

4.0 AN ASSESSMENT OF THE AREA AND ITS RESOURCES



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4.1 Introduction

4.1.1 This section of the Management Plan considers the current condition of special qualities in Llŷn's AONB. It also includes an assessment of the economy which includes agriculture, fishing, other rural enterprises and tourism. A comprehensive assessment of resources is an essential part of the Management Plan. This will measure any changes in the unique attributes of the area and the success of the Management Plan.

4.1.2 Ideally, a Management Plan should include an assessment of all the qualities or resources according to "their nature, character, quality, extent and condition" (AONB Management Plans CCW, 2001). However, the ability to undertake detailed analysis is often hampered by lack of resources and information about many of these qualities. The main problem in obtaining detailed information about the extent and condition of resources within the Llŷn AONB were as follows:

- lack of information – in terms of measuring the resource and/or its condition,
- lack of specific information for the AONB,
- no up to date information,
- resources that are difficult to measure e.g. scenery, culture.

4.1.3 The most up to date information that was available was used for the assessment and any gaps in information are noted. The identification of gaps in information is an important part of the Management Plan and may be adopted as a future aim or action in the Plan's Action Programme.

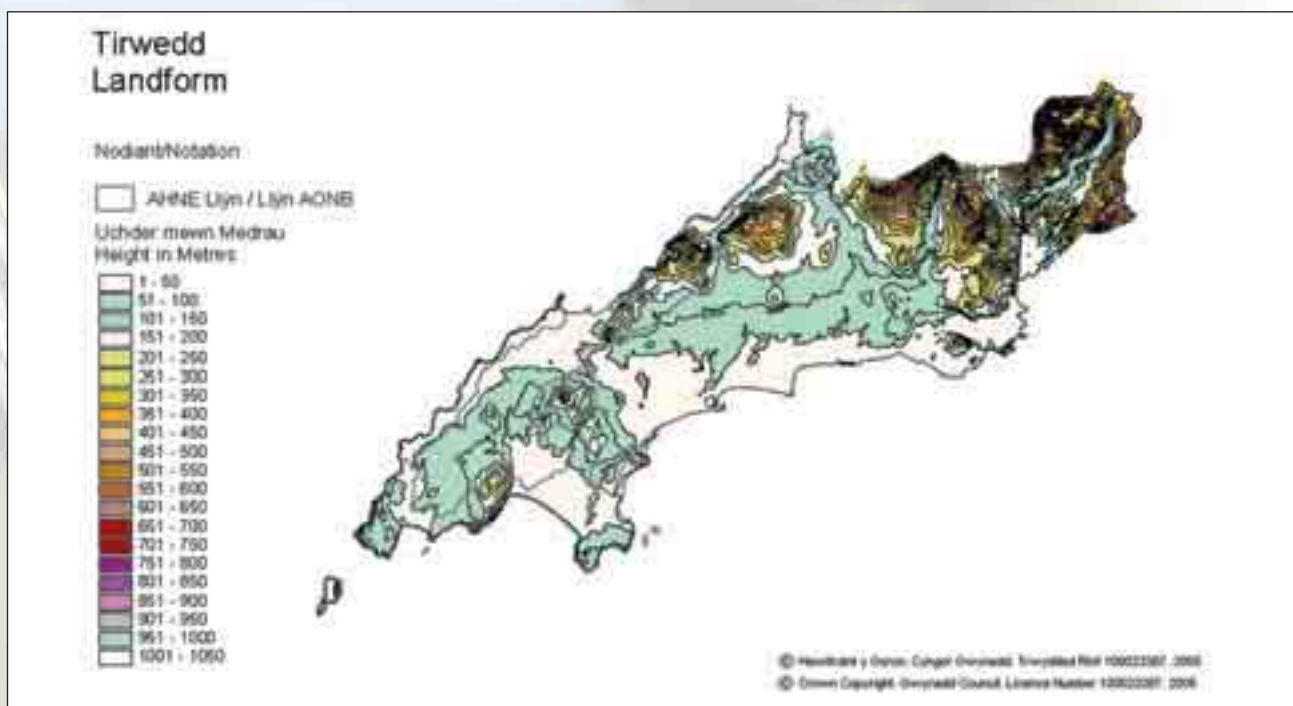
4.1.4 This Management Plan seeks to identify, define and assess the special qualities of the area as effectively as possible under the circumstances. When the time comes to review the Plan, it is envisaged that the AONB Unit will be in a much better position as there will have been an increase in resources, a regular supply of information and research and the present Plan will form the basis for any updates.

4.1.5 This part of the report considers the various qualities of the AONB in turn. There is a description and analysis of the quality and details about the size/extent, status, quality and condition of the resource. If information is available, the report also describes changes that have taken place over time.

ENVIRONMENTAL RESOURCES

4.2 Geology and geomorphology

4.2.1 The geological and geomorphologic foundations of the Llŷn Peninsula are complex and diverse. There are exceptionally old rocks from the pre-Cambrian period, intrusive volcanic rocks and a vast area of Ordovician rocks.



4.2.2 Glacial activity had a very noticeable impact on the area's landscape, creating boulder clay deposits, lakes, river terraces and water channels. The glaciation carried rocks from the Clyde (Alisa Craig) and the Lake District areas to Llŷn, which can be seen in the glacial drifts throughout the area.

4.2.3 The varied geology of Llŷn is the foundation for the unique character of the visual landscape. The peninsula is an expansive plateau with numerous igneous hills and mountains rising to the surface – these are dominant features of the Llŷn landscape. The largest and highest of these is yr Eifl in the north east of the area, while Garn Boduan, Garn Fadrun and Mynydd Rhiw area also distinctive. There are several smaller intrusions throughout the area, such as Gyrn Ddu and Mynydd Tir y Cwmwd.

4.2.4 The geology of the area is responsible for the striking coast – which varies from rugged cliffs and rocks to sandy beaches and sand dunes on the southern part of the coast. Extensive areas of the northern coast are characterised by steep cliffs and rugged rocks with some areas of sedimentary material. The sedimentary material has eroded over time, forming several peninsulas and bays. Although there are cliffs and rocks on the southern coast, there are many more extensive sandy beaches such as Hell's Mouth and Castellmarch beach. Due to the nature of these beaches, a system of sand dunes has developed to the north of Abersoch. The islands and stacks also contribute to the variety. The names of the various forms also contribute to the character of the area – they are all Welsh names, often with historic or descriptive connotations.

4.2.5 Due to the nature and character of the Llŷn coast, a substantial area was designated as Heritage Coast in 1974. The Heritage Coast follows the boundary of the AONB along the coast from Aberdesach to Penrhyn Du on the southern coast. It does not include the part of the southern coast between Penrhyn Du and Carreg y Defaid (which is in the AONB), but a section of the coast between Nefyn and Morfa Nefyn is included. Bardsey and St Tudwal's Islands are also included. Whilst Heritage Coast is not a statutory designation, it does place responsibility on local authorities to limit coastal developments, including coastal defence plans.

4.2.6 The most important geological/geomorphologic sites have been designated as either Sites of Special Scientific Interest – which are sites of national interest and importance, or *Regionally Important Geological Sites* ("RIGS"). Designated sites include caves, quarries and landscape forms.

Status and condition

- There are **12 Sites of Special Scientific Interest** based on geology or a combination of geology and other features within the AONB, totalling a surface area of **1588.12 ha**. The condition of some of these sites had been assessed by CCW at the time of preparing this Plan.
- There are **3 Regionally Important Geological Sites** within the AONB and the condition of all three has been assessed; their condition is specified as "Excellent" by the Gwynedd and Anglesey RIGS Group:

Regionally Important Geological Sites (RIGS)

Location	Area
Trwyn y Tal	11.00 hectares
Mynydd Carreg	5.29 hectares
Porthdinllaen	5.67 hectares

- **1 Heritage Coast** – 55 miles (88.3 kilometres)
- **Coast** of 20 "Trwyn" (small peninsula), 17 "Ogof" (cave), 36 "Porth" (cove).
- The surface area of the Llŷn Peninsula Cliffs **candidate Special Area of Conservation** ("cSAC") is 877.48 ha.
- **LANDMAP** – please see next page for LANDMAP table which indicates the sites which have been identified as categories of "outstanding" (of international or national importance) and "high" (regional/county importance) in terms of Geology and Geomorphology:

Geology and Geomorphology

AREA	TYPE	STATUS	
		OUTSTANDING	HIGH
Penrhyn Bodeillas	GE	✓	
Yr Eifl (Rivals)	GE	✓	
Bae Gwydir	GM	✓	
Braich y Pwll GCR	GE	✓	
Wig Bach GCR	GE	✓	
Pen Benar	GE	✓	
Llanbedrog	GE	✓	
Nanhoron	GE	✓	
Porth Ceiriad	GE	✓	
Llech y Ddôl GCR	GE	✓	
Carreg y Tir	GE	✓	
Benallt	GE	✓	
Mynydd Penarfynydd	GE	✓	
Bodarwell	GE		✓
Porthor	GM	✓	
Aberdaron	GM		✓
River Soch	GM		✓
Cors Geirch	GM		✓

Source: Gwynedd Landscape Strategy, 1999 **GE:** Geology **GM:** Geomorphology

Change over time

- 4.2.7** Parts of the coast have suffered natural erosion and coastal land has constantly been lost with the passage of time. Significant coastal conservation defences have been developed in Nefyn, Morfa Nefyn and Aberdaron. Shoreline Management Plans (Cardigan Bay and the Northern Coast) have been prepared in order to programme future erosion management work.

4.3 The Landscape and Coast

- 4.3.1** Llŷn was the second Area of Outstanding Natural Beauty to be designated in 1957. The area was judged as meriting recognition and special conservation on the basis of the beautiful landscape formed by a wide variety of features combined to create its special character. The appearance of Llŷn's unique landscape has been created by a combination of geology, vegetation and human influence over centuries. It is difficult to assess and measure the landscape and scenery because scenery is a visual picture of features and buildings in combination.

- 4.3.2** The landscape is divided into a patchwork of field boundaries, roads, rivers and streams. The main rivers within the AONB include the Desach, Geirch, Pen y graig, Eiddon, Saint, Cyll y Felin, Daron, Soch and Horon. Traditional field boundaries of walls, "cloddiau" and hedgerows are also a prominent feature of the landscape and are not only an important visual and historic resource but also valuable wildlife habitats.



From Mynydd Carreg

- 4.3.3** The coast contributes greatly to the natural beauty and character of the Llŷn area. It displays diverse and interesting natural features including high cliffs, caves, stacks and islands, points and sandy beaches with diverse and interesting names. Due to the islet nature of the Llŷn Peninsula, the coast is an integral part of the landscape. The coast and the sea can be seen from almost every location and expressions such as "the sea's influence" and "nowhere far from the sea" are in common use within the area. Bardsey is also an essential part of the character and appearance of Llŷn.

- 4.3.4** The vegetation which colours the landscape makes a strong visual impression as it creates an assorted and colourful visual picture which varies according to the time of year. Some of Llŷn's characteristic elements include the green pastures of countryside, the heather and gorse of the heathlands and the rough pasture of the uplands. The vegetation here constitute complex ecosystems and are valuable habitats to a variety of wildlife.
- 4.3.5** The marks of human habitation on the landscape contribute to its character. The most rural parts are characterised by small houses and cottages and individual farms – resembling parts of south-west Ireland. Due to the lack of other developments, a strong sense of unspoilt natural landscape belongs to Llŷn which is greatly appreciated by locals and visitors. Small villages, squeezed into the landscape, are also typical of the area. Due to their compact nature and the traditional building materials, they usually merge naturally into the landscape.
- 4.3.6** The **LANDMAP** process can contribute greatly to our understanding and appreciation of Llŷn's landscape. LANDMAP is a method of assessing landscape which attempts to take into consideration all the relevant factors which contribute to the character of the landscape as well as assessing the impact of decisions. The system was developed by the Welsh Landscape Partnership Group and its use was promoted by the Countryside Council for Wales. The process divides the landscape in terms of several aspects: Visual and Sensory, Biodiversity, Earth Sciences, History, Culture and Settlement Patterns. Information was also collated about land use, relevant strategies and public perception. The system enables us to define areas/sites according to the following categories: Outstanding, High, Moderate, Low and areas of Insufficient Information.
- 4.3.7** LANDMAP can contribute to the production of a Landscape Strategy, defining Areas of Landscape Character and preparing additional management material such as design guidelines and management plans. A pilot assessment of Llŷn was carried out for LANDMAP in 1999 and subsequently, an assessment of Gwynedd was carried out (not including the National Park). Information for the Assessment was gathered by Gwynedd Council and Countryside Council for Wales's officers and experts Llŷn and specific landscape areas were subsequently defined.
- 4.3.8** The visual and sensory assessment took the following physical factors into consideration: landscape, seascape, ground cover, land use pattern and settlement pattern. In terms of perception, consideration was given to scale, boundaries, material, colour, diversity, tranquillity, movement, safety, points of observation or untidiness, areas of visual influence. Following all this work, 10 Combined Aspect Areas were established in Gwynedd. The AONB is part of two of these areas, namely the Northern Llŷn Coast and Western Llŷn.
- 4.3.9** The northern coast area is a narrow strip stretching from Aberdesach to Nefyn and including the igneous intrusions of Bwlch Mawr, Gym Ddu, Gym Goch, Yr Eifl, Moel Tŷ Gwyn and Garn Boduan. Within the area are the town of Nefyn and the village of Trefor - two locations with distinctly different characters. The area contains a range of vegetation including grassland, coppices and acidic heathland.
- 4.3.10** The Northern Llŷn area includes the part of the peninsula to the west of the A497. Naturally, the sea strongly influences the character of the area as well as traditional field patterns. The geology of the area has created a low plateau with igneous intrusions here and there, such as Garn Fadrun and Mynydd Rhiw. The remains of glaciations are also evident throughout the area. The diverse vegetation and geology have created important habitats such as heathland and wetland. Traces of human habitation are prominent on the landscape of Western Llŷn. Most prominent are the hill-forts on Garn Fadrun and Castell Odo and the prehistoric field patterns.

Status and Condition

- **Llŷn AONB** – surface area of 15,500 hectares.
- **LANDMAP** – It was confirmed that the AONB is of a high standard, especially northern Llŷn. The coast creates a strong impact, the scattered settlements of Western Llŷn are important, and patterns created by boundaries remain. The following table indicates the sites which have been identified as being of “outstanding” and “high” standard in terms of the Visual and Sensory aspect.

