

Part One – The Scheme Plan / Summary of Engagement





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Introducing the Gwent Levels Landscape / Geological Landscape

The Gwent Levels area lies just beyond the southern extent of a number of ice-sheets that covered northern Britain during the period of glacial maxima during the last 500,000 years. The valley of the River Severn was recut by glacial meltwater each time the ice-sheets retreated.

The Gwent Levels are a distinctive topographic zone comprising of a low-lying, flat and expansive coastal plain up to 6km wide that extends up to the Severn Estuary. Its elevation is typically between 5 - 6m AOD and generally below 10m AOD.

Before they were reclaimed and separated from the Severn Estuary by a sea wall during the Roman period, the Levels would have been a changing patchwork of saltmarsh, reed-swamp and peat bogs. The coastal plain comprises three discrete areas: the Wentlooge Level, which extends from the River Rhymney to the mouth of the River Usk (c.27km²); the Caldicot Level, which extends between the River Usk and the bedrock promontory at Sudbrook (c.47km²); and a third smaller area known as the Mathern Level between Sudbrook and the River Wye (c.5km²).

The northern edge of the Gwent Levels is marked by the boundary between the slightly higher ground in the north, underlain by sedimentary rocks mainly of Lower Old Red Sandstone from the Devonian Period, and the lower, flatter land on reclaimed estuarine alluvium to the south. The estuarine alluvium is mainly a blue-grey, silty mud up to 13 metres thick that gives rise to heavy textured, poorly drained clayey soils.

Prehistorically found at locations across the Levels, the only surviving peat bog on the Levels is on the Caldicot Level south of Magor. There are also some localised areas of peaty soils found across the back fen. These most commonly occur as a layer of peat covered by a clayey topsoil, but where the soft black peat extends to the surface these areas are particularly wet.

The Severn Estuary is fed by the major rivers of the Severn, Wye, Usk and Avon. The estuary expands in width from the mouth of the River Severn as it flows westwards to meet the Bristol Channel, creating a classic expansive funnel shape. The funnelling effect of the South Wales coastline and the North Somerset coast of England has a profound effect on the physical nature of the Estuary. The immense tidal range of the Severn Estuary and its coastal geometry combine to build up the largest tidal bore in the UK further up the estuary. It boasts the second highest tidal range in the world, between 12 and 14m, which is second only to the Bay of Fundy in Canada.

The Severn Estuary 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. During the last 7000 years, there have been huge changes in sea level with fresh water habitats on the Gwent Levels inundated by the sea.

The Severn Estuary is backed by a low, flat depositional coastline of soft Triassic and Jurassic rocks exposed along the shore creating a wide rocky inter-tidal area including expansive tidal flats, comprising of sand, mud and shingle with occasional rocky outcrops exposed at low tide. The rocks are visible in the cliffs and prominent coastal headlands with wave-cut platforms at their base, such as at Black Rock near Sudbrook.

Mud, sand and gravel sediments deposited in the Holocene period have produced a varied sea bed of flats and bars, with associated shallow waters and numerous shoals. The strong tidal streams, combined with the gradient of the seabed and thick mud, sand and gravel sediments, produce waters of high turbidity with an opaque brown coloration and constantly shifting sediments and water depths.

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Stuart Wilding



Historic Landscape

The initial efforts to drain parts of the Levels were made during the Roman period (AD 43 - 410). The full extent of this drainage remains unknown and most of the reclaimed land was subsequently flooded. However, some of the major drainage elements and axial alignments within the present landscape could have been first established during this time (Allen et al., 1992; Fulford et al., 1994; Rippon, 1996; Marvell, 2004). Any sea wall constructed at this time is likely to have been seaward of the present one and no evidence has survived for a Roman sea wall.

The current landscape of the Gwent Levels is predominantly a result of the process of drainage and recolonisation which commenced during the Medieval period (c. AD 1066 - 1500). This was linked to the post-Conquest settlement of south Wales and the influx of English settlers with associated socio-economic elements that affected land ownership and land use. Some of the drainage may be associated with monastic ownership and the establishment of grange farms

both on the Levels and on the dry land. Monks Ditch appears to represent a clear boundary within the Levels, with land to the east potentially being held by English lords whilst that to the west was held by Welsh landlords (Rippon, 1997; 2014).

Over the last few decades the field patterns on the Gwent Levels have been studied in order to understand the history and sequence of this reclamation and the establishment of the drainage network. The process of reclamation and settlement was not constant and certainly there was a time at the end of the 14th century when population decline and climate change led to the (temporary) abandonment of some areas of land (cf. Rippon, 1996; 1997).

