lying next to / within each other along a northeast-southwest axis (parallel to the primary strike and fault regime of the country rocks).

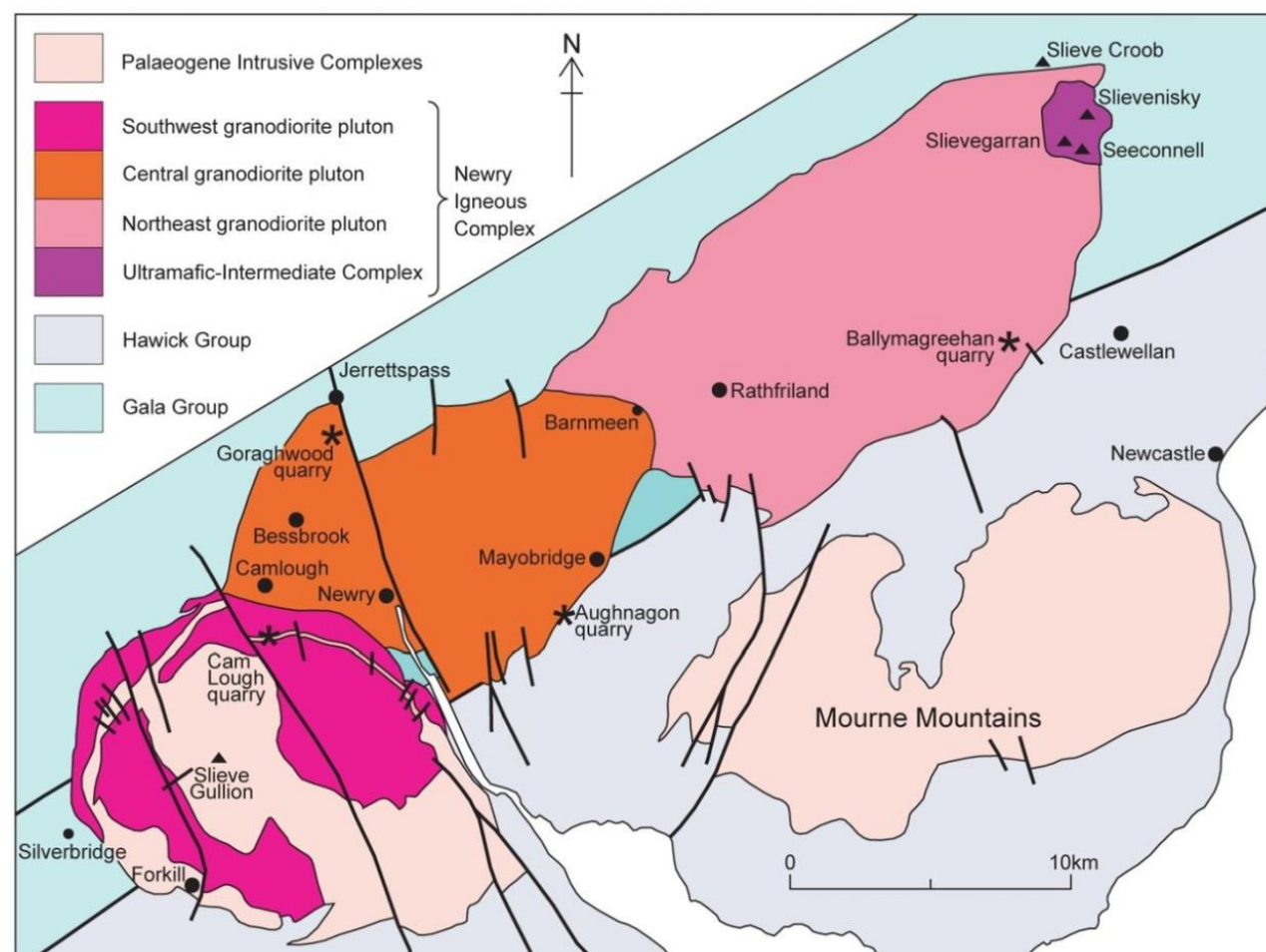


Figure A1: Geological Map of the Newry Igneous Complex. Mitchel (2004)

Ultramafic rocks consisting of biotite pyroxenite and augite biotite, and associated meladiorites are part of a layered intrusion that is confined to the northeast end of the Newry Igneous Complex. The ultramafic rocks are mineralogically inhomogeneous, whereas the meladiorites are commonly heterogeneous with variable content of either biotite or clinopyroxene. The ultramafic and intermediate rocks are typically coarse-grained and have intricate contact relationships.