AREA	STATUS	
	OUTSTANDING	HIGH
Northern Coast of Llŷn		✓
Rhyd Hir River		✓
Nefyn – Llanaelhaearn		✓
Gym Goch – Bwlch Mawr	✓	
Bardsey Island	✓	
St Tudwal's Islands		✓
Mynydd Anelog	✓	
Uwchmynydd		✓
Mynydd Garreg		✓
Aberdaron		✓
Mynydd Rhiw		✓
Sarn upper valley		✓
Garn Fadrun		✓
Garn Fadrun lower slopes		✓
Valley of Horon River		✓
Hells's Mouth		✓
Cors Geirch upper valley		✓
Cors Geirch lower valley		✓
Mynytho uplands		✓
Mynytho lowlands		✓
Mynytho uplands (lower slopes)		✓
Abersoch lower valley		✓
Abersoch		✓
Mynydd Cilan Promontory		✓
Mynydd Tir y Cwmwd		✓

Source: Gwynedd Landscape Strategy, 1999

Outstanding: areas of regional and national importance

High: areas of regional or county importance

- **LANDMAP** – A report based on LANDMAP recommended extending the Llŷn AONB boundary to include the whole area to the west of the A497.
- **Heritage Coast** – 55 miles (88.3 kilometres).

PURITY AND TRANQUILLITY

4.4 Air, water and soil

4.4.1 The only large scale industrial development which had a direct impact on the environment in terms of noise and pollution levels was the quarrying and mining of minerals. Mining has now ceased and quarrying is at a very small scale mainly to meet local needs. The lack of factories, works or significant power stations in the area means that the air pollution levels are particularly low. Air pollution as a result of traffic is also very low apart from the busy summer months. Generally the condition of the water, air and soil in Llŷn are high or very high.

4.4.2 Air quality – The four main types of air pollution are Sulphur Dioxide, Granules, Nitrogen Oxides and Carbon Monoxide. These levels of pollution are very low in the Llŷn area however there is no specific information available for the area available. The details regarding the level of these pollutants in the area is contained below and are taken from the Gwynedd State of the Environment Report:

Gwynedd Air Quality

POLLUTANT	LEVEL	MEASURE	CHANGE
Sulphur Dioxide	Very low	Mean annual concentration between 0 and 4ppb (1996).	No earlier measure
Particles (PM10)	Low	Background particle level for Gwynedd 2003 between 17.5 and 20 µg/m ³ .	No earlier measure
Nitrogen Dioxide	Very low	Background concentration NO ₂ between 0 and 10 ppb (2005 estimate).	Level of 4-6 ppb (billion part) in Llŷn (1992) (Royal Ecological Society)
Carbon Monoxide	Very low	Emission of CO between 0 a 0.2 ppb in Gwynedd 1998.	No earlier measure

Source: Gwynedd State of the Environment Report (2004)

4.4.3 More detailed information regarding other air pollutants is included in the Survey of the State of the Environment in Gwynedd. In general the levels of emissions/gases are very low in Gwynedd and well below the danger levels set by the government: Polycyclic aromatic hydrocarbons, Benzene, 1,3-Butadiene, Lead, Methane, Carbon dioxide, Ozone, Sulphur (as acid rain). There has been no measurable change since the Gwynedd State of the Environment Report 1995.

4.4.4 **Water quality** – The purity level of freshwater is particularly important since we depend on it to provide energy, to grow crops, for drinking and for leisure purposes. Water is also an important habitat for wildlife. Factors which affect water condition in rural areas such as Llŷn include pollutants such as acid rain, excessive nitrogen fertilizer and sheep dip. It is the responsibility of the Environment Agency to maintain the water quality in Wales whilst Dŵr Cymru/Welsh Water is responsible for ensuring a clean and dependable supply of water. Again there is a lack of information about this area. The following table provides information regarding the quality of river water, bathing water and drinking water. The latest information indicates that river water, bathing water and drinking water standards are very good and improving:

Local water quality

WATER QUALITY	NUMBER	QUALITY	CONDITION	CHANGE
River water	9 main rivers and many streams	High	83% of Gwynedd rivers are grade A in Environment Agency Grading System, 2000.	70% of Gwynedd rivers are grade A in Environment Agency Grading System 1990.
Bathing water	A large number of bathing areas	Generally high	"Exceptionally good"-Abersoch 2001. Environment Agency	Variable. Abersoch 1988 – "fail", 98-92 – "good".
Drinking water	N/a	Good/acceptable	Met all drinking water standards in 2001 apart from 1 failure. (Welsh Water/Dŵr Cymru)	

Source: Environment Agency

4.4.5 The AMP 3 ("Asset Management Programme") is a programme of improvements for sewerage systems throughout Wales. A number of businesses are involved in the programme, the main partners being Welsh Water/Dŵr Cymru and the Environment Agency. Improvements to the sewerage system are targeted in order to improve water quality. Schemes have already been completed at Pwllheli, Llanbedrog and Aberdaron. The next schemes to be completed will be Morfa Nefyn/Edern (work to be completed in 2005) and Trefor. The Agency's recording system sometimes shows problems with water quality in the rivers of Llŷn which is mainly caused by the flow of sewerage or pollution into rivers.

4.4.6 **Contaminated and waste land** – Contaminated land is defined as land on, in or under which there are substances which have or could have a significant detrimental effect (The Gwynedd State of the Environment Report 2004). This can be chemical, biological or radioactive. No correct information regarding these sorts of sites in Gwynedd was available at the time of producing the Report on the State of the Environment in Gwynedd. Waste land is defined as land or buildings which have been harmed by industry or by other developments to such an extent that they cannot be used again without treatment (The Gwynedd State of the Environment Report 2004).

4.4.7 A Contaminated Land Inspection Strategy was prepared in 2002 in order to meet government requirements. The Strategy indicates that there is insufficient information to provide an accurate estimate of the number of contaminated sites in the County and notes that there are only 9 infill sites within the AONB which are all small-scale sites for domestic waste and are no longer in use (2002).

4.4.8 Information from the Environment Agency (2003) shows that there are 2 Licensed Waste Management Sites in the AONB, and also notes the number of sites that are not obliged to conform to the 1994 Waste Management Licensing Regulations. There are also some sites that have now closed. The Agency also identified fly tipping to be a problem in Llŷn – more information about this will be included in the section on activities and pressures.

4.5 Clean beaches

4.5.1 The variety and number of beaches in Llŷn is a special feature of the area's character. They vary from small pebbly beaches to large sandy bays.

4.5.2 Llŷn's beach standards are reflected in the number of beaches which have been awarded international and national awards. These beaches are amongst the cleanest, safest and most organised throughout the UK and water quality standards reach European legislation.



Porthor

The standard of Llŷn beaches

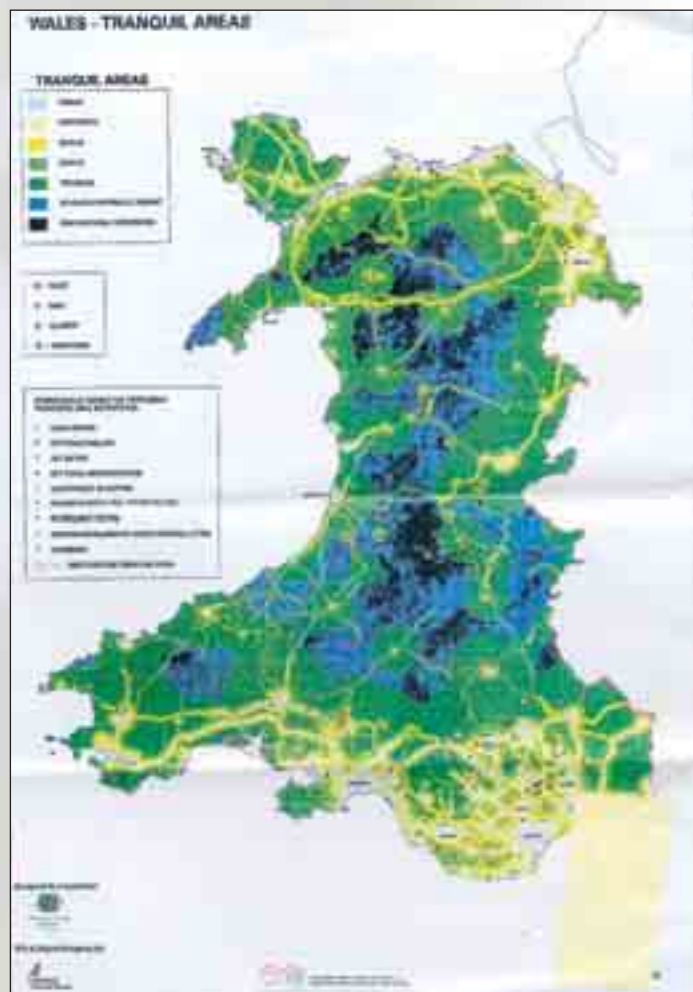
COAST	NUMBER	QUALITY	CONDITION	CHANGE
Beaches	33	Aberdaron: Rural Seaside Award Hell's Mouth: Green Coast Award Machroes: Rural Seaside and Green Coast Award Abersoch: Urban and Blue Flag Seaside Award Llanbedrog: Rural Seaside Award	Beaches that have won awards are in excellent condition, others are generally good. Main problem is sewerage.	Varied condition however on the whole good to excellent

Source: Maritime Unit, Gwynedd Council 2004

4.6 Tranquillity and solitude

4.6.1 The quiet and undisturbed nature of Llŷn certainly forms an integral part of the area's character. This arises from a combination of extended areas of undeveloped countryside and coastline which have not been developed, quietness as a result of the lack of traffic and urban sounds and the absence of structures and lights. This type of special quality is difficult to evaluate due to the fact that it is made up of a combination of elements which create an impression. These areas are often referred to as unspoilt/unblighted areas and a sense of solitude is often connected with areas of this type.

4.6.2 The notion of tranquillity was first identified as a special characteristic of an area in the 1980s. By the end of the 1990s the quiet and tranquil nature of special areas was recognised and their significance acknowledged mostly because these areas were becoming scarcer. In 1991 the Consultation Group ASH developed the concept of "tranquil areas". The assessment considered factors such as transport, towns/villages, electrical structure, industrial sites and railroads. In 1997 the Countryside Council for Wales commissioned a report by ASH to assess the tranquil areas in Wales. The study looks at the main categories of development which create disturbances such as traffic, settlements, electrical structures, railroads and airports. The locations of some local developments which have an impact on the tranquillity of an area were also noted, such as quarries, masts, wind farms, clay pigeon shooting, jet skis and racing boats.



Wales - Tranquil Areas

Status and Condition

- **Tranquil Area** – an extensive part of Llŷn was designated a Quiet Area or tier C (lowest level of disturbance) by the ASH company in the 1997 Report. The far end of the peninsula and the area near Clynnog have also been designated areas where no sky glow can usually be seen. The maps show a number of noisy activities (mainly marine activities) on the southern coast around Abersoch and Llanbedrog.

Change

- 4.6.3** No previous Review of Tranquillity has been conducted. The information from the 1997 review can be updated in order to allow comparison.

WILDLIFE

4.7 Biodiversity

- 4.7.1** All plants and species existing within an area are embraced by the term wildlife, or biodiversity. The varied habitats within the Llŷn AONB support a wealth of biodiversity. In accordance with its statutory responsibility, Gwynedd Council and key partners have prepared a Local Biodiversity Action Plan (Natur Gwynedd) which aims to support and protect Gwynedd's biodiversity. The most important designations for habitats and species are as follows:

International Importance (*more than one designation could be relevant to each site*)

Wetlands of International Importance (RAMSAR). Wetland habitats which support various species. The Cors Geirch site in Llŷn is on the margins of the AONB.

Special Protection Area (SPA). Designated under the EU Directive on wildlife protection (The Birds Directive) to support habitats of two particular types of bird species:

- Rare or threatened species such as the chough, kite and kingfisher
- Migrating species that fly thousands of miles to reach various places – and need safe resting areas.

Special Areas of Conservation (SAC). Designated under the 1992 Habitats Directive to protect threatened habitats, plants and animals. They are awarded the highest level of protection because they include the best examples of habitats and species.

National Importance

National Nature Reserve. These Reserves represent the best examples of habitats and geological features all of which are special in their own way. Every reserve is also a Site of Special Scientific Interest.

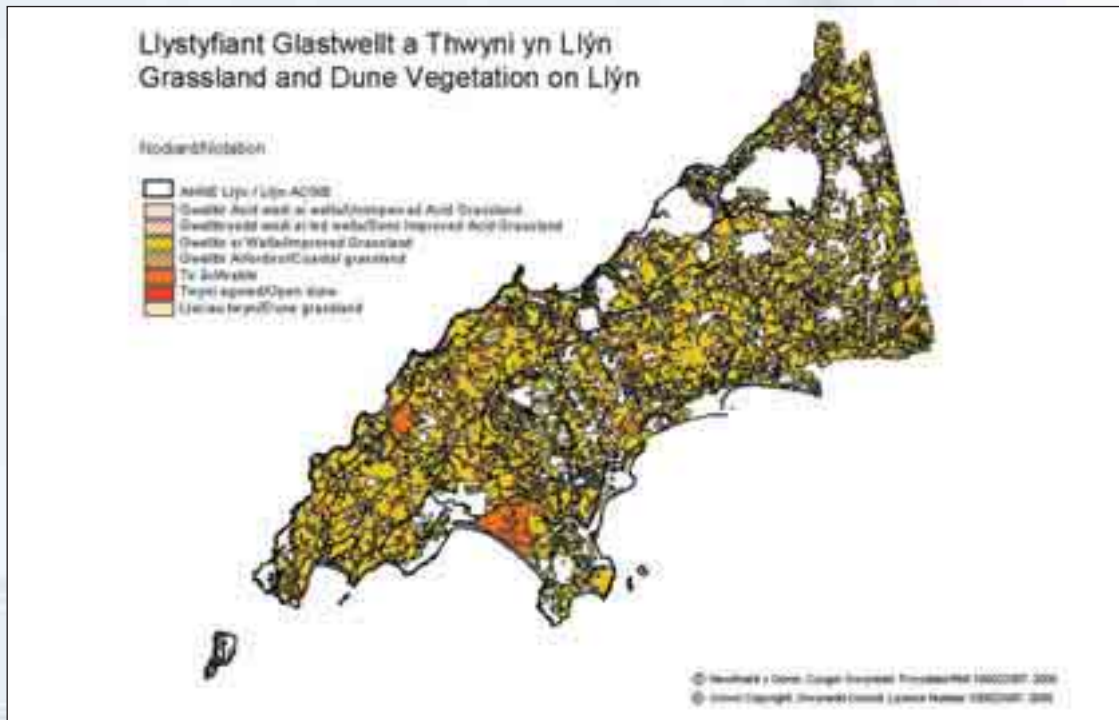
Sites of Special Scientific Interest (SSSIs). Designated on the basis of flora, fauna, geology or physiography. Varies from bogs and meadows to sand dunes and woodlands.

