

Northern Ireland Landscape Character Assessment 2000

LCA 123 Larne Glens

Landscape

Last updated: 1 November 2006

Key Characteristics

- Incised glens with smooth ridges rising to stepped moorland summits and opening out towards the Larne coast.
- Small to medium scale pastures divided by hedgerows or intact stone walls contribute to a strong and robust field pattern.
- Broadleaf woodland clings to steeper glen slopes.
- Evenly scattered white farm buildings stand out as distinctive features against a green backdrop.
- Blocks of coniferous forest within the glen.
- Old quarry workings.
- Roads along the length of the glens provide long views along the valleys.

Landscape Description

The Larne Glens are the deeply incised valleys of the Glencloy and Glenarm Rivers, which extend inland from the coast. The settlements of Carnlough and Glenarm are situated on the coast at the mouths of the glens. There are dramatic contrasts in colour and landscape character between the lush, diverse glen landscapes and the exposed uplands of the Larne Basalt Moorland. To the north east of the glens, a narrow coastal strip is backed by the dramatic moorland slopes of the Garron Plateau. The undulating topography shelters numerous farmsteads.

They are surrounded by well structured pastures bounded by sturdy stone walls or hedgerows; these 'fit' with the landform and are often triangular in shape. The presence of hedgerow trees as well as deciduous woodland creates a well wooded appearance from within the glens. However, conifer plantations in Glenarm obscure the distinctive field patterns. Old quarry workings produce dramatic features along the steep glen

slopes, especially on the slopes above Carnlough where the old quarry scars are a distinctive landmark . They are of earth science interest and have been designated as an ASI. The scenic character of the glens is reinforced by well managed landscape elements which contribute to a high quality landscape worthy of conservation. It is part of the designated Antrim Coast and Glens Area of Outstanding Natural Beauty (AONB).

Landscape Condition and Sensitivity to Change

The landscape of the glens is in extremely good condition with robust stone walls and well maintained hedgerows, which give the landscape a strong structure. This contributes to its designation as an AONB. The geometric field pattern is softened by a strong network of deciduous woodland, much of which is classified as 'ancient woodland'. The character area holds at least three sites of earth science interest. Sensitivity to change is high due to the existing condition of the landscape and the large number of visitors who come to visit the glens for their scenic beauty and their high visibility, especially where the valley landscapes open out to the coast at Carnlough and Glenarm.

Principles for Landscape Management

- The middle and upper glen slopes are particularly sensitive to the impact of afforestation; the strong field pattern and transition to open moorland in these areas contributes to the character of the glens.

Principles for Accommodating New Development

- New housing, which is designed to reflect the traditional form and finished in white, will enhance existing patterns.
- The expansion of settlements such as Carnlough should be carefully controlled to avoid sprawl and backspill along the valley.
- Distinct fishing villages which are clustered around a harbour form a pattern along the coastal edge; linear coastal development is out of character and should be avoided.

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Larne Glens Geodiversity Profile

▪ *Last updated: 18 December 2007*

▪ **Outline Geomorphology and Landscape Setting**

- 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. In the original Land Utilisation Survey of Northern Ireland, Symons (1962) identified twelve such natural regions.
- This LCA lies within the region described as the Antrim Plateau and Glens. This upland area is dominated by a series of structural plateaux that dip gently in towards the Lough Neagh Basin. Detailed topography is largely controlled by a succession of Tertiary basalt lava flows that define successive, large-scale steps within the landscape. The plateaux are separated from each other and their frequently dramatic margins are fretted by often fault-guided, steep-sided glens. Recession of the plateaux margins has exposed underlying Mesozoic strata and, in some areas, the Palaeozoic basement. The plateaux margins are typically characterised slope failures that range from large rotational landslides to individual blockfalls.
- The Larne Glens are the deeply incised valleys of the Glencloy and Glenarm Rivers, which extend inland from the coast. The settlements of Carnlough and Glenarm are situated on the coast at the mouths of the glens. There are dramatic contrasts in colour and landscape character between the lush, diverse glen landscapes and the exposed uplands of the Larne Basalt Moorland. To the north east of the glens, a narrow coastal strip is backed by the dramatic moorland slopes of the Garron Plateau. Old quarry workings produce dramatic features along the steep glen slopes, especially on the slopes above Carnlough where the old quarry scars are distinctive landmarks. They are of earth science interest and have been designated as an ASI. The scenic character of the glens is reinforced by well managed landscape elements which contribute to a high quality landscape worthy of conservation. It is part of the designated Antrim Coast and Glens Area