Granodiorite forms the largest part of the Newry Igneous Complex and occurs in three distinct plutons. It is likely that several magma pulses were involved in the formation of each pluton. While the northeast and southwest plutons have more basic margins and relatively quartz-rich central portions, the rocks of the central pluton show an opposite trend. Mineralogically, the granodiorites are composed of zoned plagioclase, microcline, quartz, hornblende, biotite and accessory Fe-Ti oxide, apatite, zircon and titanite.

The normally zoned northeast pluton extends from Slieve Croob to Barnmeen. It is composed of medium- to coarse-grained granodiorite, with igneous and sedimentary xenoliths, and is exposed in Ballymagreehan quarry.

The reversely zoned central pluton extends from Barnmeen to Bessbrook and typical lithologies are exposed in Aughnagon quarry. At its exposed northern margin in Goraghowood quarry, near Jerrettspass, an early-formed marginal facies of porphyritic rhyolite intervenes between hornfels and mobilised Silurian rocks and medium- to coarse-grained un-foliated biotite-hornblende granodiorite. The marginal granodiorite is notably more acidic than the rock at the centre of the pluton.

Much of the area between Bessbrook and Silverbridge is underlain either by granodiorite of the normally zoned southwest pluton or by the Palaeogene Slieve Gullion Complex

Numerous lamprophyre dykes and subconcordant intrusions are mainly orientated parallel to the northeast-southwest structural grain of the Southern Uplands-Down-Longford Terrane. Two distinct phases of lamprophyre intrusion are recognised in Co. Down. An earlier 'crushed' series associated with tectonic movement and a later suite of unfoliated, post-tectonic lamprophyre intrusions. The majority of these can be found in the east of county down, to the east of the main Newry Igneous Complex.