Regional or Local Importance

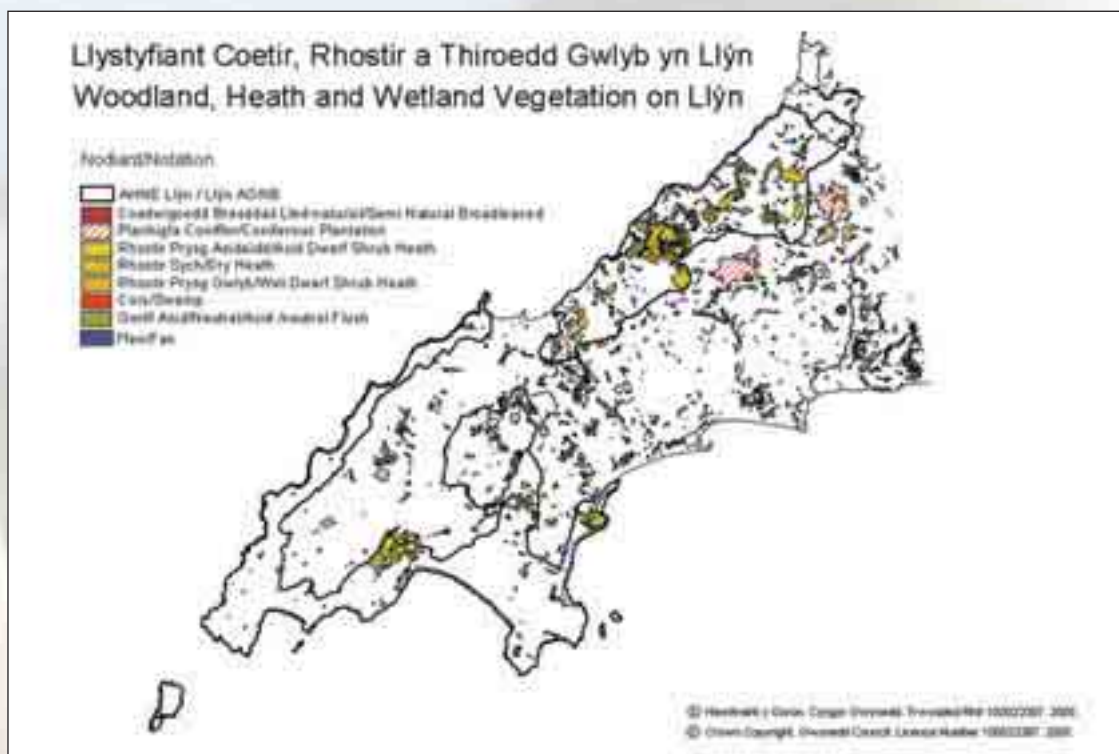
Potential Wildlife Sites (WS). These sites are of substantial conservation importance on a local level, and are equal to SSSIs in the quality of habitat; however do not have any statutory status.

Local Nature Reserve (LNR). Designated by the local authority these reserves are of local value in terms of nature conservation.

4.8 Habitats



- 4.8.1** Vegetation forms ground cover and is a habitat for a number of animals, insects and birds. Very little habitats exist in some parts of the area such as upland summits where it is mostly lichens and mosses. No attempt has been made to measure the surface area of these parts for the purpose of the Management Plan, although they provide important habitats for some species.
- 4.8.2** Natural and semi-natural vegetation, in other words land which has not been improved or cultivated, is scarce in the AONB. The most obvious examples are heathland, wetlands and woodlands. Extensive parts of the area are farmed using various types of agricultural practises. Large areas of the Llŷn plateau are given over to crop growing and stock grazing. The uplands, which are more rough (moorland), has been designated a Less Favourable Area and includes parts of Clynnog, Llanaelhaearn, Pistyll, Garn Fadrun and Rhiw in the midland and Mynydd Anelog in the south.
- 4.8.3** Natural broadleaved woodlands although not a prominent feature in the Llŷn AONB do however contribute towards the complete picture and are a rare resource. Evergreen pine forests have been planted



on a number of hills and slopes in the area and although not native to the area they have become very much part of the fabric of the landscape and the effect on the landscape is apparent when they are felled and cleared.

4.8.4 A great variety of habitats are to be found in the Llŷn AONB reflecting the different types of landscape and coastline and vegetation found in the area. A detailed analysis of all the important habitats in Gwynedd can be found in the Natur Gwynedd Action Plan and a number of these habitats can be found within the AONB.

4.8.5 The Natur Gwynedd Action Plan (2004) discusses all key habitats which are important to Gwynedd. It includes details of the surface area of the most important habitats (Wales/UK priority). The following table includes information regarding important habitats which are found in the Llŷn AONB and surface details for the main habitats. The results are based on information found on the geographical information system (GIS) and the Countryside Council for 'Wales Habitats Survey – Grade 1'(2003). More detailed information on different categories of habitats in the Llŷn ESA can be found in the Llŷn Peninsula 'Habitat Survey, 1990,' by the Nature Conservancy Council.

Key habitats in the Llŷn AONB

HABITATS	AREA (HA)
Woodland scrub	747.40
Grasslands and mire	14588.21
Tall vegetation and bracken	788.68
Heathland	1610.84
Marsh, marginal land and submergence	172.23
Coastal land	1608.21
Rocks and wasteland	111.34
Arable land	1747.79
Variable	457.3
Hedges	P
'Cloddiau'	P
Arable field borders	P
Lowland meadows and low pastures	P
Lake, pools and ditches	P
MARINE SPECIES/COASTAL	AREA (HA)
Maritime cliffs and slopes	P
Coastal sand dunes	P
Coastal salt marsh	P
Coastal floodplain, grazing marsh	P
Sea grass bed	P
Mearl beds	P
Sheltered muddy gravels	P
Subtidal sands and gravels	P
Tidal rapids	P
Honeycomb worm reefs	P

Source: CCW Habitat Survey - Grade 1. Information for AONB collected through Geographical Information System (GIS).

P: present, but no area figures available

4.8.6 Coastal habitats – There are a number of different types of coastal habitats present in Llŷn, including cliffs, slopes, coastal land, beaches and sand dunes. Cliffs and slopes support a variety of vegetation, which is slowly changing to form coastal grazing land and heathland. The cliffs and slopes are also home to a variety of seabirds including sand martins and the chough and is also a habitat for hornets and certain rare invertebrates.

4.8.7 Beaches and sand dunes are also very distinctive habitats in Llŷn and a number of sand dune systems can be found along the peninsula's southern coastline. Sand dunes are one of the most natural habitats found in the UK and are home to a wealth of rare species. Many dune systems are now recognised to be of international importance for wildlife; these include plants such as marram grass, a variety of fungi - some of which are only found in dune systems, lizards such as the sand lizard and numerous rare invertebrates such as the carder bee.

4.8.8 Dune systems have widely differing habitats and a range of communities starting from the strandline through to sand dune slack, dune heath and scrub community. Sand dunes are under threat nowadays and have seen a decline in species numbers due to scrub encroachment and over-stabilisation of dune systems, one

reason for this is the lack of grazing which used to be done by rabbits and farm animals such as cattle and sheep.

4.8.9 The most notable dune system in the area is the one found near Castellmarch in Abersoch (The Warren). This system has suffered considerably due to visitor pressure during the summer months and from various developments such as caravan parks, parking facilities and improved or semi-improved grasslands for pasture or golf links.

4.8.10 Marine habitats – Due to the importance of the marine habitats and species found in the Llŷn and Samau area, such as its reefs and estuaries, the area has been designated a Special Area of Conservation (SAC) under the Habitats and Species Directive. The reefs support a wide variety of floral and faunal communities including a variety of seaweed forests, sea squirts and sponges. Further information can be found in the Pen Llŷn and Samau SAC Management Plan.

4.8.11 Heathland – heathlands are very distinctive and are an important feature in Llŷn where wet, dry, low and coastal heathlands are found. Not only do they contribute as habitats and a feature in the landscape but also from a historical and cultural aspect and as a leisure resource (many of the area's heathlands are common land). The heathlands support a diverse variety of plants and grazing as well as heather and gorse which provides such a colourful display in August and September.

4.8.12 The coastal heathlands are important in a European context because they are typical of western heathlands which have become scarce since World War Two. Currently only 0.3% of the UK's surface area consists of lowland heath.

4.8.13 Because of their distinctiveness and scarcity, and the fact that heathlands are a prominent feature in Llŷn, a partnership called Cadw'r Lliw yn Llŷn (Keeping the Colour in Llŷn) was established to manage the area's main heathlands. Funding to operate the three year project was obtained during 2003 and a Project officer was appointed in 2004 (See "Cadw'r Lliw yn Llŷn – Heathland Project, 2002 for more details). A number of sites significant to Llŷn were chosen for the scheme and are listed below:

Cadw'r Lliw yn Llŷn Heathland Project

LOCATION	TYPE
Mynydd Tir y Cwmwd	Dry and coastal
Foel Gron, Mynytho	Dry
Mynydd Rhiw	Dry
Braich y Pwll, Aberdaron	Coastal and marine
Wellington and Horeb Chapel, Mynytho	Dry and wet
Bardsey	Coastal and marine
Rhos Botwnnog	Dry and wet

4.8.14 Grasslands and meadows – an ariel view of the Llŷn landscape shows grazing land to be the most distinct land use. But many of the natural grasslands have been lost as a result of the agricultural revolution that was responsible for land clearance, drainage and land improvement. A new threat to natural grasslands has developed recently with scrub, bracken and rough grasses spreading as a result of restricted grazing or undergrazing. Only small areas of grassland now survive on some farms or land that is difficult to cultivate such as wetland or steep land. These natural lands are home to a wealth of wildlife; plants such as knapweed, ox-eye daisy, cowslip and sweet vernal grass, birds such as the lark and the curlew, butterflies and many invertebrates and insects.

4.8.15 The best grasslands have been designated Sights of Special Scientific Interest (SSSI) and there are management agreements in place for some of them. On account of their scarcity, uncultivated grasslands and hay water meadows also receive substantial payments under the Tir Gofal and the Environmentally Sensitive Area agri-environmental schemes. It is crucial to manage grazing carefully in order to maintain and protect grasslands and water meadows.

4.8.16 Trees and woodlands – indigenous deciduous woodlands such as oak, ash, hazel, birch and mountain ash are few and far between in the AONB. By now there are only small, scattered areas of semi-natural deciduous woodlands many on steep slopes and hills, rivers and estate land. These woodlands contribute to the landscape and as habitats they support a wealth of species including moss and rare lichen. One of the most important natural, ancient woodlands is at Plas yn Rhiw. Mixed woodlands of broadleaved and conifers are also rare, however there has been an increase as efforts are made to manage and reduce conifers.

4.8.17 Appropriate conservation and management of woodlands is crucial to their well-being in the long term. A number of organisations have been working together to achieve this. Coed Cymru is the body which leads

on managing and promoting forests. One of the biggest threats to some woodlands is rhododendron ponticum as it spreads rapidly repressing the woodland's natural growth. Another threat can be over-grazing which deteriorates woodlands into poor grassland as old trees die without new trees to replace them.

- 4.8.18** Areas of evergreen trees are very prominent on some slopes in the area such as Gam Fadrun, Gam Boduan, Mynydd Rhiw, Nant Gwrtheyrn and Moel Penllechog. Their contribution as habitats is minimal and the landscape will be laid bare when they are felled, although replanting will recreate a woodland.
- 4.8.19** **Scrub** – these are native species such as gorse. They can have a positive effect on other habitats, for example scrub can be a first step towards the establishment of new woodland and they can form a buffer between different habitats. On the other hand, they can also spread uncontrollably in places and conflict with the management of heaths, grazing and wetland. Through agri-environment schemes such as Tir Gofal and key agencies such as Coed Cymru, landowners can be given information on the importance and management of scrub.
- 4.8.20** There is very little **peat bog and wetland** within the AONB itself; however Cors Geirch, which stretches from Rhydyclafdy down towards Edem on the northern coastline is a marsh of international importance. This marsh land, which is a type of Fen, has been designated a National Nature Reserve and RAMSAR site. Fens are richer in nutrients than bogs as they also collect water from groundwater which has been in contact with the soils and rocks. Sedges, moss and tall flowers such as greater spearwort grow on the site which is a rare habitat for invertebrates such as whorl snails, dragon flies and amphibians including frogs and snakes. Gors Geirch is also an important habitat for a variety of birds.
- 4.8.21** They are important habitats for a wide range of specialised plants and animals which are often in decline. They are also an important environmental resource, counteracting global warming by trapping greenhouse gasses and purifying water through removing excess nutrients and sediments. Much has been lost to intensive agriculture with widespread drainage and pollution of water by fertilizers and general atmospheric pollution.
- 4.8.22** **Wetland** – according to CCW's 1990 Habitat Survey Llŷn is of particular interest for its series of rich fen that occupies the central zone which includes the Afon Geirch area and also around Afon Penrhos. Most of these lands have been lost through drainage work and land improvement. A survey in 1995 on the proposed Local Nature Reserve (Lôn Cob Bach) in Pwllheli expresses 'high interest' in extending the LNR to include the surrounding area of Afon Penrhos as the area appears to contain a wealth of wildlife.
- 4.8.23** **Field boundaries** – stone walls, hedgerows and 'cloddiau' in particular are prominent features in Llŷn that also act as important habitats. A variety of wildlife is dependent on these boundaries and the older the boundary, the greater the abundance of wildlife. Regulations are in place to protect hedgerows (Hedgerows Regulations) whilst the ESA and Tir Gofal schemes support the maintenance and restoration of traditional boundaries.
- 4.8.24** **Roadside verges** – a semi natural habitat of considerable importance for nature conservation for a variety of reasons. They are a source of food and shelter and form wildlife corridors which are not often disturbed. However, there is a significant problem with invasive species such as Japanese knotweed which dominate other plants. To avoid further expansion these plants need to be strictly controlled. Gwynedd Council have a register of roadside verges which are of nature conservation interest, including a number within the Llŷn AONB. This habitat is included within Natur Gwynedd's Biodiversity Plan.