The Gwent Levels consist of up to c.13m of alluvium and peat, stratified within which there are abundant traces of people's exploitation of that wetland environment during the prehistoric period onwards. Particularly rich are the peat deposits, which preserve wooden structures as

well as a record of the changing environment covering many thousands of years. Recent years has shown that entire prehistoric landscapes lie buried in the Levels.

The Levels are also rich in earthworks preserving elements of the medieval and later landscape. These include several moated farmsteads, sea and reen-side banks and surface ridging in fields created to improve drainage.

The distribution of major archaeological discoveries shows a marked bias towards the intertidal zone, since this is where the alluvium that overlies the prehistoric and Roman landscapes has been eroded away. Like the peat layer itself, this density of archaeological sites is likely to continue inland, but simply lie undiscovered. Another concentration of sites lies along the fen-edge, where there has been considerable development exposing the archaeological remains.

A variety of processes have led to the creation of the "historic landscape", giving rise to different areas possessing their own character. A broad distinction can be drawn between landscapes created in a gradual way, and those that were

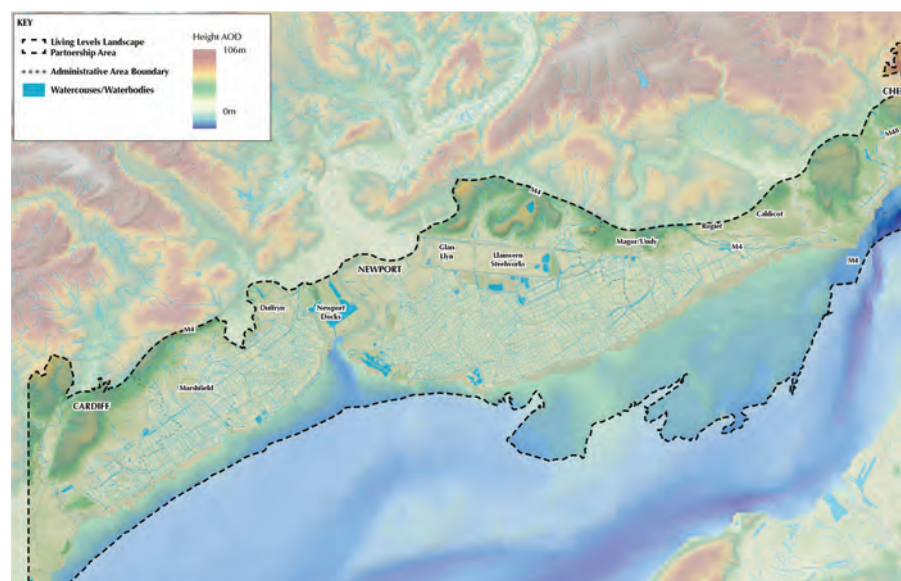


Image Credit:
Ray Ok

Figure 4 –
Topography and
Hydrology

laid out in a single episode.

The former can be termed “irregular”, and are of great complexity. They have small irregularly shaped fields, often incorporating the meandering lines of former tidal creeks. A piecemeal process of landscape formation occurred, in the eleventh to fourteenth centuries (“high medieval” period). Roads are sinuous and broad, often with an abundance of roadside waste; these “droveways” were vital for moving livestock from summer to winter pastures. Settlement was dispersed, with hamlets, isolated farmsteads and cottages scattered throughout the landscape. There were a number of commons that became the focus for settlements (e.g. Broadstreet in Nash; Whitson; and Peterstone).

Colonisation started on the higher ground towards the coast. The lower-lying “backfen” was only drained later, as population rose, increasing the demand for land. A sequence of reclamations can often be identified, as communities gradually drained the back-

fen. These areas tend to have landscapes of an “intermediate” nature; rather more regular in layout than the “irregular landscapes”, but not so rigidly planned as the “regular” variety. Intermediate areas are characterised by a fairly rectilinear pattern of fields and roads, with just the occasional farmstead or cottage.

The “regular” landscapes are very different. Their fields are rectangular and occur in large blocks of similar sized fields. The roads are straight and narrow, lacking roadside waste. There is very little settlement, mainly as these landscapes occupy the lowest-lying land. A very different process of reclamation was responsible for their creation; the large-scale and rapid enclosure of extensive tracts of land, in a single episode.