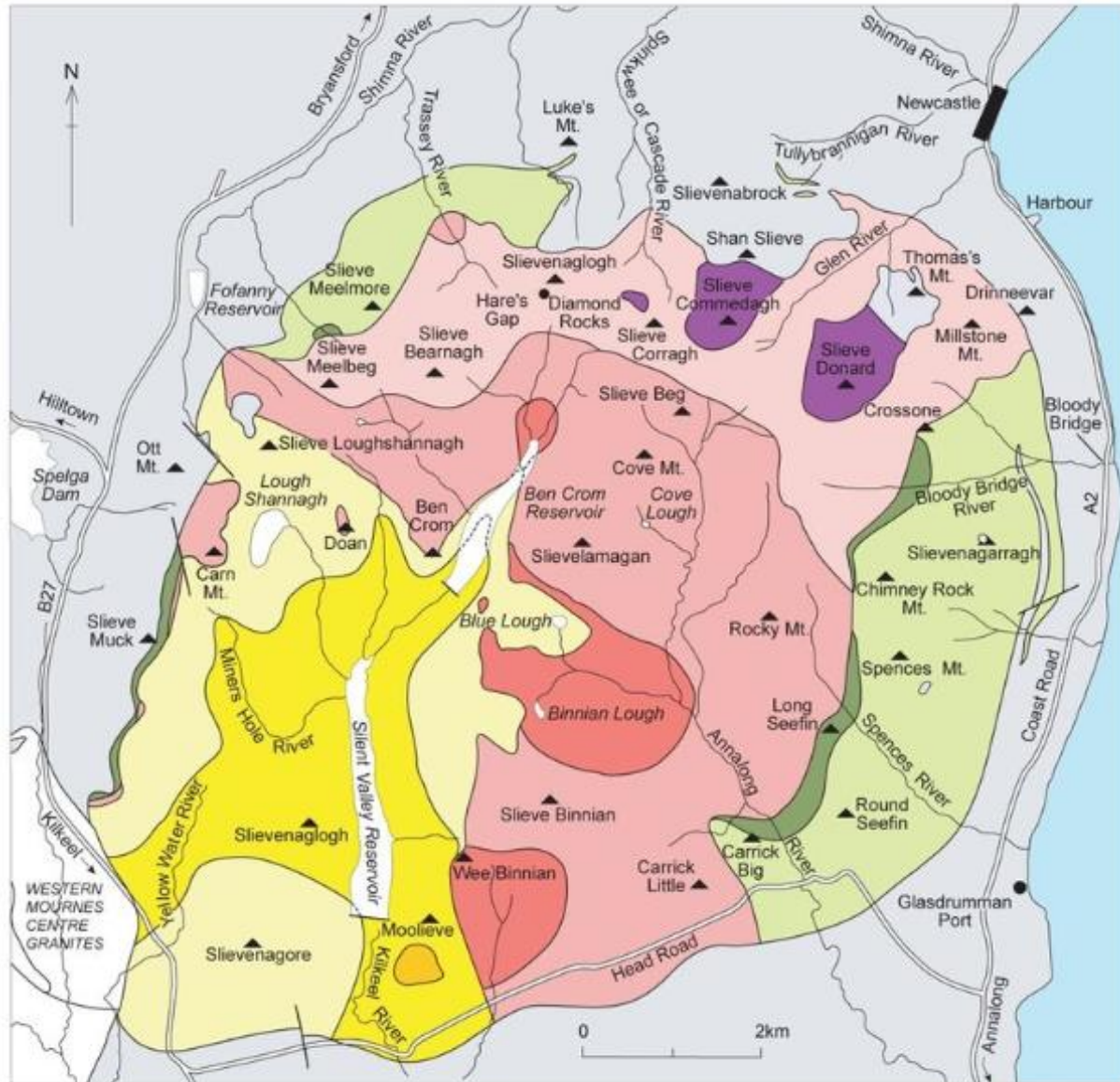
A2. Palaeogene Igneous Complexes

The Mourne Mountains Complex

The Mourne Mountains granite complex was intruded into Silurian greywacke and slate country rock at a high level in the crust around 56Ma but did not reach the surface. The complex consists of five principal granite intrusions (G1–G5) which are divided between a western and an eastern centre. Each of the four youngest granites (G2–G5) was emplaced as a series of smaller magmatic pulses that are distinguished by distinct textural variations.

The Eastern Mournes Centre consists of three intrusive members. The earliest component G1, a hornblende-biotite syenogranite (syenogranites are granites that have a higher proportion of orthoclase feldspar in their melts but a greater proportion of quartz than a syenite) was followed by G2, a biotite granite with abundant dark quartz and finally by G3, a fine-grained aplitic biotite

syenogranite. Each main granite, G1 (sometimes known as the roof granite as it formed the roof of the chamber), G2 and G3, can be recognised in the field by its petrographic characteristics. In addition, a range of textural variations, many internal contacts are exposed between the different types throughout the area.