Condition and quality

- 19 Sites of **Sites of Special Scientific Interest** designated or partly designated for their habitats. 2214.39 ha
- 1 **National Nature Reserve** (Bardsey) - 180ha.
- 3 **Special Areas of Conservation** ("SAC")

Special Areas of Conservation (SAC)

SITE TITLE	AREA (HA)
Pen Llŷn Cliffs	877.48
Llŷn Marshes	282.28
Pen Llŷn and Samau	146049.9

Source: JNCC

* The Pen Llŷn and Samau SAC extends from Nefyn Peninsula to Afon Clarach, north of Aberystwyth, therefore only part of the SAC is within the AONB.

- **LANDMAP** – the study identifies a large number of sites and areas in the categories of “outstanding” and “high” values in relation to their importance as habitats. Many of these are SSSI while others are sites of local importance. Please see appendix for full details.

Change

4.8.25 The most detailed and recent Review of habitats in Llŷn is the Nature Conservancy Council's review which was conducted in 1990 (“Phase I Survey”).

4.8.26 The results of previous reports would allow comparison to discover the changes which have occurred in habitats over time. However, although a number of reviews have been conducted they vary in accuracy. The Rees Study (1928) concentrates on the Llŷn peninsula west of Pwllheli - Clynnog (as far as 40 degrees east - OS map) but unfortunately the original maps are no longer available. A general survey was conducted by Stapledon in 1936 and a study based on random sampling by Buse (1973). Updating the 1990 Review will allow valuable comparison.

4.8.27 In 1992 Stevens compared the work of Rees (1928) with the “Phase I” (1990) Survey on behalf of the Countryside Council for Wales. See “Vegetation change in Llŷn between 1920/2 and 1987/8” – J P Stevens (1992) for full details. In general, the work shows that semi-natural habitats had been restricted to smaller, more dispersed spots, in 1987 compared to 1920/2. A summary of the information collated for the various habitats is included below:

- **Semi-natural vegetation** – (not including woodland, unimproved grassland and partly improved grassland) – the surface area had been reduced by 47% (from 7514 ha to 3962 ha). It was noted that the main reason for this was intense farming.
- **Woodlands** – the surface area had increased by 71 % (753 ha to 1290 ha) as a result of the pinewood forests which have been planted and heathland and broadleaved forests.
- **Scrub** – a reduction of 81% in surface area.
- **Dry heathland** – over 50% reduction (from 2935 to 1436 ha).
- **Wet heathland** – a huge loss of 97% (1777ha) and very few gains. Replaced by improved or semi-improved grasslands, and pine trees.
- **Peat land** – a loss of 72 % in the elemental type (213 – 60ha) and 95% in the acidic type (109 ha).
- **Dunes** – fairly stable but a good deal of sandy grassland (72%) has been lost through developments such as housing, caravan sites and golf courses.

4.9 Species

4.9.1 Llŷn AONB boasts an abundance of species. The tranquillity of the area and lack of pollution have contributed to the continued survival of many species which are considered to be rare in the UK. Natur Gwynedd (2004) describes the species that are important in Gwynedd. The species have been categorised (according to type) and the following table highlights the species that are important and relevant to the AONB.



Grey seal © Countryside Council for Wales



The chough © RA Normand: Courtesy of Bardsey Bird and Field Observatory

Llŷn AONB Key Species

Mammals	Fish	Reptiles and amphibians
Otter*	Lampreys	Adder
Polecat	Salmonoids	Newt*
Brown hare*		Invertebrates
Water vole	Birds	Marsh fritillary*
Lesser horseshoe bat*	Barn Owl	Hornet robber fly*
Bat*	Chough	Grey bush cricket
Marine species	Lapwing	Weevil
Harbour porpoise *	Ring ouzel	Whorl snail
Marine animals	Twite	Ashworth's Rustic*
• Bottlenose Dolphin*	Farm birds:	Bumblebee*
• Marine turtles*	• Skylark	Dragonfly
• Whales*	• Bullfinch*	Glow-worm
• Sharks*	• Grey partridge*	Plants
• Grey seals	• Tree sparrow*	Bluebells
• others	• Curlew	Floating water plantain*
	• Yellowhammer	Golden hair lichen
		Waxcap fungi

Source: Natur Gwynedd 2004

* UK BAP Priority species

Italic letters indicate that action plans have been prepared

4.9.2 As the table shows, a wide variety of mammals, marine species, fish, birds, amphibians, animals, invertebrates and plants live in various habitats in the area. Some of these species are associated specifically with Llŷn, and the main ones are outlined below. More information regarding all relevant species is contained in the Natur Gwynedd Action Plan (2004).

4.9.3 Mammals: The water vole is a species which has declined significantly recently due to pollution, land drainage and hunting by other species including mink. Llŷn is believed to be one of the water vole's strongholds but there is insufficient information about their numbers.

4.9.4 Marine species – Recently designated part of the Pen Llŷn and Samau SAC, Llŷn's coastal waters are rich in marine life. Grey seals are common to the area as well as otters, harbour porpoises and bottlenose dolphins which are often seen in the waters off the southern coast. The location and special features of the bay, such as the good access to deep water feeding grounds found off Bardsey also seems to offer a suitable habitat for the risso dolphin, one of the most remarkable. The grey seal and bottlenose dolphin are both priority species recognised in the UK Biodiversity Action Plan (BAP) and are also protected through the EU 'Habitats and Species' Directive.

4.9.5 Birds – Due to its rural landscape and diverse coastline Llŷn provides a habitat for an amazing variety of land and sea birds, including rare species. One of the most well known is the chough, which is used on the AONB logo. In 2002 there were 67 sites and pairs in Gwynedd but it is not known exactly how many are to be found within the AONB.

Status and condition

- No specific information regarding the numbers of the above named species were available for the Llŷn AONB when this report was being compiled. Information regarding the numbers of various species is included in Natur Gwynedd, the Local Biodiversity Action Plan, and are as follows:

Otter – numbers have increased in the area, otters have been spotted in the River Soch and recent surveys show that otters were using coastal habitats in Llŷn.

Polecat – present but there is a lack of information about locations and numbers.

Brown hare – present but there is a lack of information about locations and numbers.

Water vole – recent surveys suggest that Llŷn is a stronghold but there is a lack of detailed information.

Lesser horseshoe bat – there are roosts in Llŷn but a lack of categorical information.

Barn owl – 20 pairs nest in Gwynedd on average and Pen Llŷn is considered to be one of the strongholds.

Chough – 67 sites and pairs in Gwynedd in 2002, with many on the coast of Llŷn.

Lapwing – present but a lack of information regarding location and numbers.

Lampreys – present but a lack of information.

Salmonoids – both salmon and trout are found here.

Adder – present but no information (difficult to survey).

Marsh fritillary – present in Cors y Wlad and Cors Gyfelog near the AONB boundary.

Hornet robber fly – present in Gors Geirch near the AONB boundary and according to reports in Cilan and Nefyn. Lack of information.

Floating water plantain – recorded in the River Geirch.

Bluebells – present.

- **Marine Species** – A vast amount of research is presently being undertaken by a number of groups and organizations on marine species around the Llŷn Peninsula. They are recording their condition through studies of sightings, deaths etc and also trying to discover more about behavioural patterns. Cardigan Bay SAC Group have also written a Management Plan for these species specifically and are working closely with other groups and organizations sharing information through forums such as the Welsh Cetacean Group. Pen Llŷn and Sarnau SAC's work has, up to now, concentrated on the SAC's habitats, the second part of their work will be more specific to the marine species in partnership with various agencies and groups.
- **13 Sites of Special Scientific Interest** have been designated on the basis of species or partly on the basis of species, Total of 2242.5 ha.
- **There are 2 Special Protection Area (SPA)** in the AONB (April 2002):

Special Protection Areas (SPA)

AREA TITLE	AREA (HA)	SPECIES	STATUS
Aberdaron coastline and Bardsey	505.03	Chough (3.5% of total British breeding stock).	Registered
Mynydd Cilan, Trwyn y Wylfa and St Tudwal's Islands	417.57	Chough (2.6 % of total British breeding stock).	Proposed

Source: JNCC

Change over time

- 4.9.6** The most recent information on species was collated during the preparation of Natur Gwynedd. Information on the status of many species is given on an all Wales or Gwynedd level, which provides a summary of change over time.

THE HISTORICAL ENVIRONMENT

4.10 Archaeological remains

- 4.10.1** Archaeology is the study of past human societies by scientific analysis of the material remains, including sites and landscapes, of previous cultures. The resources must be identified and defined in order to protect and maintain them for future generations. The Gwynedd Archaeological Trust holds detailed information (to the degree possible) about archaeological and historic remains. The most important remains are designated as Scheduled Ancient Monuments.

- 4.10.2 Mesolithic Age** (c. 10,000 – 4,000 B.C) This is the earliest historical period of which there are remains in Llŷn. The artefacts that have been discovered from this period include worked stone flakes, worked flints, and tools such as knives and scrapers.

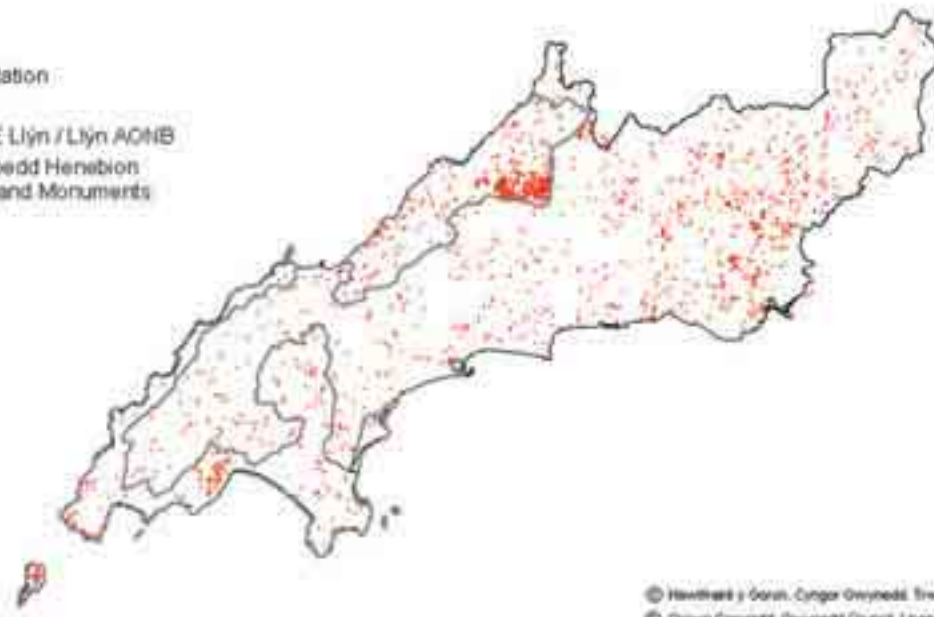
- 4.10.3 Neolithic Age** (c. 4,000 – 2,000 B.C) The earliest visible monuments in the landscape of Llŷn including burial chambers (such as Tan y Muriau on Rhiw and Bachwen near Clynnog) and standing stones (such as that near Tudweiliog), date from this period. These were most likely ancestral burial site graves and would originally have been covered in soil or stones. They are characterised by upright portal stones forming a small chamber, covered by a substantial capstone. Of considerable importance and also dating from this period are the remains of a stone axe 'factory' on Mynydd Rhiw.

- 4.10.4 Bronze Age** (c. 1800 – 600 BC) – The mountain-top cairns which can be seen on Mynydd Carnguwch, Yr Eifl, Mynydd Rhiw and within the hillfort on Tre'r Ceiri are the most obvious monuments dating from this period. Another notable characteristic of this period are the standing stones, which were probably erected to commemorate individuals or as way-markers: the most significant one is near Tudweiliog.

Safleoedd Archaeolegol a Henebion Archaeological Sites and Monuments

Nodiant/Notation

- AHNE Llŷn / Llŷn AONB
- Safleoedd Henebion
Sites and Monuments



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4.10.5 Iron Age – There is clear evidence of the Iron Age in the Llŷn area, of which the most prominent are the well-preserved hill forts at Tre'r Ceiri, Gam Boduan, Gam Fadrun and Castell Odo on Mynydd yr Ystum, all of which lie within the AONB. Other smaller hill forts such as Pen y Gaer, Llanaelhaearn, also form part of the wider pattern. These are enclosed defensive hill forts with the visible remains of circular round huts within. Undefended settlement sites from this period, some of which are associated with evidence of contemporary field systems, include remains on Mynydd Anelog, Camguwch and above Clynnog.

4.10.6 Early Christian Period – Christian practices and religion spread throughout Llŷn from around the fifth century onwards, with influences from Ireland and Cornwall. A number of stones with Early Christian inscriptions have been discovered in Llŷn, for example stones inscribed with (probably) the names of priests (VERACIVS and SENACVS) discovered near Capel Anelog, Uwchmynydd. Sometime around the fifth century a community was established in the vicinity of Capel Anelog and it is likely that the link with Bardsey probably began around this time.

4.10.7 With the expansion of the Christian faith schools for the instruction of monks, small churches and hermit cells were established: some of these developed into important churches such as Clynnog Fawr and Aberdaron. Several of these early sites were named after early Celtic saints such as Beuno (Clynnog, Pistyll and Camguwch), Hywyn (Aberdaron) Aelhaearn (Llanaelhaearn) and Cwyfan (Edem and Tudweiliog). A number of coastal churches were developed, including Pistyll and Llanengan, which served as resting places for many of the pilgrims who were on their way to Bardsey. There was a period of improvement and rebuilding of churches in the 15th century and again in the 19th century.