of Outstanding Natural Beauty (AONB). The landscape can therefore be summarised as one of incised glens with smooth ridges rising to stepped moorland summits and opening out towards the Larne coast. Of particular geomorphological interest are the coastal slopes below the Garron Plateau. These comprise large rotational landslides that form a major feature of the Antrim coast, with many of the larger blocks more than 100m across. These rotational features are thought to have been most active in the immediate post-glacial period when the supporting ice had disappeared from the plateau edge and when there was abundant moisture to aid slippage. The large-scale rotational failures may effectively be viewed as relict features under present-day conditions, but surface modification of the slopes continues through smaller-scale rockfalls, debris slides and dissection of the larger blocks. However, present-day modification is not restricted to slope failure but also includes weathering of the basalt and chalk. An excellent example of modification through weathering can be seen on the seaward side of the coast road at Garron Point. In this area chalk is directly exposed to marine action with the result that several weathering zones can be identified related to their proximity to the sea and weathering forms that are typical of so-called marine karst. The intertidal and splash zones are most directly affected by marine activity and are characterised by extensive pitting of the chalk surface attributed to salt weathering and limited biological weathering by lichen and algae.

- The coastline of east Antrim has been described by Orford (in Whalley et al. 1985) as comprising high, stepped coastal slopes formed on the ice-trimmed eastern margin of the Antrim Plateau. Post-ice cambering and Pleistocene neotectonic movement along Tertiary faults has produced a highly unstable cliff line with numerous rotational landslides often masked on their seaward side by slumped drift deposits. Shoreline sediments are predominantly basalt and chalk boulders with a matrix of sand and clay from debris flows that are moved longshore and offshore. The SW-NE trending Antrim Glens define offset re-entrant bays in which sand and gravel have been deposited as prograding beach ridges. The coast road runs along a series of raised beach platforms that are mainly of late- and post-glacial age and are most prominent at Larne. The coast road is protected along much of its length by a reflective sea wall that denies much fresh sediment to the beach and has resulted in the scouring away of beach sediment down to a boulder lag. North of Cushendall the basalt is replaced by Triassic sediments and the Palaeozoic basement. Good examples of abrasion platforms with associated stacks, arches and caves occur, testify to the scale of post-glacial isostatic uplift in the area. The coastline is described in further detail

by Carter (1991), including human impact on the coast related in particular to sand and gravel removal.

▪ **Pre-Quaternary (Solid) Geology**

- The stratigraphy of this area is made up of the mapped formations in the table, the youngest of which usually overlie the oldest.
- Stratigraphic Table (youngest rocks at the top of the table)

Tertiary	Intrusive dykes, sills and volcanic plugs, around 55 million years old
Tertiary	Upper Basalt Formation, about 55 million years old
Tertiary	Interbasaltic Formation, about 55 million years old
Tertiary	Lower Basalt Formation, about 55 million years old
Cretaceous	Hibernian Greensand & Ulster White Limestone, around 100 million years old
Jurassic	Waterloo Mudstone Formation, about 200 million years old
Triassic	Mercia Mudstone Group, Penarth Group, between 220 and 200 million years old