EASTERN MOURNES CENTRE GRANITES

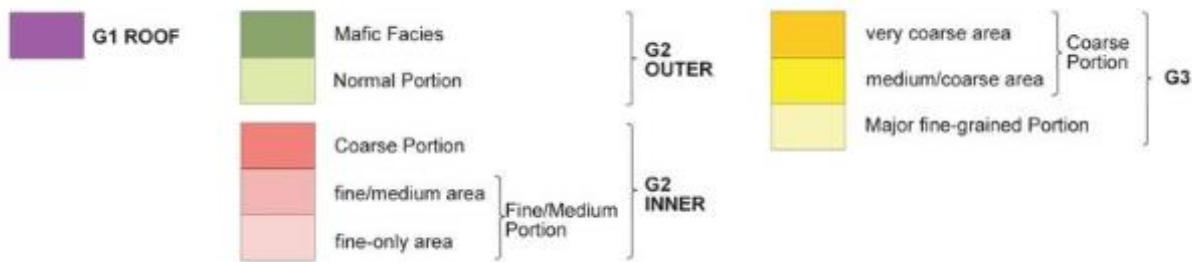
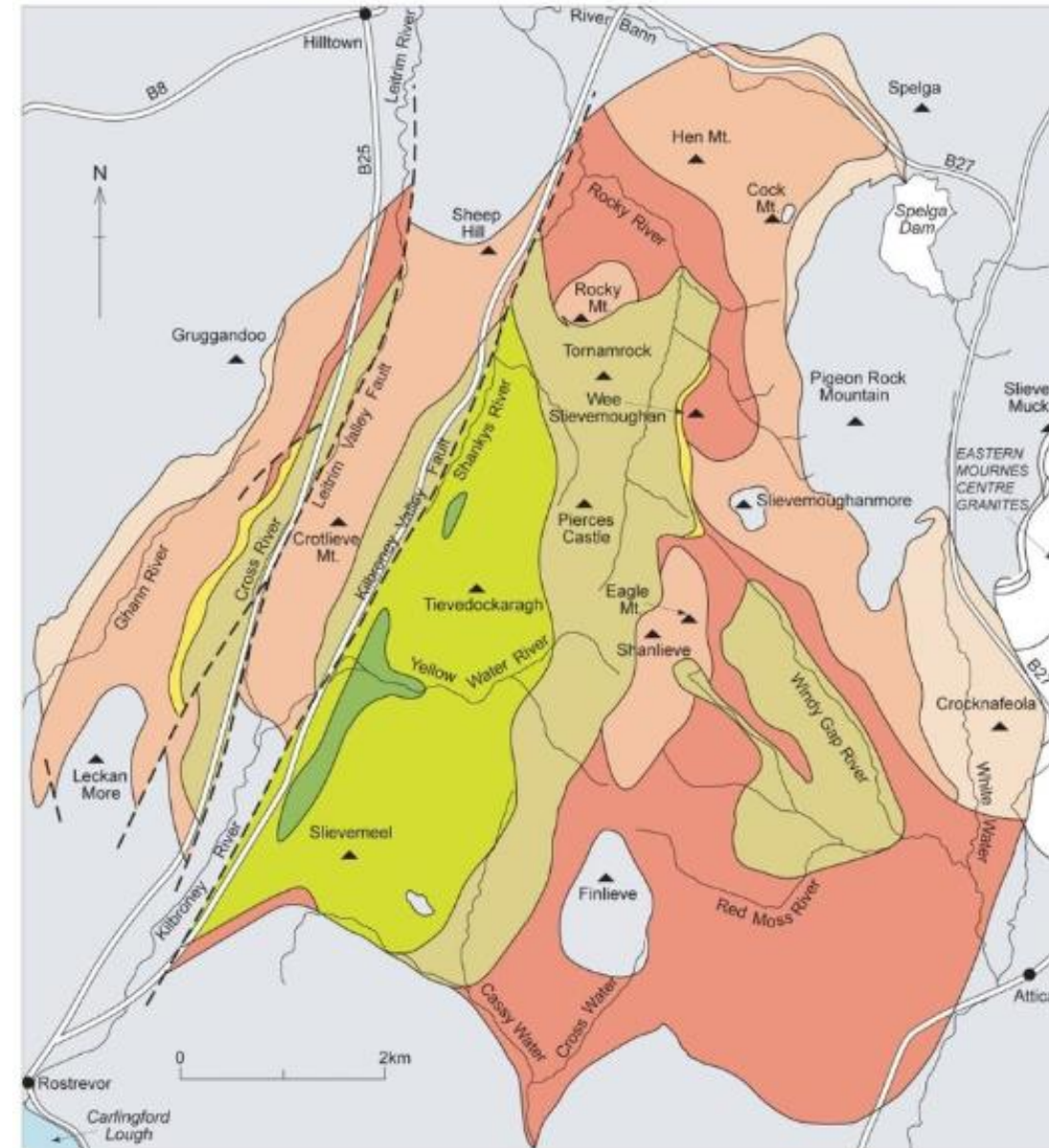


Figure A2: Geological map of the Eastern Mournes Centre. Hood (1981)

The Western Mournes Centre consists of two granites. G4 is biotite granite and G5 a biotite ± amphibole microgranite or granophyre. Each granite can be recognised in the field by its petrographic characteristics and a range of textural variations.