4.10.8 Bardsey – Bardsey is steeped in a religious background and holy traditions; the first monastery was probably established on the island between 516 and 542 AD. The first Abbot was Cadfan, who was followed by Lleuddad, who had a great influence on Bardsey and parts of Llŷn. Lleuddad gardens, Plas Lleuddad and Ogof Lleuddad are situated on Bardsey, and Eglwys Lleuddad and Ffynnon Lleuddad can be found in Bryn croes. Among



Tre'r Ceiri

the Saints reputedly buried there are Dyfrig, Deiniol, Trillo, Padam, Mael and Maugant and according to tradition, 20,000 saints are buried on Bardsey. Due to the island's distinct religious status it developed into a very famous centre for pilgrims, and three pilgrimages to Bardsey were considered as good as one to Rome.

4.10.9 In common with several other areas, there are rumours of links with Arthur and Bardsey in Llŷn. However, Chris Barber (1993), makes a strong case in his book *Journey to Avalon* that the battle of Camelot took place at Porth Cadlan near Aberdaron and that Bardsey was Avalon – where Arthur was taken following the battle. He partly bases his conclusions on the fact that “Cadlan” is Welsh for battlefield, which was originally “Cadgamlan”. There is also a large rock called “Maen Gwenonwy” near Porth Cadlan and Gwenonwy was the name of Arthur’s sister. There were also strong family links with the area as shown in Nigel Burras’ book *Walks on the Llŷn Peninsula* (Part 1).



Bachwen Burial Chamber

4.10.10 Landscapes of Outstanding Historical Interest – Llŷn and Bardsey are amongst 36 Landscapes of Outstanding Historic Interest in Wales on a Register compiled by Cadw, Countryside Council for Wales and ICOMOS (International Council on Monuments and Sites). The Llŷn area (to the west of the A499 – Pwllheli – Trefor) and most of the AONB, apart from the section between Trefor and Aberdesach has been included. The description notes: “it possesses a great and unparalleled wealth and diversity of, most often, smaller scale archaeological and historic remains which together form a cohesive and integrated whole, demonstrating both the continuity and the territorial unity of Llŷn from possibly prehistoric times onwards.”

Status and condition

- **1203 sites and ancient monuments** have been identified within the AONB by Gwynedd Archaeological Trust. Information on individual sites, including status and recent condition (where this is available) is recorded on the Historic Environment Record.
- 74 of the sites/ancient monuments in the AONB have been designated as **Scheduled Ancient Monuments**.
- 71 of the sites/ancient monuments have been designated as **Listed Buildings**.
- 28,000 ha of Llŷn have been included on the **Landscape of Outstanding Historic Interest in Wales Register**. The condition of the area is recorded on the Register as being: “well maintained, showing territorial continuation and unity”.
- **LANDMAP** – the study indicates numerous sites which have been identified as being of an “outstanding” and “high” standard in terms of the Historic aspect. See Appendix I for full details.

Change

4.10.11 There is no general information available on change over time.

4.11 Traditional field patterns

4.11.1 The traditional field boundaries are all important historic features which illustrate the pattern of past agriculture. They are part of the historic environment which contribute greatly to the appearance of the landscape and are also part of the area’s heritage and culture. Although boundaries have disappeared over time following the merging of fields and agricultural improvements, on the whole, the historic pattern of Llŷn’s fields has survived surprisingly well. This is particularly true of the western part of the peninsula, and the boundaries and pattern created can clearly be seen from Uwchmynydd.

4.11.2 The traditional land boundaries in Llŷn are dry stone walls, ‘cloddiau’ built of stones and earth and hedgerows. Dry stone walls are very common in parts of the AONB where stones were plentiful, namely the slopes of the igneous intrusions scattered throughout the area: Bwlch Mawr, Gym Ddu, Yr Eifl, Mynydd Camguwch, Mynydd Nefyn, Gam Fadrun and Mynydd Rhiw. They are robust walls, up to 5-6 feet high and 3-4 feet deep. Some of the walls have been demolished over time, mostly on the lowest slopes of the hills where attempts were made to improve lands and obtain larger fields.

4.11.3 The most popular method of enclosing land on the peninsula is using stone and earth banks or 'cloddiau'. There are hedgerows on top of some of these, while others are bare. They are an effective method of creating a boundary and providing shelter for stock. Another method of closing off the land is to use hedgerows, and these vary in age and condition. Hedgerows are important visually, historically and also as habitats. A notification procedure now in place under the 1997 Hedgerows Regulations prohibits the removal of hedgerows or parts of hedgerows without first notifying the Local Planning Authority. The Authority will then assess applications and if hedgerows in question are deemed 'important' according to the Regulations it can issue a Hedgerow Retention Notice.



Historical field patterns

4.11.4 No information was available on the number of stone walls, 'cloddiau' or hedgerows in the Llŷn AONB at the time of preparing the Management Plan.

Status and condition

- The field patterns and traditional boundaries have contributed to the area being included on the **Landscape of Outstanding Historic Interest in Wales Register**.
- Variable condition. Pattern is well maintained in some areas, e.g. Uwchmynydd.
- Today, there is clear visual evidence that many of these dry stone walls, 'cloddiau' and hedgerows are deteriorating significantly due to lack of maintenance.
- No factual information was available on field patterns or the condition of boundaries at the time of preparing this Report.

Change

4.11.5 No factual information, but comparisons can be made between historic and recent maps. Deterioration in the condition of stone walls, 'cloddiau' and hedgerows is evident, and parts of them have disappeared completely.

4.12 Wells

4.12.1 There are numerous wells to be found all over the Llŷn Peninsula, dating back to the peninsula's early history. Many of the wells also date back to the pre-Christian era and were probably sacred sites of our pagan ancestors. Historically, people believed some had special healing qualities, such as Ffynnon Aelrhiw, Ffynnon Aelhaearn and Ffynnon Fyw. Many of the wells have holy connotations, such as Ffynnon Saint in Aberdaron and in particular Ffynnon Fair in Uwchmynydd, where the pilgrims used to drink before crossing over to Bardsey. Some wells are also said to have special divining powers, such as Ffynnon Saethon in Mynytho. Many houses and farms in the area have associated names such as Llwyn Ffynnon, Bryn Ffynnon. These wells are an important part of the history and culture of the area, although they receive little attention or recognition nowadays. Until recently (middle of the last century) people carried water for daily domestic use from these wells.



Aelhaearn Well

Status and condition

The table below contains a list of known wells within the AONB. A detailed study was undertaken to assess the condition of the wells within the Llŷn AONB in 2005 by the AONB Unit.

- At present comprehensive information on the wells of Bardsey is not available.
- Of course, the wells aren't limited to the coastal area of the AONB. As there are a number of wells in Llŷn the study was extended to include all wells west of the A497 road (Bryncynan to Pwllheli) and the table in Appendix 2 lists all the wells within this area. Information on their condition can be found in the 'Study into the condition of wells within the Llŷn AONB 2005'.
- Unfortunately some of the wells have disappeared completely over the years; some have been lost due to lack of information about their location and others due to recent developments. Appendix 2 contains a list of wells that could not be discovered.

NAME	LOCATION	CONDITION	STATUS
Aelhaeam	Llanaelhaeam	Roof and door in poor condition	Local
Aelrhiw	Y Rhiw	Good condition but needs tidying and trimming	Grade II
Arian	Mynytho	Clean water with tidy lid	Local
Armon	Uwchmynydd	Overgrowth – brick wall has fallen	Local
Barfau	Bardsey	Awaiting Information	Local
Bedrog	Llanbedrog	Demolished, only an artificial pool	Local
Beuno	Clynnog	Excellent condition	Grade II
Baglau	Bardsey	Awaiting; Information	Local
Ffynnon y Brenin	Gam Fadrun	Good condition	Local
Cae Garw	Llithfaen	Acceptable but water is streaming from wall	Local
Cefn Lleithfan	Bryncroes	Covered with concrete with iron lid, water dripping through a pipe	Local
Cernydd	Uwchmynydd	Overgrowth and water isn't clean or clear	Local
Corn	Bardsey	Awaiting; Information	Grade II
Dalar	Bardsey	Awaiting; Information	Local
Ddigwg	Clynnog	No definite boundary	Local
Ddwrдан	Aberdaron	Perilous greensward on bank of river Daron, covered in vegetation	Local
Dolysgwydd	Bardsey	Awaiting Information	Local
Engan	Llanengan	Excellent condition	Grade II
Fair	Llanbedrog	Completely natural well – steep and dangerous path	Local
Fair	Uwchmynydd	Modernised and access difficult due to gorse	Local
Ffebi	Gam Fadrun	Hard to access site due to overgrowth, well covered with plastig bags	Local
Fyw	Mynytho	Needs attention, grown very wild	Local
Gwyfan	Tudweiliog	Clean water but dangerous location	Local
John Morgan	Nefyn	Overgrowth	Local
Mynydd Nefyn	Nefyn	Strong structure and gate in good condition. Clean, pure water	Local
Pant	Rhiw	Dilapidated but in good condition with clean water	Local
Porth Ysgaden	Tudweiliog	Good condition	Local
Pin y Wig	Nefyn	Uncertainty of the exact location – continue to search for exact location	Local
Saethon	Mynytho	Good condition	Local
Safn Pant	Uwchmynydd	Needs cleaning and a new lid	Local
Saint	Aberdaron	In poor condition	Local
Saint	Rhiw	Dilapidated well but completely natural	Local
Sanctaidd	Pistyll	Needs restoration & de-modernising, Clear water and no overgrowth	Local
Sanctaidd	Camguwch	Deteriorated badly, clear remains and clean flowing water	Local
Sarff	Mynytho	Broken lid making water dirty	Local
Tŷ Mawr	Uwchmynydd	Clear water to be seen under growth. Need to find out the old name before progressing any further	Local
Weirglodd Bach	Bardsey	Awaiting; Information	Local

Source: A study into the condition of wells within the Pen Llŷn AONB (2005)

Change

- 4.12.2** The 2005 study used information recorded on the wells from a basic study undertaken in 1999; it also referred to a number of books and information about wells in the Cadw register of listed buildings. The study raised serious concerns over the need to conserve and protect the wells; it also stated that something should be done urgently otherwise they will disappear altogether and their names forgotten.

4.13 Remains of traditional industries

- 4.13.1 Farming** – the Llŷn Peninsula has been farmed from a very early period (the neolithic) and the remains of the industry, or way of life, can clearly be seen on the landscape today and contributes greatly to the character of the area. Until the beginning of the last century when new farm implements came into use to work the land and crops farming was simple and totally organic, maintaining a wide range of habitats and species. But the major revolution came after the Second World War and with it, the emphasis on increasing and improving produce. Agriculture underwent a remarkable change and machines came into widespread use for all types of work involving working the land and harvesting crops. Much work was also done to improve the land by draining, expanding fields and reseeding. From the 1950s onwards, more use was made of artificial fertilizers, herbicides and pesticides. As confirmed by CCW's report on Changes in Vegetation on Llŷn (Stevens, 1992), the appearance of the landscape changed and many of Llŷn's traditional semi-natural habitats were harmed between 1950 and the present day. These changes in turn affected native species, leading to a reduction of numbers and the disappearance of some types altogether.



Old quarry site at Porth y Nant

- 4.13.2** But farming has also played a very important part in supporting the people, communities and culture of Llŷn, including the Welsh language. Despite the changes that have occurred, there are still many mixed family farms in the area and continuation from father to son is common.
- 4.13.3 Granite quarries** – The number of granite quarries which developed in the AONB during the nineteenth century is not surprising considering the number of igneous intrusions in the area. The main quarries were: Gym Ddu, Carreg y Llam, Yr Eifl (Trefor), Gwylwyr (Nefyn), Porth y Nant, Tir y Cwmwd (Llanbedrog) and Cae'r Nant. The granite quarries have contributed significantly towards creating the unique character of northern Llŷn. The surviving traces of the quarries, and the works associated with them including inclines, stages and export docks, can still be seen today. Villages such as Trefor, Lithfaen and Nant Gwrtheyrn were developed near some of the quarries. The granite quarries provided the stone for constructing many of the buildings in Llŷn during this period and most of the traditional listed buildings of the area are built of granite. Much of the stone was made into sets and exported by sea to the industrial cities of the north west of England, most notably Liverpool and Manchester.
- 4.13.4 Mining** – There is evidence of mining on some sites in Llŷn since the end of the Tudor period with activity increasing from about 1760 onwards. A rich vein of mineral ore was discovered in Llanengan in 1870. When the industry was at its peak copper, zinc and lead were mined in this area and about 200 were employed. Lead mining continued in the Bwlchtocyn area until the end of the nineteenth century and many surviving traces of this industry can be seen in the area such as the chimney at Llanengan and the underground tunnels. The manganese works started at Rhiw in 1827 and by 1840 there were 50 people working there. The works continued at Rhiw during both World Wars and it is estimated that 196,770 tons of manganese were produced between 1894 and 1945. There were also manganese works at Porth Ysgo and the surviving traces of the equipment used to ferry material to the coast can be seen today. There are no mineral excavation works remaining in Llŷn.
- 4.13.5 Ship building** – Ship building was an important industry in Nefyn and Porthdinllaen throughout the eighteenth and nineteenth centuries. Smaller ships were also built in Llanaelhaearn, Porth Colmon, Aberdaron, Rhiw and Abersoch. The industry collapsed with the introduction of steel ships and the last ship was built in Nefyn in 1880. The following table provides information on shipbuilding in Nefyn and Porthdinllaen during two periods of busy activity:

LOCATION	1770 – 1830	1830-1890
Nefyn	46	86
Porthinllaen	13	45

Source: Atlas of Caernarvonshire, Gwynedd County Council 1977

- 4.13.6 Fishing** – The inhabitants of the Llŷn have always fished, particularly for herring, and for crabs and lobsters. During the 18th century the town of Nefyn, and Porthinllaen became important herring ports and the herring forms part of the coat of arms for the town of Nefyn. Sometimes the people of Nefyn are still referred to as Nefyn herrings.
- 4.13.7 Importing and exporting** – Several small ports were developed along the coastline of Llŷn during the 17th century but Nefyn was the largest of these. From here agricultural produce, such as butter, cheese, oats and pigs were exported from the area and hops, pepper, cloth, tobacco pipes, grates, crockery, candles and vinegar etc were imported. Coal was imported to the smaller ports of the Llŷn and coal yards, or their remains can be seen in many places today such as Porth Ysgaden, Porthor and Aberdaron. Lime kilns were developed near some of these harbours and remains can be seen in several locations such as Abersoch and Porth Ysgaden.
- 4.13.8** Landing stages were developed to service this maritime trade such as those to export granite from the areas such as Trefor, Porth y Nant, Carreg y Llam and those at Hell's Mouth and Porth Ysgo for ships carrying manganese from the Rhiw area. The remains of some of these stages can still be seen today.
- 4.13.9** By today the former ports of the Llŷn are used mainly for leisure and the colourful and bustling past has become a distant memory. There are various stories and poems about this prosperous time and the strong influence the sea had on the area, from tales of brandy smuggling to the strange relationship between the inhabitants of Bardsey and the notorious pirates of the time.
- 4.13.10 Tourism** – Following the building of the Cob and the arrival of the railway in Pwllheli in 1867, men such as Robert Jones and the Reverend David Evan Davies set about developing facilities for the town's tourist industry. Later, in 1893, Solomon Andrews, a business man from Cardiff, came to Pwllheli and realised that there was a great deal of potential to develop the town further. He did much to develop the western end of the town, including the installation of a tram system linking Pwllheli with Llanbedrog. Several large houses and hotels were built along the promenade in Andrews' time, including the West End Hotel.
- 4.13.9** Butlins holiday camp was established in Penychain near Pwllheli following the Second World War. It proved very successful, the natural beauty of the area being a major attraction for visitors, many of whom came on holiday from the large cities of north west England and the Midlands. With the development of the car and road improvements, the industry increasingly infiltrated the countryside and the coastal villages of the peninsula, such as Llanbedrog, Abersoch and Nefyn, from the 1950s. In addition to the guest houses, many local people let their houses out to visitors in summer, moving into sheds or outhouses

Status and condition

- See the analysis of the agricultural, fishing and tourism industries in the next part of the Plan – Activities and Pressures.
- **Quarrying** – there are 2 operational quarries in the AONB - Nanhoron and Trefor; some remains of the quarrying works are listed. No exhibition to commemorate the industry.
- **Mining works** – work has come to an end; some remains are listed. No exhibition to commemorate the industry.
- **Importing and exporting, ship building** – work has come to an end; some remains are listed. The Llŷn Maritime Museum in Nefyn has been closed down due to the deteriorating condition of the buildings and lack of disabled access.

