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## Morfa Gwent – disgrifiad cryno

Dyma dirwedd arbennig, wastad, isel gyda rhwydwaith geometrig o ddyfrffosydd sy'n llifo rhwng caeau ffrwythlon. Mae'n hynod yn y'i crëwyd trwy adennill corsydd a thir rhynglanwol yng nghyfnodau olynol yn ôl i Oes y Rhufeiniaid. Yn rhai rhannau, mae'r hen batrymau wedi'u newid agos y tu hwnt i bob adnabod yn ystod y 150 blynedd diwethaf, gyda rhai rhannau wedi'u defnyddio ar gyfer adeiladu rheilffordd fawr, dwy draffordd, gwaith dur mawr, a gorsaf bŵer. Yn ychwanegol, mae aneddiadau fu unwaith yn fychain wedi ehangu'n gyflym yn bentrefi noswyllo, ac y mae trefi Caerdydd a Chasnewydd wedi ehangu.

Eto, er gwaethaf y newidiadau hyn, mae rhannau sylweddol o'r dirwedd wledig ac o nodweddion hanesyddol traddodiadol yn weddill, gan gynnwys, mewn aml i le, y rhewynau: sef y ffosydd sy'n rheoli'r dŵr rhwng y caeau, ac y sydd a'u maint a'u golwg yn amrywio yn ôl ffasiwn cyfnod y gwaith adennill. Mae eglwysi canoloesol yn sefyll ar orwelion isel; mae'r tocbrennau helyg nodweddiadol yn sefyll yn rhesi ar hyd y rhewynau,

er eu bod yn prinhau; a defnyddir y priddoedd ffrwythlon at amryw ddibenion, gan gynnwys cynhyrchu grawn, godro, defaid, magu gwartheg stôr a marchogaeth.

Mae'r rhewynnau'n cynnal planhigion dŵr prin ac amrywiaeth eang o anifeiliaid di-asgwrn-cefn, ac y mae Gwarchodfa Gwlypdiroedd Casnewydd, sydd newydd ei hagog, yn llwyddo i ddenu adar prinion. Mae'r gwaddodion a'r mawnogydd yn gorchuddio ac yn cuddio o'r golwg dystiolaeth archeolegol sy'n dyddio o'r cyfnod Mesolithig, gydag olion traed dynol wedi'u sodro yn y clai, i lwybrau a llwyfannau tai diweddarach Oes y Pres, gwaith pren Rhufeinig, a mynachdai ac adeiladau ffermydd Canoloesol. Dichon fod yma adnodd hanesyddol ac archeolegol eithriadol gyfoethog, ond y mae eto i'w archwilio'n llawn.

## Summary description

This is a distinctive, flat, lowland landscape with a geometric patchwork of watercourses that run between fertile fields. It is remarkable for having been created by reclaiming marshland and inter-tidal areas during successive periods going back to Roman times. In parts, the older patterns have changed almost beyond recognition over the past 150 years, sections having been built over by a major railway line, two motorways, a large steelworks, and a power station. In addition, there has been a rapid growth of once small settlements into dormitory villages, and urban expansion from both Cardiff and Newport.

Yet despite these changes, substantial areas of rural landscape and traditional historic features remain, including in many places the pattern reens, being ditches that manage the water between the fields, and whose size and appearance varies according to the fashion of the period when reclamation work took place. Medieval churches and farmsteads stand on low horizons; the characteristic pollarded willows stand in lines beside the reens, though they are ever-decreasing; and the fertile soils are used for a variety of land uses, including cereal production, dairying, sheep and store cattle rearing and equestrian pursuits.

The reens support rare aquatic plants and a diverse range of invertebrates, while the newly developed Newport Wetlands Reserve is proving to be successful in attracting rare birdlife. The alluvial deposits and peat beds overlay and hide from view archaeological evidence extending from the Mesolithic period, with human footprints embedded in the clay, to later, Bronze Age trackways and house platforms, Roman timber features, and Medieval granges and farms buildings. This is potentially an enormously rich historical and archaeological resource which has yet to be fully explored.