WESTERN MOURNES CENTRE GRANITES

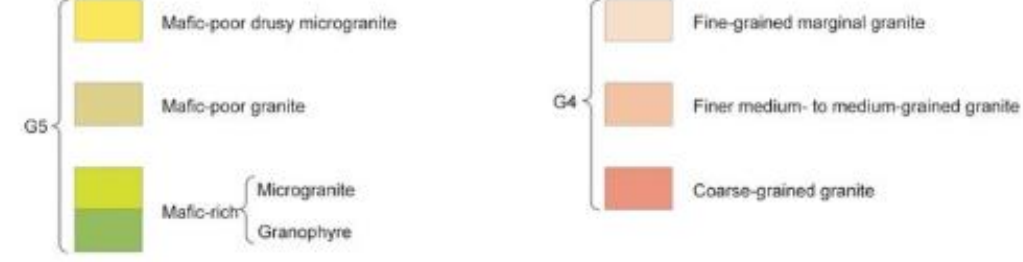


Figure A3: Geological Map of the Western Mournes Centre. Gibson (1984)

At the present level of erosion, the geometry of the intrusions indicates that the three early granites (G1-G3) are arranged within one another with a marked eccentricity towards the southwest. The granites were probably emplaced in a series of pulses of rising magma. Each pulse was introduced into an ever-widening sloping 'wall' fissure connected to a 'roof' fissure, the space created by the subsidence of a block or blocks of country rock bounded by outward-sloping ring fractures—the cauldron subsidence or ring dyke model of emplacement. In the Eastern Mournes Centre only roof pendants of G1 remain (hence the name G1 'Roof') and an original ring dyke for this granite cannot be inferred with any certainty. Outcrops of the Outer portion of G2 may represent relatively steeply sloping walls without any true roof connections. In contrast, exposures between and within G2 Inner and G3 show flat or gently sloping roof-type contacts. In the Western Mournes Centre the same mode of intrusion has been proposed for G4 and G5, although at the present level of erosion only flat-lying roof contacts are exposed. This emplacement mechanism allowed the granites to be intruded without causing significant uplift or doming of the country rocks.

Slieve Gullion Igneous Complex

The Slieve Gullion Complex represents the 'root' zone of a now deeply eroded volcanic caldera that intruded the southwest end of the Caledonian Newry Igneous Complex at about 58–56Ma. The highest point, Slieve Gullion (573 m), lies at the centre of an 11 km diameter, circular igneous complex intruded into a circular ring fault. The Complex consists of three distinct units with the earliest intrusion of silicic magma forming an almost complete ring that was associated with high level explosive activity. In the centre of the complex, and forming Slieve Gullion, a later, sheeted complex consists of flat-lying silicic and basic layers. The final intrusive phase is a granite stock that is confined to the southeast part of the complex.

The Slieve Gullion Ring Dyke marks the outer edge of the intrusive complex and forms a circle of hills up to 300 m high composed mainly of porphyritic felsite and porphyritic granophyre. The ring dyke encloses two generations of earlier formed gabbro/dolerite intrusions and olivine basalt, trachyte and tuffs which were the earliest eruptive products of the Slieve Gullion 'volcano'. Evidence of subsequent explosive activity occurs near Forkill in the form of vents, containing agglomerate consisting mainly of fragments of brecciated granodiorite from the Newry Igneous Complex and Lower Palaeozoic country rock together with large foundered rafts of the older basalt and trachyte lavas. In the main part of the ring dyke the porphyritic felsite pre-dates the porphyritic granophyre and crosscuts the vent agglomerates. The felsite is restricted to the southwest part of the ring where its outcrop varies in width from 100 m to 1.5 km. Well-developed flow banding in the outer margins of the ring dyke indicates that it is a sheet structure which intrudes a pre-existing ring fracture dipping steeply to the southwest. The porphyritic granophyre forms a more pronounced ring structure and post-dates and intrudes the felsite west of Mullaghbane. Linear zones of crush brecciation, the Camlough Breccias affect the Newry Granodiorite, porphyritic granophyre of the ring dyke and post-granophyre aplites in the northwest quadrant of the Slieve Gullion Complex. Cam Lough lies at the northern edge of the complex along a dextral strike-slip fault which displaces the porphyritic granophyre ring dyke horizontally for about 2 km. East of the Camlough Fault the steeply inclined intrusive contact between porphyritic granophyre of the ring dyke and Silurian and Newry Granodiorite country rocks is exposed in Cam Lough quarry.