- LCA123 contains igneous and sedimentary rocks of Triassic to Tertiary age.
- In general, Cretaceous greensands and limestones or Tertiary basalts rest unconformably and in faulted contact with and on a range of older Mesozoic rock units.
- Below the Cretaceous - Tertiary escarpment in the east of LCA123, low coastal ground is underlain by soft sedimentary rocks of the Triassic Mercia Mudstone Group. The group is an aquiclude, soft and contains anhydrite, making it part of the landslip sequence, acting as a horizon of failure.
- The Jurassic Waterloo Mudstone Formation comprises dark grey mudstones and shales, alternating with grey limestones: it occurs as a strip between Mercia Mudstone and Cretaceous greensands (see below).
- The Cretaceous succession of greensands with white limestone (or chalk) forms a faulted outcrop strip to the east of LCA123. The limestones are quarried extensively for lime and aggregate. Galboly and Garron chalks seen at Garron Point (ESCR Site 279). Glenarm Chalk Member seen in Glenarm Quarry ESCR Site 280. Creggan Chalk Member seen in Creggan Quarry (ESCR Site 281)
- Tertiary-aged basalts comprise a crudely-bedded succession of lava flows, columnar jointed lava flows, ash-falls and red-weathered horizons (or boles) of the Antrim Lava Group. Dolerite dykes intrude all older rocks of the area. They are extensively quarried for construction materials, especially roadstone.
- Normal faults of differing orientations cross the area, juxtaposing all the above formations. The most linear and laterally traceable faults are those that parallel the coast, being NNW - SSE. Many of these structures have been activated in the last 10,000 years during landslip activity.
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▪ Quaternary (Drift) Geology

- Northern Ireland has experienced repeated glaciations during the Pleistocene period that produced vast amounts of debris to form the glacial deposits that cover >90% of the landscape. Their present morphology was shaped principally during the last glacial cycle (the Midlandian), with subsequent modification throughout the post-glacial Holocene period. The Late Midlandian, the last main phases of ice sheet flow, occurred between 23 and 13ka B.P. from dispersion centres in the Lough Neagh Basin, the Omagh Basin and Lower Lough Erne/Donnegal. The clearest imprint of these ice flows are flow transverse rogen moraines and flow parallel drumlin swarms which developed across thick covers of till, mostly below 150m O.D. during a period that referred to as the Drumlin Readvance. At the very end of the Midlandian, Scottish ice moved southwards and overrode parts of the north coast. Evidence for deglaciation of the landscape is found in features formed between the glacial maximum to the onset of the present warm stage from 17 and 13ka B.P. - a period of gradual climatic improvement. Most commonly these are of glaciofluvial and glaciolacustrine origin and include: eskers, outwash mounds and spreads, proglacial lacustrine deposits, kame terraces, kettle holes and meltwater channels (McCarron et al. 2002). During the Holocene, marine, fluvial, aeolian and mass movement processes, combined with human activities and climate and sea-level fluctuations, have modified the appearance of the landscape. The landforms and associated deposits derived from all of these processes are essentially fossil. Once damaged or destroyed they cannot be replaced since the processes or process combinations that created them no longer exist. They therefore represent a finite scientific and economic resource and are a notable determinant of landscape character.
- The drift geology map for this LCA shows that much of the top of the coastal escarpment is drift free. However, Late Midlandian till underlies the south of the LCA associated with the large ice mass that was centred on the Lough Neagh Basin. This ice moved approximately northeastwards from an ice divide running along the crestline of the Belfast Hills. In the North of the LCA, the coastal lowland behind Carnlough is also underlain by till, but Prior (1970) has suggested that similar deposits in the glens to the north were laid down by ice that moved northwards along the line of the present-day coastline. The drift map also highlights the extensive coastal landslips discussed in the geomorphological description of the LCA and an area of raised beach deposits at Carnlough (see Key Elements below).

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▪ **Key Elements**

▪ **ASSI/ASI**

- 143 BLACK BURN ASSI (Mostly in LCA 122, a small element overlaps this LCA)
- Black Burn Cave is the only known extensive, active cave system developed in the Cretaceous age Ulster White Limestones in Northern Ireland and is probably the most extensive karst drainage system that includes an open passage developed within Cretaceous limestone in the British Isles.
- CARNLOUGH ASI
- Beds of peat, infrequently exposed on the beach at Carnlough, are known from radiocarbon dating and pollen analysis to be of late-glacial and Holocene age. The peats overly beach gravels below which is a thick sequence of finely laminated silts and clays, and glacial till. Inland of the beach, are two shore-parallel, raised gravel ridges that are probably younger than the peats. The sedimentary sequence preserved at Carnlough records evidence for coastal and landscape change from ca 15 000 to 6 000 years ago.

▪ **Karst Features**

- Nappan Turlough (split between this LCA and LCA 122)
- This small lake, which fills and empties in response to ground water levels, is underlain by the Ulster White Limestone Formation. It has no visible inlet or outlet and is commonly dry in summer.