Key Characteristics
<b>Alluvium</b> – former marsh and inter-tidal areas from the Severn Estuary. Triassic mudstones are beneath
<b>Reclaimed landscape</b> – drained, improved, enclosed, historical, agricultural landscape
<b>Divided by the Usk estuary</b> – into two distinct parts: the Wentlooge levels to the west and the Caldicot Level to the east. Collectively they occupy all the coastal levels between Cardiff and the England border by the Severn crossings. The Wye also flows out across the eastern end of this area.
<b>Reens and willows or hedgerows</b> - a network of straight drainage ditches known as reens, acting also as field boundaries; still very extensive patterns but there are only remnant lines of willows on their banks. Hedgerows with less regular field shapes are on the slightly higher ground, reflecting different phases of reclamation and enclosure.
<b>Flood embankment to the sea</b> - The land has been successively reclaimed from the sea and coastal marshes, and is protected from the tides by a sea wall.

**Fertile soils and agriculture** - supporting a variety of crops including cereal, sheep grazing, dairying, lowland beef production and equestrian husbandry.

**Wet pasture** - one of the largest areas of reclaimed wet pasture in Britain. The reens support rare aquatic plants and are home to a diverse range of invertebrates.

**Archeologically important** - one of the finest examples of a 'hand crafted' landscape, it is on the Register of Landscape of Outstanding Historic Interest. Some of the drainage and reclamation works still present in today's landscape date from the Roman period, while buried under the alluvium are archaeological deposits of immense potential and spanning the prehistoric to Medieval periods.

**Comparatively little settlement** - away from the urban fringes, the Levels have comparatively little settlement, with small nucleated and ribbon settlements linked by narrow roads.

**Open views between hills in Wales and England** – an exposed landscape in places with long views to surrounding areas and (from only areas with slight elevation) to the Severn Estuary and Bristol Channel.

**Major developments on fringes** – Llanwern Steelworks, a power station and pylons stand out in the flat landscape, while disproportionately large modern factory units outside Newport are also visible for long distances, and main motorways and rail lines are heard. Suburban development has enlarged settlements and urban development has spread from the adjacent Cardiff and Newport areas.

## Visual and Sensory profile

An iconic, man-made landscape of reclaimed marshland bordering the Severn Estuary, and divided into two distinct parts by the Usk at Newport, namely the Wentlooge Level to the west and Caldicot Level to the east.

Rarely rising above 10 metres above sea level, the Levels form a large, open expanse of primarily pastoral agricultural land, which affords extensive views of the southern edge of the coalfield valleys and Usk valley inland, and from slightly higher ground or along the sea wall, long views across the Severn Estuary and the Bristol Channel. The Levels are generally sparsely settled, with small, nucleated and ribbon settlements linked by narrow roads.

A key landscape feature is the distinctive pattern of drainage ditches or reens, with variations often reflecting the differing periods of reclamation. To the west and inland the fields are more regular in pattern, and flanked by hedgerows and lines of trees, whereas elsewhere the pattern is more sinuous and less defined by vegetation. Reen layouts are closely reflected in the settlement pattern. There are a number of unenclosed 'street commons' with farmsteads alongside, but set back from the road, such as Broad Street Common and Whitson. Elsewhere, such as Peterstone Wentlooge, St Bridges Wentlooge, Rewick and Goldcliff, nucleated settlements set around a church are found.

This distinctive and flat landscape of wide skies interfaces uncomfortably with the massive bulk of the Llanwern Steelworks site and the Usk Mouth Power Station at Newport. Radiating from the latter are towering electricity pylon lines, that fence the skyline and dwarf the surrounding fields and grazing livestock. Large factory units and warehouses on the outskirts of Cardiff and Newport, appear out of scale for the Levels landscape, even when seen at some distance from within the rural core of the Levels.

In the Cardiff area, the Levels have been subject to intensive development pressures resulting in the loss of open fields, although the reen pattern has been largely retained.



Elsewhere, leisure developments such as the golf courses at Peterstone and Coedkernew are also making an impression upon the older, established patterns in the landscape. At times, a distant traffic roar can be heard, but despite the proximity of development, the Levels remain a distinct, rural area where solitude and quietness can be found.