TRADITIONAL BUILDINGS

4.14 Historic buildings and structures

- 4.14.1** Historic buildings are found all around Llŷn. Although many buildings and structures are in a good condition, other buildings and structures have fallen into disrepair, sometimes because the original use has ceased or because of lack of maintenance. Many historic buildings have disappeared forever, while others have been spoilt by unsuitable alterations that have ruined their character. Specific planning controls help to restrict the alterations to listed buildings and buildings within Conservation Areas.



Capel Newydd, Nanhoron

4.14.2 Listed buildings illustrate the area's building traditions. According to traditional beliefs, for instance, many of the small cottages that are dotted around the Llŷn landscape were built as "tai unnos". These cottages were built with the materials that were close to hand, namely, soil, stone and mud. On the other hand, the houses of the upper classes, such as imposing farmhouses and small mansions were built with treated stone. Some of these houses also have historic gardens. Historic buildings also display architecture typical of different periods.

4.14.3 A group of buildings can display a distinctive historic character. Under the Town and Country Planning (Listed Buildings and Conservation Areas) Act 1990, the most important of these areas can be designated Conservation Areas on the basis of their "special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance". The special quality of the area may be based on a combination of factors such as a group of buildings, different street patterns, open spaces, features of buildings and landscape or topographic characteristics.

4.14.4 Historic buildings are listed by Cadw as Grade I, II* or II. Grade I buildings/structures are the most important, Grade II* also being important while Grade II are also valuable but more common. In 2003, Gwynedd Council, in partnership with Cadw, decided to commission a detailed survey of all the listed buildings in the county (outside the National Park). Every listed building in the Gwynedd Council area was visited as part of this study. Photographs were taken, the condition of each building was assessed and the present use of each building was noted. The buildings were rated on the basis of their condition which included an assessment of the walls, roof, doors, and rainwater goods.

4.14.5 Cottages – many of Llŷn's traditional cottages have now been demolished or adapted to such an extent that they have lost their original character. These houses belonged to the ordinary folk – often smallholders – and were quickly and simply built. The main materials used were stones and mud with thatched roofs. Those which have survived have been re-roofed with slate tiles and the best examples are listed by Cadw.



Pen Cae Cottage, Aberdaron

4.14.6 Mansions – these were the substantial homes of local noblemen or yeomen - most apparent within or near the boundary of the AONB are Plas yn Rhiw, Plas Glyn y Weddwr, Plas Nanhoron, Plas Cefnamwlch, Plas Boduan and Plas yr Eifl.

4.14.7 Farmhouses and agricultural buildings – Because Llŷn is a prosperous agricultural area, there are naturally a vast number of historically important farmhouses as well as agricultural buildings in the area. Some are small farmhouses while others are substantial, with links to the important noble families of Llŷn, such as Bodwrdda, Carreg, Meillionnydd, Castellmarch, Bodnithoedd and Elemion. Several farmhouses and buildings were also developed by Estates such as Glynllifon, Nanhoron and the Faenol, which are designed to a specific pattern, for example with the outbuildings encircling the farm yard.

4.14.8 Religious buildings – religion has played an important role in the development and culture of Llŷn. Also there are remains of a Monastery dating from the 6th century on Bardsey, there was also a Monastery at Nefyn at one period. Some ancient churches have strong links with the pilgrims who travelled through Llŷn on their way to Aberdaron or Bardsey. One of the most noteworthy and important churches in the area is St Beuno's Church, Clynnog, which was built on the site of earlier churches. Other notable and important churches include St Beuno's Church – Pistyll, St Mary's Church – Nefyn, St Hywyn's Church – Aberdaron and St Egan's Church – Llanengan.



Llanfaelrhys Church

4.14.9 With the advance of nonconformity in Llŷn, at a considerable rate from the middle of the seventeenth century onwards, the various denominations began to develop chapels. The first Congregationalist chapel, Capel Newydd in Nanhoron, was built in 1769 and still stands today: it is listed Grade I, as probably the earliest surviving congregational chapel in north Wales. The first Methodist chapel in the area was built in 1752 (in Bryncroes) and others were built in Edem (1775) and Uwchmynydd (1774). Chapels were also erected by many other denominations, such as the Baptists (Nefyn – 1785). By the beginning of the twentieth century many churches and chapels had been built throughout

the area but by the middle of the last century a change began and the congregations began to wane. From about the 1980s onward chapels and churches began to close and this tendency has continued and even accelerated. Today many chapels and churches have closed, some have been demolished while an increasing number have been converted to an alternative use.

4.14.10 Industrial and commercial buildings and structures – there are few examples of these types of buildings on Llŷn. A total of 10 buildings/structures are listed within the AONB, including the chimney stack of the mineral works at Llanengan and the remains of a windmill near Bryn Felin, Llanengan.

4.14.11 Transport structures – these include bridges (e.g. Aberdaron bridge, Edern bridge) and milestones which can be found scattered throughout the Llŷn area. These structures make a significant contribution to the area's rural and historic environment. Unfortunately, many milestones have been damaged by mechanical hedgecutting machines recently.

4.14.12 Maritime buildings and structures – these include the lighthouses of Bardsey and St Tudwal's Islands and other marine structures, particularly at Porthdinllaen and Nefyn as well as other smaller coves along the coast.

Extent of the resource

There is no data available on the numbers of individual buildings and structures within the AONB; there are clearly hundreds in some categories and only a small number in others.

Detailed, comprehensive and updated information is available about listed buildings and structures, which are the most important historic buildings to have maintained their traditional character. This information is presented in tabulated form and includes information about the number, grade and condition, in the results of the 2003 survey.



Listed watch tower in Nefyn

LISTED BUILDING OR STRUCTURE	QUALITY	CONDITION	CHANGE
Cottages	46 Grade II	27 low risk 7 medium risk 12 high risk	Many cottages have been demolished or insensitively altered in the past.
Houses	2 Grade II* 49 Grade II	42 low risk 6 medium risk 3 high risk	Inappropriate alterations have damaged the character of some houses.
Mansions	2 Grade II* 2 Grade II	3 low risk 1 high risk	No information
Religious buildings and structures	5 Grade I 2 Grade II* 41 Grade II	33 low risk 12 medium risk 3 high risk	3 demolished since 1990. Capel Bwlch, Llithfaen (Congregationalist), Capel Uchaf, Clynnog.
Large/important farmhouses	1 Grade II* 10 Grade II	6 low risk 2 medium risk 3 high risk	No information
Agricultural buildings	1 Grade II* 32 Grade II	11 low risk 15 medium risk 7 high risk	Many deteriorating due to being unused and lack of maintenance.
Industrial buildings and structures	6 Grade II	1 low risk 2 medium risk 3 high risk	No information
Commercial buildings	4 Grade II	4 low risk	
Transport structures	14 Grade II	8 low risk 6 medium risk	No information
Educational buildings	4 Grade II	1 low risk 3 medium risk	No information
Marine buildings and structures	7 Grade II	3 low risk 3 medium risk 1 high risk	No information
Buildings and structures	2 Grade II	2 low risk	No information
Other	6 Grade II	3 low risk 1 medium risk 2 high risk	No information

Source: Handley Report 2003

Change

4.14.13 No detailed survey of the condition of listed buildings was carried out before the Handley Study in 2003.

4.15 Historic gardens

4.15.1 The Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales has been produced by Cadw in association with ICOMOS UK and the Countryside Council for Wales and in consultation with the Welsh Historic Gardens Trust. The Register includes the selection criteria and the sites are graded I, II* or III according to their importance. The purpose of the Register is the collection and presentation of information, it does not impose additional controls, and the aim is to contribute towards the maintenance of Wales' most important parks and gardens.

4.15.2 Despite the notable examples of parks and gardens in Gwynedd such as Glynllifon and the Faenol the AONB itself boasts only one garden, Plas yn Rhiw, with the gardens at Plas Boduan and Cefnamwlch nearby. Plas yn Rhiw is a small manor which dates back to the seventeenth century but was extended and improved over time. The house was purchased by the Keating sisters in 1939 and the house and gardens were renovated soon after.

4.15.3 The Plas yn Rhiw garden contains four main sections and although they are quite different in character, their style is similar. There are many decorative flowering shrubs, pictorial trees and boxwood. A stunning view of the coast of southern Llŷn and Hell's Mouth can be seen from the garden and this contributes to its distinction.

Status and condition

- **Plas yn Rhiw** – a small enclosed ornamental garden planted in the 20th century, spectacular views, situated in a woodland park (Grade II). Grade II* house, terraces, cottage, stable block, wood shed, workshop and an old chapel (all of these buildings are Grade II listed).
- Plas yn Rhiw is the property of the National Trust and the buildings and gardens are in very good natural condition.
- Source; Register of Landscapes, Parks and Gardens in Conwy, Gwynedd and Anglesey, CADW, ICOMOS, 1998

4.16 Villages and Conservation Areas

4.16.1 Historic and traditional villages formed by a group of historic buildings are also an important element of the built heritage of Llŷn. The villages of the AONB can broadly be divided into three categories:

- Coastal villages and towns– that have developed due to a connection with the sea – for instance Nefyn, Porthdinllaen, Aberdaron, Abersoch and Llanbedrog.
- Rural villages – in more inland areas and often formed around the church – e.g. Clynnog, Tudweiliog, Llanengan, Gam Fadrun.
- Quarrying villages – such as Trefor, Nant Gwrtheym, Llithfaen and Pistyll.



Llangain Conservation Area

4.16.2 Due to the outlying nature of Llŷn, change and development have been slow and this has been beneficial in maintaining the character of the traditional villages. There have been some changes in every village, but in popular coastal villages such as Abersoch and Morfa Nefyn, substantial development has occurred at the expense of the indigenous character. We must acknowledge that planning control developed in the wake of the Town and Country Planning Acts from 1949 onwards and the AONB status from 1956 have also been of assistance in controlling change.

4.16.3 Furthermore, the planning acts have created Listed Building (previously mentioned) and Conservation Area designations to protect parts of the built heritage. Under the relevant act (the Planning (Listed Buildings and Conservation Areas) Act 1990), Local Authorities have been given responsibility for considering whether or not parts of villages or group of buildings within their areas merit the designation of Conservation Areas. A Conservation Area is defined as: "an area of particular architectural or historic value it would be desirable to maintain or improve its character and appearance". The area in question must be of particular quality to be designated and several factors such as buildings, street patterns, green spaces and trees can contribute to this.

4.16.4 Several Conservation Areas have been designated inside the AONB by the Dwyfor District Council (dissolved by Gwynedd Council in 1996). The present Conservation Areas are Aberdaron, Porthdinllaen, Llangian, Llaniestyn, Llanengan, Trefor, Llanaelhaearn, Clynnog, Bardsey. The historic town of Nefyn, which has an interesting heritage and unique character (and lies beyond the AONB), has also been designated a Conservation Area. The Survey which was completed in 2003 also suggests that an additional conservation area should be designated in Llanbedrog.

Status and condition

Due to the lack of information regarding Conservation Areas within the Llŷn AONB the Council commissioned a study in 2003 by Building Design Partnership. The following table summarises the conclusions for the villages that were studied as part of the study that assessed the historic character and Conservation Areas. Please refer to full study for further details.

VILLAGE	HISTORICAL CHARACTER	CONSERVATION AREA
Aberdaron	Well maintained on the whole	No change
Nefyn	Variable	Designate extension
Porthdinllaen	Unique	Designate extension
Rhiw	Reasonably well maintained	No designation
Llangian	Exceptionally well maintained	Additional conservation
Llaniestyn	Well maintained	Additional conservation
Llanengan	Variable rural character	Additional conservation
Trefor	Special character reasonably well kept	Designate extension and additional conservation
Llanaelhaearn	Reasonably well maintained	Designate extension and additional conservation
Llithfaen	Reasonably well maintained	No change
Clynnog	Special character, some impairing developments	Additional conservation
Bwlchtocyn	Rural character reasonably well kept	No designation
Abersoch	Variable character, commendable historical part	No designation
Llanbedrog	Variable character, commendable historical part	New Conservation Area designation
Mynytho	Variable. Restricted historical character	No designation

Source: Llŷn AONB Settlement Character and Conservation Area Appraisal Study, BDP, 2003

Change

4.16.5 No detailed survey of the condition of villages and Conservation Areas was conducted prior to the BDP Study in 2003.