▪ **Other sites/units identified in the Earth Science**

Conservation Review

- 279 Garron Point - Cloghastucan
- Mesozoic. Excellent exposures of Galboly Chalk and Garron Chalk Members of Ulster White Limestone Formation. Effects of Dalradian ridge on chalk sedimentation can be seen.
- 280 Glenarm Quarry
- Mesozoic. Type section for Glenarm Chalk Member of Ulster White Limestone Formation. Illustrative of chalk sedimentation in Larne-Lough Neagh Basin.
- 281 Creggan Quarry
- Mesozoic. Thick sequence of type section of Creggan Chalk Member of Ulster White Limestone Formation. Illustrative of chalk sedimentation in Larne-Lough Neagh Basin.
- 82 Craigcluggan/Skeagh
- Tertiary.
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- **AONB**

- All of this LCA lies within the Antrim Coast and Glens AONB (1988). This designation is indicative of the scenic quality of the landscape.

Larne Glens Biodiversity Profile

Last updated: 6 November 2006

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

- woodlands occupy around 12% of the land cover, more than double the Northern Ireland average
- woodland is almost equally divided between coniferous forest and broadleaved/mixed woodland so that the LCA has a relatively high cover of broadleaved/mixed woodland
- significant areas of demesne woodland, but also good examples of other NI Priority Habitat types including upland oakwoods, upland mixed ash woods
- extensive hillside hazel woodlands on basic soils - some of the best examples in Northern Ireland
- examples of species-rich grasslands on basic soils - rare in eastern Northern Ireland
- contains a substantial part of the sub-littoral and littoral chalk Priority Habitat that is confined to the NE coast of Northern Ireland.

Woodlands

Woodlands account for around 12% of the land cover, more than double the average for Northern Ireland. Coniferous forest is about half of the woodland, most in Glenarm State Forest. That comprises linear plantations on the slopes above Glenarm demesne. The planting is principally of larch - Japanese, European and hybrid - with some compartments of Sitka spruce and others with an intimate broadleaved mixture that includes oak, beech, sycamore and ash. There are several small conifer plantations within the demesne, principally of larch, Sitka spruce and Norway spruce. A larger plantation at Straidkilly is divided into four adjoining bands on the hillside - at the lower edge a mixed deciduous/conifer band with sycamore, hazel, elder and larch, followed by bands of larch, Lawson cypress, and lodgepole pine on the upper edge. Despite the planted history, the site has a diverse herb flora. In the northern part of the LCA beyond Straidkilly point there are a number of small coniferous plantations but only that on the upper slopes at Drumnasole is of significance. This plantation is surrounded by

broadleaved woodland and consists of mature larch with occasional Scots pine, silver fir and beech; the herb layer and ground flora is poor.

Broadleaved and mixed woodland is concentrated in Glenarm, much of it in the demesne (**lowland woodland pasture and parkland**). The park woodland is located in the northern part of the glen around the castle, boundary walls and along the main estate roads. There is a great diversity of tree species, but amongst the mature trees beech, oak, lime, and horse chestnut are frequent. Small plantations of sub-mature oak and beech also occur. Alongside the Glenarm River, between the Forest Service plantations at the southern end of the glen and the castle, there is approx. 5 km of riverine woodland; ash elm, oak and sycamore are the most common species, with horse chestnut, poplar and lime also present. The herb layer is diverse, in part reflecting the changing ground conditions, particularly wetness.

The Glenarm woodlands also include those alongside steep-sided streams which may have a more natural origin. Some of these have been included in the **Glenarm Woods ASSI** one of the largest semi-natural woodlands remaining in County Antrim. The ASSI consists of several distinct woodland blocks that are connected along the Glenarm River valley and two of its main tributaries - the Linford Water to the south-east and the Owencloghy Water to the south-west. The woodland is very variable, ranging from acidic, to flushed and base-rich. As a result, it supports a diversity of habitat types and is one of the richest woods for plants in Northern Ireland with a large number of rare species that includes bird cherry, wood crane's-bill, intermediate wintergreen, bird's-nest orchid, toothwort and several grass, rush and horsetail species.