Uskmouth foreshore © @rspb-images.com



The enormous rectangular footprint of the Llanwern Steel Works © Crown Copyright (2010) Visit Wales





Goldcliff ©rspb-images.com



Nash village © CCW District Team collection





Wentlooge Levels field patterns near Peterstone, with golf course to RHS. © Infoterrer 2009



Grazing scene on Gwent levels showing electricity pylons, farm shed and the distant hills inland. © LUC



Goldcliff Reen © NRW





Goldcliff, showing the sea defence embankment and contrast between enclosed and unenclosed areas. © John Briggs



Goldcliff, showing characteristic remnant line of willows along a field boundary © John Briggs



Goldcliff, from the sea embankment looking across a reen, open arable fields with farms, with the Wentwood forest on the distant hills. This view also looks across the Llanwern Steel Works site, which is hidden by the intervening trees in the wider landscape. © John Briggs



## Geological Landscape influences

Although mostly concealed beneath a thick cover of alluvium, the Gwent Levels are underlain predominantly by red siltstones and mudstones of the Triassic period, originally laid down about 250 million years ago. These are overlain locally by late Triassic marine strata, which are conformably succeeded by younger, Lower Jurassic Blue Lias and Lower Lias. The late Triassic and Jurassic rocks occur as outliers to the west and east of the Usk, whereas the Caldicot Level to the north east is underlain by a range of older, Lower Carboniferous rocks, including sandstone-, shale-, limestone- and dolomite-dominated formations, that form part of an escarpment which trends north east towards the adjacent Wye Valley and Wentwood area. These Carboniferous rocks are unconformably overlain by Triassic siltstones and mudstones, outliers of which are exposed on the higher ground.

The Gwent Levels lie beyond the limits of the phases of Quaternary glaciations of the last 2.6 million years, including the last, Late Devensian phase. However, as in the case of the Wye and Severn, it is certain that low sea levels during the glacial episodes would have caused the Usk to cut a deep channel in its valley floor. Indeed, boreholes in the Newport area proved the alluvium fill of clays and silts to be around 15m thick, resting on a thin layer of sand and gravels overlying bedrock.

Although the area is crossed by natural drainage, principally the Usk with its broad tidal estuary, the Rhymney, Ebbw, and the Goldcliff Pill, the greater part of the area is just above sea-level, and drains naturally, but slowly, via the artificial network of reens. The lowest parts of the area require pumped drainage. In places, elements of older, natural drainage networks are still incorporated into some of the artificial networks inland of the sea walls, while some have been abandoned and only visible on aerial photographs as buried palaeo-channels.

## Landscape Habitats influences

This is a landscape reclaimed from the sea, characterised by a network of drainage ditches or reens, enclosing what was formerly extensive grazing marsh, but improved over many centuries to form rich agricultural land, now protected from the sea by a long sea wall. The reens form wet fences between fields.

Soils are groundwater gleys, with silty topsoils over clayey subsoils; the better soils supporting cereal cropping with permanent pasture elsewhere, wet and difficult to work where clays predominate. Much of the wetter pasture is infested with rushes.

The wet nature of the soils, together with the extensive drainage network has given rise to a diverse series of wetland habitats. The greater extent of the area is a series of SSSI, reflecting this diversity. There are a few areas of original grazing marsh, protected from agricultural improvement, one of which, Magor Marsh, is a NNR. Standard drainage management, in cleaning and dredging the reens periodically to maintain water levels, helps maintain this diversity.

The area supports important plant, bird, invertebrate and mammal populations. The reens support rare aquatic plants such as hairlike pondweed and rootless duckweed, and a range of dragonflies and damselflies, as well as an important population of soldier-flies, and scarce mammals such as the water vole. Wading and water bird populations are an



important feature of the Levels, associated with the Severn Estuary itself, a large area of mudflats at low tide, and protected as a RAMSAR site, SPA and SSSI.

With declining heavy industry, opportunities for the development of new habitats have arisen. The steelworks at Llanwern supports interesting reedbeds in and amongst the now redundant ash lagoons. The newly created Newport Wetlands Reserve has been formed on part of the former Newport power station site, and now hosts an internationally important population of water rails and Cetti's warbler, as well as the only known breeding site for bearded tit in Wales. It also has the first ever pair of breeding avocets in Wales.

There is little woodland on the Levels, but many old pollarded willows, associated with the lines of the reens and drainage ditches provide both interesting habitats in themselves, as well as important visual features in the landscape.