COMMUNITY AND CULTURE

4.17 Culture

4.17.1 "Culture" is a combination formed of history, values, attitudes, beliefs and superstitions and it is also an element which binds people together. Other important and prominent elements include folklore, legends and place names. Information about these aspects has been recorded in local history books, literary material and poetry and in the memories of local residents. A rough outline must suffice here. It is difficult to gauge the wealth of culture and its continuation but much has now been recorded in print or on audio cassettes, although unfortunately the oral tradition continues to decline. The Welsh culture of the Llŷn AONB is rich, varied and complex and only a concise summary can be provided here.

4.17.2 Religion – Religion has played an important part in the culture of Llŷn over the centuries. We have already mentioned early Christianity, the saints and the pilgrims' journeys to Bardsey and the churches. Much later, Llŷn accepted the conversion to Protestantism which came with the reign of Henry VIII, Edward VI and Elizabeth 1st in the sixteenth century, without much protestation but some did publicly state their objections, such as Morus Clynnog. Others remained faithful to the papal church and worshipped in secret in safe houses.

4.17.3 Religion flourished from the mid seventeenth century onwards when Protestantism developed strongly. Puritanism was adopted from the middle of the century under the leadership of noble families such as Richard Edwards (Nanhoron), Sieffre Parry (Rhydolion), and Griffith Jones (Castellmarch). Then Nonconformity (Congregationalists) developed slowly under the leadership of gentlemen such as Ellis Williams and William Rowlands who built their first Chapel in Llŷn, Capel Newydd, Nanhoron in 1769.

4.17.4 Methodism also spread rapidly and strongly from the middle of the eighteenth century; preaching stations were established and 'seiadau' (religious 'societies') were held in several locations such as in Plas, Llangwnadl and Lôn Fudur, Dinas. Several of the Methodist movement's most prominent preachers, such as Howell Harris, came here to preach, e.g. in Towyn (Tudweiliog), Porthdinllaen and Rhydolion. A number of chapels were erected towards the end of the century, e.g. Edem (1775), Uwchmynydd (1774) and Nefyn

(1785). The Baptists also expanded later and they would meet at local farms, however chapels were also built such as the one in Nefyn in 1785.

4.17.5 Therefore although there were signs of change earlier, in the nineteenth century a religious revolution erupted that saw an enormous increase in audiences and chapel building on a large scale. The Calvinistic Methodists developed apace and by the middle of the century they had as many chapels as the other dissenting organizations all together, namely, the Anglican Church, the Congregationalists, the Wesleyans and the Baptists. The following table shows the increase in places of worship in the old parishes of Llŷn in the first half of the eighteenth century.

Increase in places of worship in the nineteenth century

PARISH	1800	1851
Llanaelhaearn	2	4
Carnguwch	1	1
Llanbedrog	3	4
Llangian	3	6
Llanengan	4	5
Rhiw	2	5
Aberdaron	4	8
Bardsey	0	1
Llaniestyn	3	5
Tudweiliog	2	3
Edern	2	2
Pistyll	2	3
Clynnog	2	10
Total	30	57

Source: Atlas of Caernarvonshire, Gwynedd County Council, 1977

4.17.6 Religion has remained an important part of the area's cultural life to this day, although it has diminished significantly since the middle of the twentieth century, with congregations shrinking. Several churches and chapels have now closed their doors and some have been converted into houses or are used for some other purpose.

4.17.7 Education – private schools and church schools were the main educational establishments in Llŷn during the first half of the nineteenth century, although the British Society was also active in some areas such as Clynnog. Sunday schools were also flourishing following the growth of the various religious denominations. The system of the time was harshly criticized by the government's Commissioners in 1847 ("Treason of the Blue Books") on the basis of the resources, buildings and teaching standards. The 1870 Education Act was then passed, which formed the basis for establishing Local School Boards with the right to charge taxes in order to maintain schools. The Church party objected to these Boards and with the aid of grants, they improved their resources in several places, including Llanbedrog, Llangian, Llanengan, Clynnog and Edern. Due to denominational and political conflict and the fear of change, the process of establishing the Boards was a lengthy one and the government had to establish boards by enforcement in Aberdaron, Rhiw, Llanfaelrhys and a number of other parishes.

4.17.8 Of course, the "Welsh Not" was in force in these early schools, and this regime lasted until 1890. Even after that, English was the main language of education. The old Botwnnog intermediate school was adopted as a county school in 1893 and Pwllheli School was added in 1895. By 1900, 80% of the children of Caernarvonshire were attending school regularly for at least six years.

4.17.9 Administrative divisions – before 1282 the area consisted of "cantrefi" and "cymydau" for administrative purposes. The area which has been designated as the Area of Outstanding Natural Beauty contains the cantref of Llŷn, named after the Irish tribe of Laigin. The hundred of Llŷn was also sub-divided into three commotes: Cymydmaen, Afloegion and Dinllaen. Following the conquest of Edward 1st, the hundreds and commotes were abolished and the county of Caernarvon was established, based on the cantrefi of Arfon, Arllechwedd, Llŷn and parts of Rhos and Dunoding. Nefyn and Pwllheli were boroughs established under the Princes (there were only three in Wales) and as such are interesting and important from a historical perspective.

4.17.10 Land ownership – Historically, many of Llŷn's lands belonged to five estates, namely Cefnamwlch, Faenol, Glynllifon, Madrun and Nanhoron, but many of these lands have now been sold off. The enclosure of substantial areas of common land in the early 19th century had a significant effect on land ownership and use in Llŷn. Striking effects were left on the landscape and the straight lines of these boundaries can still be seen in the landscape today. Many suffered severe hardship following the closure. This was particularly true in the Eifl area, where there was a great deal of protestation; one man – Robert Hughes, Cae'r Mynydd – was exiled to Botany Bay. The table below provides information about the lands occupied in the Llŷn area:

Common land enclosure in Llŷn

YEAR	AREA	ACRES
1802	Rhoshirwaun, Aberdaron, Bryn croes, Llanfaelrhys.	1,414
1808	Llanbedrog, Llanfihangel Bachellaeth, Llangian, Llaniestyn.	2,150
1811	Aberdaron, Llanfaelrhys, Rhiw, Bryn croes, Llanengan, Denio, Penrhos, Abererch.	2,789
1812	Nefyn, Pistyll, Camguwch, Llanaelhaearn, Clynnog, Llanllyfni.	6,548

Source: Atlas of Caernarvonshire, Gwynedd County Council, 1977

4.17.11 Art and Literature – Llŷn has been inspiration to a great many noteworthy poets and artists, many of whom were local, such as Cynan and Alan Llwyd, but many others who were visitors to the area or had moved to the area and been influenced by it, such as J. Glyn Davies, R.S. Thomas, Meirion MacIntyre Huws and Brenda Chamberlain. . The volume *Cerddi Llŷn ac Eifionydd* (Gomer Press 2002) contains a collection of poetry about the area. Amongst the prominent prose authors are Elisabeth Watkin Jones and Alun Jones. Gwynedd Council's library service can provide further information on literature, authors and artists.

4.17.12 Eisteddfodau – Eisteddfodau are an important part of Wales's culture and are a special feature, distinctive to the Nation. The Eisteddfod is also an important part of Llŷn's culture with a number of chapels, churches and schools holding an eisteddfod, as well as Young Farmers clubs and the Urdd. In 2003, 33 local eisteddfodau were held in Gwynedd including 5 within the AONB.

4.17.11 Folklore – The area's folklore is full of superstitions about fairies, ghosts, wizards and witches. Some features were named after these belief, such as Cae'r Bwgan (in Pwlldefaid, Aberdaron), Coeden Bechod (near Ty'n y Coed, Nefyn) and Pont y Gŵr Drwg (near Bryn Llangedwydd). Several legends which are familiar within Welsh culture originate from the Llŷn area. The most well-known are the legend of Castellmarch, the story of Rhys and Meinir, Gwrtheyrn, Aelhaearn and the Mabinogi.

4.17.12 Characters – As in every area, Llŷn also has its characters and the most well-known among them are familiar to this day. Dic Aberdaron is a historic character who spoke up to fifteen languages, as rumour has it and there are references to him in literature. Thomas Love Duncome Jones Parry, Madrun, was a colourful character who has left his mark on Llŷn. He supported local social and religious causes and travelled to Patagonia with Lewis Jones before the first migration of the Welsh to the country. The place where he came ashore was called Porth Madryn (Puerto Madryn today). Although not a native of Llŷn, the famous poet R.S. Thomas lived here for many years. He was a vicar of St Hywyn's Church, Aberdaron from 1967 until 1974.

Status and condition

- **LANDMAP** – In the study the Llŷn Peninsula as a whole has been identified as being of "outstanding" and "high" standard from a Cultural aspect. Other specific aspects in the 'high' category are the Pilgrim's Trail, Trefor, Nant Gwrtheyrn and Clynnog Church. See Appendices for full details.
- Culture is an intrinsic part of society and is transferred from one person to the next and from generation to generation. It also changes and develops over time, making it impossible to measure. However the details below provide some level of measurement:

Eisteddfodau within the AONB: Eisteddfod Gadeiriol Aelhaearn; Eisteddfod Gadeiriol Clynnog Fawr a'r Cylch; Eisteddfod Gadeiriol Mynytho; Eisteddfod Flynyddol Uwchmynydd MC; Eisteddfod Ysgolion Sul Dosbarth Pen Llŷn a Chylchwyl y Groglith (Pen Llŷn). Community Newspaper: *Llanw Llŷn* and Literary Clubs; Cyfeillion Llŷn; Cylch Llenyddol Llŷn; Cymdeithas yr Eifl, Clwb y Foel Gron and y Gymdeithas Hanes (Trefor)

- The simple table below notes certain facts which influence the continuation of culture in the AONB. These are factors which will enable culture to be evaluated over periods of time.

FACTORS AFFECTING CULTURE	1981	1991	2001
Population born in Wales	78.5	71.9	67.02
Second Homes/ Holiday Accommodation	24.4	21.5	19.6

Source: The Census (10 Llŷn AONB Community Councils)

4.18 The Welsh language

4.18.1 Llŷn is one of the strongholds of the Welsh language with 73.1 % of the population able to speak the language in 2001 (Gwynedd: 70%). And so this area and its people makes a key contribution towards the survival of one of Europe's oldest languages. Naturally, the number of Welsh speakers varies from area to area; the most rural and isolated communities having a high percentage of Welsh speakers whilst the percentage is significantly lower in areas which attract more tourists, where there are also many second homes (the communities of Llanengan and Llanbedrog specifically).

4.18.2 Welsh is a living language in Llŷn and is used every day in the home, in chapels and churches, schools, shops, workplaces and in the street. The language is also everywhere to be seen, on signs, posters, and in the 'papur bro' *Llanw Llŷn*. Most of the agricultural fields and settings in Llŷn, as well as the majority of farmhouses and houses, have Welsh place names. In his book, *Llŷn* Elfed Gruffydd has compiled a selection of names of farms and smallholdings in the area placing them in various categories, as follows: Good Times, Hard Times, Geographical Location, Association with Buildings, Personal Names, The World of Nature, Animals, Birds and Miscellaneous Names.

Status, condition and change

- The table below contains information on the number of Welsh speakers within the AONB, including change over time:

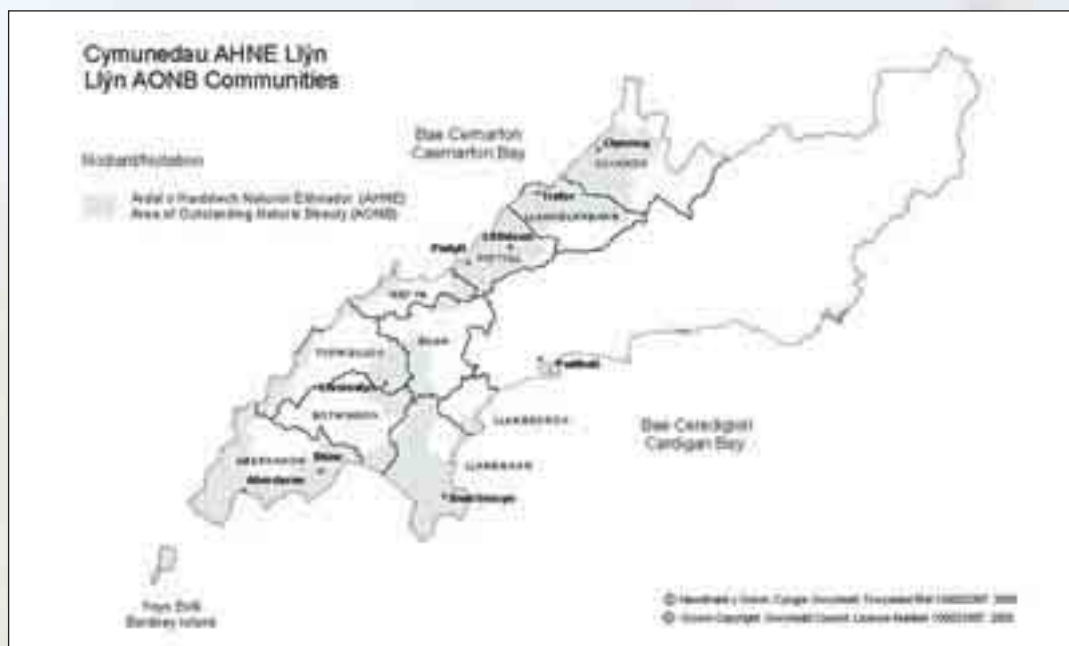
Number of Welsh speakers and change over time

COMMUNITY	1981	1991	2001
Aberdaron	89.5	77.1	76.6
Botwnnog	85.5	81.5	78.3
Buan	82.1	75.1	74.1
Clynnog	80.3	72.6	69.3
Llanaelhaearn	90.9	83.4	81.1
Llanbedrog	73.2	53.5	55.6
Llanengan	71.5	63.0	59.8
Nefyn	84.5	77.8	78.6
Pistyll	85.7	78.0	74.9
Tudweiliog	86.4	84.9	75.0

Source: The Census (10 Llŷn AONB Community Councils)

4.19 Communities

4.19.1 Llŷn's remoteness and isolation and the strong Protestant revival have been important factors in supporting and safeguarding the cultural character as the communities have been fairly stable. The language is a powerful element in the culture of Llŷn. As recently as the middle of the last century Welsh was the first language, if not the only tongue of the great majority of the population, and as already mentioned its character is unique and special.