In addition to the distinctive and characteristic field patterns belonging to different phases of enclosure described above, other key surviving features of the Gwent Levels’ historic landscape are described below.

Water Management and the Drainage System

The distinctive pattern of the drainage system in the Gwent Levels landscape is illustrated on Figure 4.

The method of drainage was first established in the Levels nearly 1800 years ago. It takes the form of a hierarchy of drainage channels, which are now of considerable historic and nature conservation importance.

The maintenance of this system has always been a co-operative effort by farmers and the authorities in power. The former have tried to protect their livelihoods and prevent fertile lands being destroyed by flood. The latter, beginning with the Roman legions and continuing with the medieval monasteries, marcher lords, the Commissioners of Sewers, and a range of modern bodies, have been seeking to preserve their interests in, and responsibilities for, the Levels as a whole.

The whole drainage system in the Levels relies upon the sea wall. Historically the wall has retreated, with much of its present line dating



Image Credit:
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from the late medieval period. In a total length of c.35km, there are many different styles and dates of wall which were steadily improved and modified between 1954 and 1974.

However, following a heavy storm in 1990 when these sea defences were tested to the extreme, a 10 year programme of raising and strengthening the wall was undertaken. This produced a much more standardised structure hiding the existing complexities, which make the short lengths of relict sea wall at Rumney Great Wharf, Peterstone Gout and alongside Collister Pill even more valuable.

The saltmarsh beyond the sea wall has traditionally provided summer grazing. Only a limited number of farmers on the Wentlooge Level have grazing rights to continue this practice, which assists in maintaining the diversity of the plant communities. There are also extensive tracts of common land on Wentlooge Level, for which local land owners continue to have grazing rights.

The first tier in the hierarchy of drainage channels that divide up the Gwent Levels are the rivers and the c.64 km of main reens in which upland streams have been canalised to run across the low-lying levels and out through a tidal flap system (gout) to the sea. Some of these main reens, such as Monksditch and Mill Reen, flow between raised banks onto which the periodic clearings of the reens are dumped. In places such as Monksditch near the Whitson sub-station and the north end of Blackwall in Magor, the reen sides are revetted by stone walls and timber facings.

The next tier in the hierarchy of drainage channels are the c.137km of lesser reens. Water levels are managed in these reens by pens known as “stanks”, in which wooden planks can be set to raise the water levels in summer and reduce them in winter.

Another important feature are the “walls”, which seem to have been low earth banks built on the uphill or seaward side of those reens dug to drain the back-fen. They provided additional protection from winter flooding to the better land behind. Another feature of these reens is the lines of pollarded willows planted to strengthen the bank sides.

By far the largest tier in the drainage hierarchy is the c.1200km of field ditches maintained by individual landowners. Here, the clearance of ditches and management of the associated hedges may extend over a 10 to 30 year cycle.

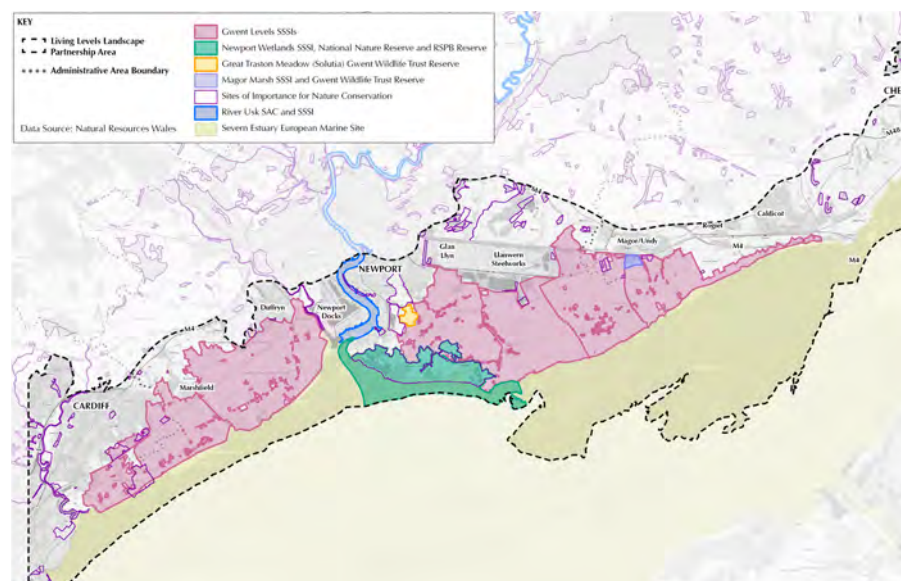


Figure 5 –
Ecological
Designations

Traditionally, the ditches would have been kept open with occasional pollarded willows to help support the banks but not hedges, and the ditches used as wet fences to keep the stock in. For example, in the lowest-lying back-fens, the fields are characterised by stands of reeds and isolated willows.