## Historic Landscape influences

The Levels are a landscape of extraordinarily diverse environmental and archaeological potential. Although they are an important wetland resource in their own right, archaeologically the area contains a variety of landscapes of different dates, and nowhere else is it possible to make the period distinctions so easily. Man's past activities in the area have been governed by the vast tidal range within the Severn Estuary, which has seen major and minor fluctuations in the heights and range of tides since the last glaciation, caused by variations in both the land and sea level. The Levels reflect man's evolving and often precarious relationship with these circumstances over the last ten thousand years.

Having been reclaimed from the sea at various times during the historic period, the present land surface is a supreme example of a 'hand-crafted' landscape, artificially created and entirely the work of man, preserving clear evidence of distinctive patterns of settlement, enclosure and drainage systems. However, because of recurrent phases of inundation and alluviation, there is also a proven, and quite possibly vast, potential for extensive, buried, waterlogged, archaeological and environmental deposits belonging to the earlier landscapes, which extend beyond the seawalls and banks into the intertidal mudflats. The Levels are therefore a uniquely rich archaeological and historical resource in Wales, and certainly of international importance and significance.

The present derived landscape thus comprises the following features: major reens resulting from natural watercourses; major reens which are wholly artificial; inland abandoned sea banks whose origins are obscure; sea walls probably originating in the 16th century; gouts where reens meet and coffer gouts where they cross; pills where the major reens discharge either into tidal channels or into the estuary itself; the bridges across the reens and the roadways built upon embankments; and not least the distinctive and characteristic field patterns belonging to different phases of enclosure.

In relation to the buried, archaeological landscape, Mesolithic remains have been discovered at Goldcliff, stratified in an estuarine clay underlying a sequence of peat deposits. Additionally, late Mesolithic human footprints, have been found at Uskmouth, also preserved in estuarine clay beneath a deposit of clay. Bronze Age activity has been recorded at various sites on desiccated raised peat beds, such as at Chapel Tump. More recently at Caldicot Castle, there is detailed evidence of palaeo-channels, pile structures, a boat strake and a considerable amount of cultural material. Iron Age evidence has been discovered in the intertidal zone at Goldcliff with rectangular timber buildings, trackways and fishtraps on a shelf of fen peat. Also, at Barland's Farm, Wilcrick, Roman stone and



timber structures and the remains of a late 3rd century Romano-British boat have been found, alongside a buried tidal creek, emphasizing the remarkable state of preservation of archaeological material in the levels.

The Medieval period is represented by a large number of Anglo-Norman sites including castles, moated sites, churches, mills, manor houses and court houses. There is evidence of continuity in the forms of land use into the Post-medieval period when the area saw increasing enclosure of the fields although, as late as 1830, considerable areas remained common. Whilst much of the basic network of reens had been established before this period, it continued to be developed and modified, particularly as the land became enclosed

## Cultural Landscape influences

Over little more than 100 years the culture of the historic reclaimed landscape of the Levels, the result of two millennia of human intervention, has gradually been altered and eroded. First, there came the Great Western Railway, Severn Tunnel Junction and the village of Sudbrook, built for the Tunnel's workforce; then on the northern fringe, or back fen, the three-mile-long bulk of the Llanwern Steelworks opened in 1962. Other prominent elements of modernity include the Uskmouth Power Station and its attendant web of electricity pylons, large-scale built development on the eastern side of the Usk, to the east of Cardiff, and the M4 and M48 motorways.

The Caldicot Level east of Newport remains under considerable pressure from urban expansion, as the proximity of the Second Severn Crossing has resulted in an explosion of non-vernacular new build, creating a dormitory town at Caldicot and nearby settlements. At its eastern end, in the shadow of the Uskmouth Power Station, the creation of the Newport Wetland Reserve represents the most prominent change of land use in the 21st century, part of which has taken advantage of the former ash pits of the power station. This phenomenon, alien to the evolved history of the Levels, adds modern cultural dimensions in the form both of the Reserve being a compensation measure for the loss of Cardiff Bay mudflats, and as a combined visitor attraction and artificially designed haven for bird and other species.

Hand in hand with pressure from large-scale modern development is a steady decline in agricultural land management resulting, for example, in the loss of reen-side willows, and the adoption of former agricultural land for equestrian grazing and stabling, and in the urban fringes, the piecemeal but rapid expansion of suburban development, industrial estates, large factory units, feeder roads, landfill and fly tipping.