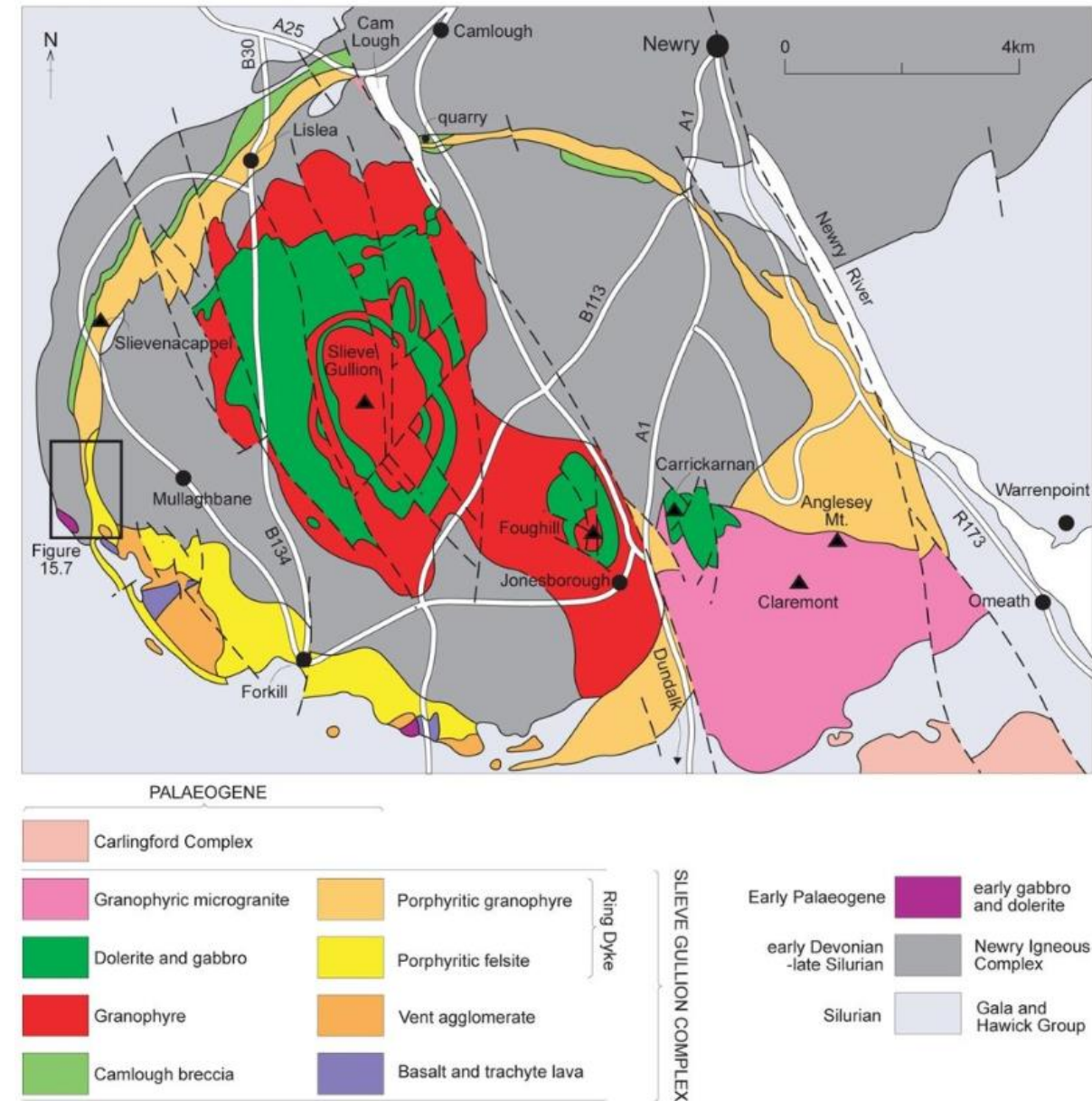


Figure A4: Geological Map of the Slieve Gullion Complex. Mitchell (2004)