The Linford Water and Owencloghy Water exemplify the variability of habitats. The upstream half of the woodland in the incised valley of the Linford Water is dominated by dense scrub of hazel, mountain ash and willow whereas downstream the eastern slopes are more mature woodland that includes oak, elm, ash and sweet chestnut. The Upper Glenarm (Owencloghy Water) between Mill Bridge and the State Forest has similar woodland dominated by ash and hazel (**upland mixed ashwoods**) but with local areas of **wet woodland** with willows and alder, and some species indicative of planting or landscaping. In both of these woodlands there is a diverse herb and ground flora, many veteran and fallen trees and diverse populations of epiphytic mosses, ferns and lichens.

In addition to its botanical interest, the ASSI provides an important habitat for animals. Bat species recorded include Leisler's bat, Daubenton's Bat and brown long-eared bat. Breeding birds regularly include the rare wood warbler in addition to a diversity of other passerines and raptors. The invertebrate interest includes the silver-washed fritillary

butterfly, which is scarce in eastern counties of Northern Ireland, and two notable Coleoptera species, the beet carrion beetle *Aclypea opaca* and the rove beetle *Gnypeta caerulea*. Glenarm Woods also support a diverse community of lower plants, particularly fungi.

The most extensive broadleaved woodlands in Glenarm are located on the hillsides, mainly on the eastern slopes between the riverine woodlands and the coniferous plantations. Hazel is the most abundant tree with alder, ash and birch also common. The frequency of alder and birch indicates locally wet and boggy ground conditions (wet woodland). There are also locally concentrated groupings of oak alongside the main streams (**upland oakwood**). Active coppicing of hazel and planting of native oaks by the Ulster Wildlife Trust is helping to retain these woodlands.

The woodlands and adjacent grassy slopes of Glenarm have a number of records of important birds, including **bullfinch, song thrush, spotted fly-catcher** and **skylark**.

Outside of Glenarm, the most common woodlands are of hazel. **Straidkilly ASSI** is one of the largest and least disturbed base-rich woodlands in north-east Antrim. It is comprised of a low hazel canopy with occasional rowan and hawthorn and a few standards of ash, goat willow and downy birch scattered throughout. The diverse ground and herb flora displays a transition from more acid community types on the leached upper slopes through to typical base-rich community types on the damper, lower slopes. Rare species recorded for the site include wood vetch, toothwort, bird's-nest orchid and **juniper**.

Hazel woodlands are extensive in the north of the LCA, particularly on the slopes above Garron Tower (St. MacNissi's School). Here hazel forms the dense canopy with ash, elm, birch and some oaks as emergents. Although the ground and herb flora is varied, it is generally sparse because of grazing and trampling, where better developed it includes anemones, bluebells, ransoms (wood garlic) and primroses. These hazel woodlands continue northward around Garron Point, but as smaller patches, and southward into Drumnasole woods where the hazel canopy gradually merges into the estate woodland (**lowland woodland pasture and parkland**). On the slopes, this woodland is of ash, beech, oak and larch, but with a range of other tree species present. The shrub layer includes hazel, hawthorn and blackthorn, but in parts has the introduced snowberry. The herb flora also varies depending on the canopy but also on position on the slope; on lower slopes where soils are more basic it can be diverse, but on more acidic soils bracken can dominate. Towards the bottom of the estate, elm, Scots pine, sycamore and beech are dominant. The grounds of St. MacNissi's School comprise the only other

significant parkland in the LCA; here fringing woodland is of beech, elm, oak, Scots pine and Corsican pine and some more recent Sitka spruce.

Grassland and Arable

Grassland covers c.74% of the LCA and although nearly four-fifths has been classed as improved, included within that are pastures along the coast on base rich soils derived from basalt-mica schist and basalt-chalk mixed tills. Although quite heavily grazed, these pastures are relatively species rich, especially on the steeper slopes, and are particularly notable in spring for primrose and other spring flowering plants. There are also damp pockets within these pastures often dominated by yellow flag iris. At Feystown in Glenarm, careful grazing and cutting regimes have ensured the preservation of a rare remnant of unimproved, herb rich, meadow. During the summer months the abundance of wildflowers attracts many butterflies including green-veined white, orange tip and silver-washed fritillary. Among the key plant species found at the site are wood crane's-bill, meadowsweet and yellow rattle.