4.19.2 The Census indicates that the population of the Llŷn Peninsula and the Area of Outstanding Natural Beauty has remained fairly constant during the past thirty years. However, these figures do not reveal the inward and outward migration from the area. The reasons for leaving the area are considered to be as follows:

- reduction in the number of jobs in the traditional industries,
- lack of new employment opportunities,
- lack of educational opportunities,
- desire for a different lifestyle (e.g. in a town),
- desire to live in a particular place.

4.19.3 At the same time, a new population has moved into the area and it would appear that this pattern tends to increase and decrease at different times. Although the figures indicate that a high percentage of those who move into the area are retired, the more recent trends indicate an increase in young and middle aged families. Although it is difficult to quantify the change in the nature of the community, the results of the Census on the population born in Wales and the number of Welsh speakers provide key statistics.

Status, condition and change

- The table below shows an increase in population over time and a change in the age profile which shows the ageing population:

POPULATION	1981	1991	2001
Total	10,564	10,940	11,335
Age 0 –15	20.1%	17.5 %	18.24%
16 – pensionable age	54.1%	56.1 %	58.2%
Pensionable age +	25.8%	26.4%	23.5%

Source: The Census (10 Llŷn AONB Community Councils)

ACCESS AND ENJOYMENT

4.20 Access and Enjoyment

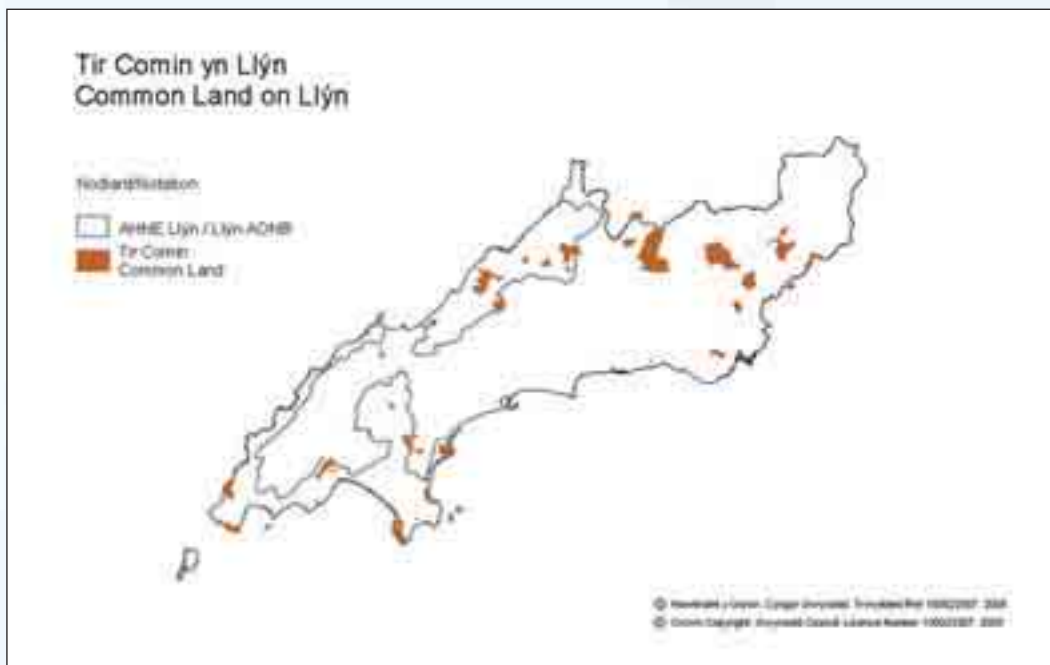
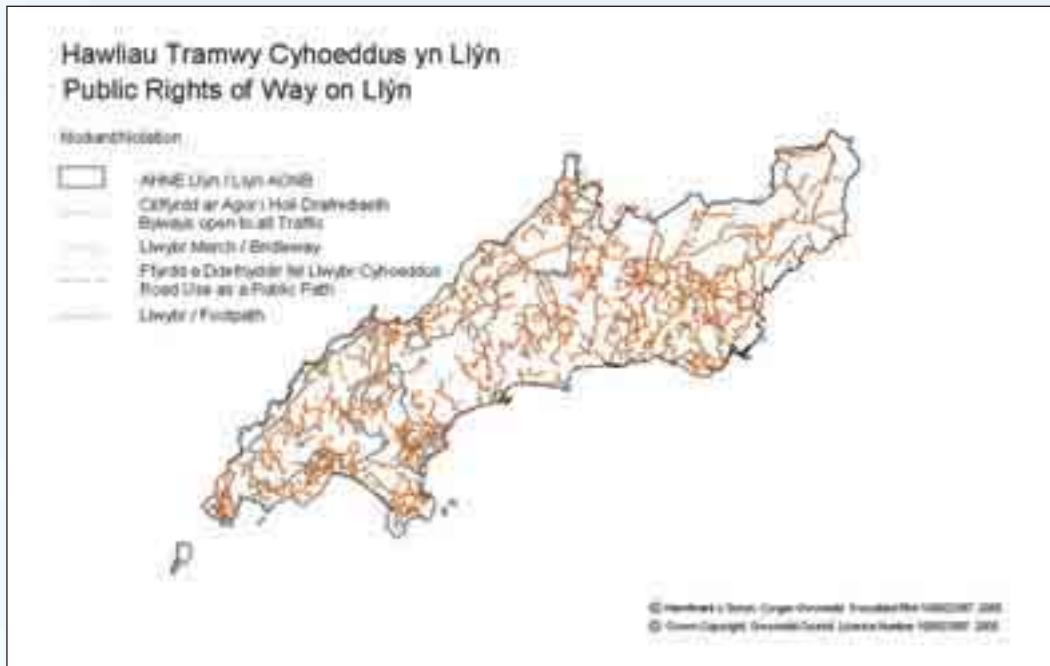
4.20.1 Access resources play an important role in the enjoyment of the area’s special qualities. Obviously such resources are common to all AONBs to some extent however there are variations regarding footpath networks and rights of way, in addition to those parts of the network which are open for use.

4.20.2 A special and unique resource of Llŷn is the Pilgrims Trail. In the past, thousands of pilgrims went along the trail on their journey to Bardsey. The Pilgrims Trail follows the northern coastline from Clynnog Fawr to Bardsey, stopping at ancient churches on the way such as at Pistyll and Llangwnnadr where the saints would rest on their journey. The trail from the south leads through Llanengan where there is a beautiful ancient church. The Pilgrims Trail is still popular today with pilgrims and walkers alike who still visit the many ancient churches, wells and monuments on the route.

4.20.3 A new Coastal Footpath has recently been developed by Gwynedd Council in partnership with the Countryside Council for Wales and Tourism Partnership North Wales. The footpath starts off in Caernarfon and travels over 95 miles around the Peninsula to Porthmadog. The route is broken up into 8 smaller sections visiting many historical sites such as Tre’r Ceiri and various beaches and villages along the way. It takes advantage of the public footpaths, quiet roads, permissive paths, beaches and open land, and is well signposted. The path does not exclusively follow the coast and it travels further inland and to higher ground in some places to benefit fully from the spectacular views across the Peninsula. In the future it is hoped that more paths can be included along the coastline.



Wooden stile



4.20.4 Beaches, especially those where access is difficult, are also an important resource and one of Llŷn's special qualities. They contribute towards the area's visual beauty and provide opportunities for enjoyment and recreation. There are various types of beaches, some rocky, others with fine sand and even dunes in some places. The beaches are clean on the whole although rubbish can be a problem in some places, for example Hell's Mouth.

4.20.5 The Countryside and Rights of Way Act 2000 will enable the public to enjoy much more of the countryside whilst also giving consideration to the interests of the landowners and land managers. From the access point of view, the Act will provide the public with new rights of access (with restrictions) to:

- open land, which includes upland, heathland, meadow land or down land;
- common land (registered under the Common Land Registration Act 1965);
- any other sort of land which is denoted by the owner as "access land".

4.20.6 The Act will improve the existing legislation regarding Rights of Way by promoting the opening of new access and by removing the uncertainty regarding the existing rights. The consultation exercise in respect of land with access began in 2003 by the Countryside Council for Wales. A Local Access Forum was established for the Arfon and Dwyfor area which is operational in the Llŷn AONB.

4.20.7 The opportunity for leisure pursuits is allowed through public access which is a valuable resource to the area. There are several different types of public access and the following are those that can be found in the Llŷn AONB:

- **Public paths** – footpaths, bridleways and by-ways.
- **Permissive paths** – paths used by the public which are not public paths, such as those to beaches and wells.
- **Public open spaces** – picnic sites
- **Beaches** – a large number and variety of beaches.
- **Common land**
- **Private land with access agreements** – agri-environmental projects such as Tir Gofal and Environmentally Sensitive Areas.
- **Woodlands** – Coed Cadw welcomes walkers onto the site in Llŷn and most of the Forestry Commission land is open to the public.
- **Land and property of the National Trust** – much of their property is open to the public.
- **Unclassified roads** – these have developed from the original footpaths and cart tracks and have become important access roads to the villages and other areas in Llŷn.

Status and condition

The following provides details of the various types of public access in the AONB:

Details of public rights of way in the AONB

RIGHT OF WAY	NUMBER AND LENGTH	CONDITION
Footpaths	720. 278.85 km	Variable
Bridle paths	22. 10.84 km	Variable
Byways ("Boat")	18. 6.10 km	Variable
Roads ("Rupp")	25. 12.45 km	Variable
Cycle paths	No specific paths	

Source: GIS

- Detailed information is available on the condition of public footpaths within the AONB's 10 communities:

Condition of paths in the AONB's communities

	NUMBER OF PATHS IN STUDY	% PATHS SIGNPOSTED CORRECTLY	% PATHS OPEN	% EASY TO USE
Aberdaron	61	50	56	41
Botwnnog	36	53	61	39
Tudweiliog	36	60	67	39
Llanbedrog	23	63	78	61
Llanengan	56	42	73	38
Pistyll	22	53	68	32
Nefyn	61	40	5	43
Buan	14	57	64	29
Llanaelhaearn	24	39	88	38
Clynnog	37	44	73	41
Total	409	50	70	42

Source: Gwynedd Council 2005

Details of beach access in the AONB

BEACH	ACCESS	DISABLED ACCESS	NATURE	CONVENIENCES
Aberdaron Beach	Parking close by	Suitable	Sandy	Shop & toilet
Aberdesach	Parking close by	Suitable	Shingle	None
Aber Geirch	Pathway	Unsuitable	Rocky/shingle	None
Carreg y Defaid	Parking	Unsuitable	Sandy	None
Hell's Mouth	Parking / pathway	Unsuitable	Sandy	None
Llanbedrog	Parking / steep	Suitable	Sandy	Shop & toilet
Llanllawen	Pathway	Unsuitable	Rocky/ shingle	None
Lleferin Beach	Parking	Suitable	Sandy	Shop & toilet
Machroes	Parking	Suitable	Sandy	Toilet
Morfa Nefyn	Parking close by	Suitable / steep	Sandy	Shop & toilet
Nant Gwrtheyrn	Steep pathway	Unsuitable	Sand & shingle	Shop & toilet
Nefyn	Parking close by	Suitable / steep	Sandy	Shop & toilet
Penllech Beach	Pathway	Unsuitable	Rocky/ sandy	None
Porth Cadlan	Steep pathway	Unsuitable	Rocky/ shingle	None
Porth Ceiriad	Steep pathway	Unsuitable	Rocky/ sandy	None
Porth Colmon	Parking	Suitable	Rocky /shingle	None
Porth Cychod	Pathway	Unsuitable	Shingle	None
Porthdinllaen	Parking close by	Suitable / steep	Sandy	Shop & toilet
Porth Felen	Steep pathway	Unsuitable	Rocky	None
Porth Ferin	Pathway	Unsuitable	Rocky /shingle	None
Porth Fesyg	Steep pathway	Unsuitable	Rocky/ shingle	None
Porth Gwylan	Pathway	Unsuitable	Shingle	None
Porth Iago	Parking, steep	Unsuitable	Sandy	None
Porth Meudwy	Steep pathway	Unsuitable	Rocky/ shingle	None
Porthor	Parking, steep	Suitable / steep	Sandy	Shop & toilet
Porth Orion	Steep pathway	Unsuitable	Rocky/ sandy	None
Porth Tŷ Mawr	Steep pathway	Unsuitable	Rocky/ shingle	None
Porth Ychain	Pathway	Unsuitable	Shingle	None
Porth Ysgaden	Parking	Suitable	Rocky/ shingle	None
Porth Ysgo	Steep pathway	Unsuitable	Rocky/ shingle	None
Porth y Wrach	Pathway	Unsuitable	Rocky/ sandy	None
Trefor	Parking close by	Suitable	Sandy	Toilet
Towyn	Pathway	Unsuitable	Sandy	None
Ty'n Twyn Beach	Parking	Suitable	Sandy	None
Wern	Pathway	Suitable	Sand & shingle	None

Source: Gwynedd Council 2005

Other land with public access

LAND WITH PUBLIC ACCESS	NUMBER AND AREA	CONDITION	CHANGE
Public open areas	1 village spot (Mynytho)	Poor Japanese Knotweed	No information on previous condition
Common land	30 sites. 938.4 ha	Variable but good on the whole	No change since 1968 (registration)
Land with access by agreement	Tir Gofal and ESA – no additional access in the AONB	N/A	N/A
Woodlands (with public access)	21.41 ha Coed Elemion (Coed Cadw) Nant Gwrtheyrn Woodland	Satisfactory on the whole	Some Forestry Commission woodland now private
National Trust land *	14 sites. 964.1 ha	Well managed by the Trust	Landownership increasing

Source: Information from the Register of Common Land and provided by the Countryside Council for Wales, Coed Cadw and the National Trust.

* There is no access to houses, gardens or enclosed agricultural land

- There are no footpaths with dedicated access for the disabled within the AONB.
- There are no specific cycling paths in the AONB as shown above. However, Gwynedd Council, the Welsh Tourist Board and the Welsh Development Agency have developed a network of paths using local roads. Signs were erected during 2004 and an information booklet published. Two of the routes pass through extensive areas of the AONB (Route A – Mynydd yr Ystum, Route B – Garn Fadrun) and another route runs through part of the AONB (Route C – Garn Boduan).