At the centre of Slieve Gullion, the Layered Complex post-dates the ring dyke and consists of at least 13 alternating units of silicic and basic rock. The layered nature of these rocks finds strong topographic expression on the west side of Slieve Gullion, and on Foughill and Carrickarnan straddling the Newry-Dundalk road. The Layered Complex was interpreted initially as a succession of rhyolitic and basaltic lava flows, sills, acid tuffs and agglomerates that accumulated on the floor of a caldera. Their subsequent transformation to the present assemblage, which includes rocks with gabbroic and granitic textures, was presumed to be the result of pneumatolytic and hydrothermal alteration during late-stage volcanic activity. A reinterpretation of these rocks now concludes that they represent a protolith of granodiorite of the late Caledonian Newry Igneous Complex that was altered, first by intrusion of granophyre sheets and then by a more basic magma. This concept supported the fact that not all contacts between the acidic and basic sheets are flat lying. On the north flank of Slieve Gullion they possess a steep, wall-like relationship and, in the north of the

complex, the Lislea Granophyre is regarded as a peripheral ring dyke intrusion continuous with the upper (laccolithic) granophyre layers of the central complex.

The final major magmatic event at Slieve Gullion was the intrusion of a granite stock in the south-eastern part of the complex. Exposures on Clermont and Anglesey Mountain are of greyish green granophyric microgranite with iron-rich clinopyroxene as the dominant mafic mineral. The stock cuts both the porphyritic granophyre of the ring dyke and layers of the sheeted complex but is cut by basaltic cone sheets associated with the Carlingford Complex.

Appendix B: Information on Drumlins and Inter-Drumlin Hollows

Within Northern Ireland drumlins take a variety of forms; some are rounded in plan, although the majority are elongated in the direction of ice flow. Some have sharp crests, whereas others are more whaleback in profile. Although most drumlins are composed of glacial till or tills, a small number are 'drumlinoid features' are rock-cored and some are composed of sand and gravel. Where drumlins are rock cored there may have been significant frost shattering prior to their shaping by ice flow. It is possible therefore to see tails of shattered debris within till leading away from the feature in the direction of flow (Davies and Stephens 1978). It is generally accepted that the drumlins of Northern Ireland were formed by deposition beneath fast flowing ice. In the majority of cases this has resulted in a thick layer of Upper (younger) Till overlying a core of Lower (older) Till. This pattern has been observed across Northern Ireland, apart from a limited area in the north of County Down, where Hill (1971) observed drumlins composed only of Lower Till. The precise temporal relationship between the two tills has not been definitively resolved, but Davies and Stephens (1978) refer to an organic layer between the tills in County Fermanagh that has been dated at $30\,500 \pm 1170/1030$ years B.P. and shelly material between the tills on the Ards Peninsula dated at $24\,050 \pm 650$ years B.P. However, these deposits only indicate that the Lower Till is older than the dates obtained.

It can be argued that an equally important component of any 'drumlin landscape' are the similarly numerous inter-drumlin hollows. The majority of these hollows would have held open water from local runoff at the end of the Pleistocene. Whilst some continue to exist as isolated small loughs, many have now been infilled by sediment washing off the surrounding drumlins. This has created typically flat-bottomed, marshy areas between the drumlins that are subject to seasonal inundation. Much of the infilling probably occurred early in the Holocene, as the landscape adjusted to increasingly temperate conditions. However, erosion may also have been accelerated in historical times, when rural population densities were considerably higher and much of the lowland landscape of Northern Ireland was more intensively cultivated. Whatever the stimulus for erosion and deposition, the sediments within these hollows typically contain an important record of local environmental change.