Areas of rough grazing are relatively rare in the LCA and most are where the border clips marginal hill land at the edge of the plateau. Where these are damp they can be important sites for waders; for example, at the head of the Linford Water **curlew** have been recorded. However, the largest area is in Glenarm above the woods to the north of Forking Bridge. These grasslands are also damp, but flushed and base rich. They are characterised by a tall sward of sharp-flowered rush, common sedge, carnation sedge and purple moor-grass. Associated herbs include marsh hawk's-beard, devil's-bit scabious, common valerian and meadowsweet.

Hedges often provide a reservoir of biodiversity in areas of farmland, which are often of low biodiversity. However, in Glenarm fields are generally surrounded by stone walls or post and wire, hedges are limited and there are few hedgerow trees. The mid-valley section of Glencloy with its small fields, does have hedges or boundaries that combine fence and hedge; hawthorn is the most common shrub although gorse and holly are also frequent. Ash is the most common hedgerow tree and almost three quarters of the field boundaries in Glencloy contain trees. Along the coast in the north of the LCA, fields on the flatter surface between the coastal cliffs and the inland basalt and chalk cliffs are large, of improved pastures and many are sown grass mixtures used for silage. These fields have low biodiversity but many are surrounded by hedges, albeit reinforced by post and wire fencing. Hedgerow shrubs are varied, including hawthorn, blackthorn, holly, gorse, hazel and brambles, which provide habitats for animals and insects. The relatively few hedgerow trees are mainly ash.

Heaths and Bogs

Apart from small patches of gorse (whin) around old quarries and on short steep slopes, there is no significant heath in the LCA; nor is there any peat bog.

Wetlands and Lakes

There are no significant wetlands in the LCA. Of the rivers draining from the plateau, only the Glenarm has records of Priority Species - the otter and the river jelly lichen. However, sections of the Glenarm River and the Linford Water are of particular interest, representing good examples of fast-flowing, oligo-mesotrophic (low in plant nutrients) rivers. The plant communities are dominated by bryophytes (mosses and liverworts) such as *Cinclidotus fontinaloides*, *Fontinalis antipyretica* and *Hygrohypnum luridum*

Coastal

Most of the coast is in boulders, predominantly chalk and comprises one of the Northern Ireland Priority Habitats - sub-littoral and littoral chalk. Littoral chalk characteristically lacks species common on hard rocky shores but can support distinct successive zones of algae and animals. This coast is dominated by fucoids and in places has numerous rock pools rich in flora and fauna. Where there are patches of moving shingle, as at Whitebay Point, faunal diversity is poor. Carnlough Bay is the only significant area of sandy shore where the faunal community consists largely of burrowing amphipods (small crustaceans) and polychaetes (marine worms).

Key Issues.

General actions for UK and NI Priority Habitats and Priority Species are detailed in the Habitat Action Plans and Species Action Plans.

WOODLANDS

Issue: significant woodland cover, including good examples of Priority types - upland oak woods, upland mixed ash woods, lowland woodland pasture and parkland - as well as extensive hazel woodland

Actions:

- 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, particularly in hillside hazel woodlands, to foster regeneration and if necessary, encourage replanting of 'emergent/standard' species
- monitor invasive species such as sycamore to ensure that species composition is not damaged; if necessary consider methods of removal
- review the effects of hazel coppicing in Glenarm and consider adoption in other hazel woodlands
- encourage planting of native broadleaves through appropriate grant schemes, particularly when replacing small coniferous plantations.

GRASSLAND AND ARABLE

Issue: poor biodiversity of farmland, especially of improved pastures

Actions:

- maintain and improve field boundaries especially hedgerows (where they are traditional in the landscape). This may be achieved through adoption of 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; applies particularly to chalk and base-rich grasslands

WETLANDS

Issue: rivers of importance to plant and animal life, including fish and some NI Priority Species.

Actions:

- protect water quality of rivers through nutrient management and by ensuring low suspended sediment loads, thus

- promote and encourage existing good farming practices so that streams are not polluted by run-off from agricultural land or seepage from silage pits
- ensure that forestry operations do not affect nutrient status or sediment loads
- continued monitoring of streams below quarries
- monitor streams in relation to expansion of rural/urban housing and associated septic tanks/sewage treatment plants

COASTAL

Issues: there are no major issues in the coastal zone of this LCA