The lowest tier of the drainage hierarchy is the surface ridging. Skilfully created by hand digging or ploughing, these slight earthworks provide a network of shallow surface drainage gullies which take water off the field into ditches and reens. They do not survive in fields that have been underdrained and ploughed, which commenced from the late 1950s after improvement to the drainage system.

Access and Bridges

Access around the Levels depended upon the larger droveways, which form part of the framework of each character area. Tracks and paths were carried over the reens and field ditches by scores of small bridges. Some may be several hundred years old, and fine examples survive along Mireland Pill Reen (Goldcliff) and Rush Wall (Magor). Stone, brick, concrete and wooden bridges over the watercourses all survive, but many are in decay or have collapsed.

The loss of routes due to bridge decline is associated with the improvement of key bridges, such as those on public rights of way, encouraging use along one single route rather than one from each dwelling to a common destination such as the local church. Some of the old routes went into disuse when the railway was built, as they crossed the tracks and so people stopped using them.

Historic Settlement Patterns, Buildings and Structures

The dispersed settlement of isolated farms in the coastal parts of the Wentlooge and western Caldicot Levels (all “irregular landscapes”), contrasts with the nucleated village of Redwick and linear settlement along Whitson Common. The back-fens are largely devoid of settlements (“intermediate” and “regular” landscapes), though the fen-edge has always been a favoured location for occupation.

The historic farm houses and farm buildings have always been at the centre of the area’s economy. In some cases, farm complexes have been abandoned by new institutional owners.

As shown on Figure 5, there are four Conservation Areas within the study area designated as being of special architectural or historic interest. Redwick, the largest nucleated village on the Levels, is a designated Conservation Area. Conservation Areas are also found in parts of Chepstow, Mathern and Rogiet.

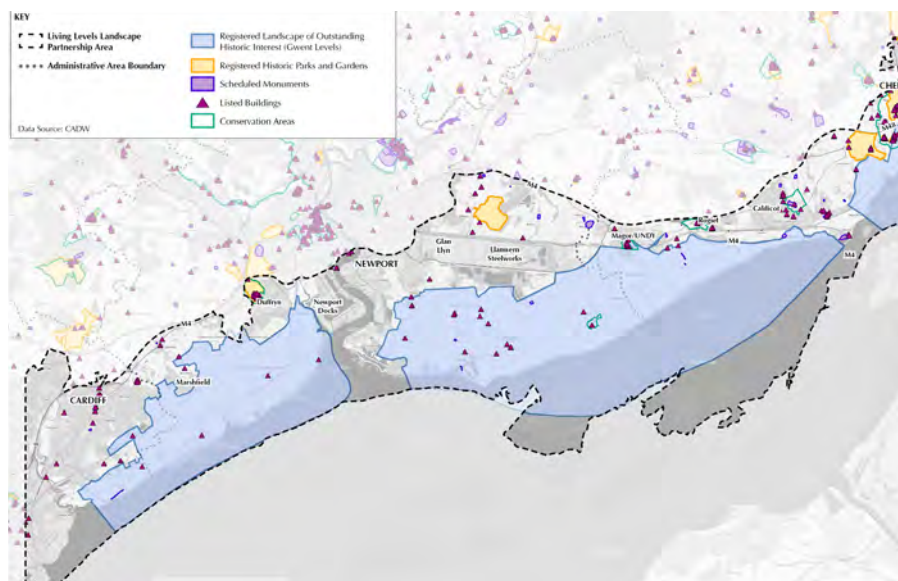


Figure 6 –
Designated
Heritage Assets

There are also 37 (seven of which are Grade I) statutory listed buildings within the study area designated as being of special architectural or historic interest (see Figure 6). These include for example the recently restored Grade II Listed Pye Corner Farm in Nash, which is thought to have been initially constructed in the 17th century; the Grade II* Church of St Mary in Marshfield, which is likely to date from the 13th or 14th century date; and the Grade II* Church of St Bridget in St Brides Wentlooge, which is probably 12th or 13th century in origin.

A considerable number of other historic buildings and structures have been recorded within the study area, which are not included on the national statutory list nor on any local list. These range from farmhouses and farm buildings to mills, cottages, bridges and railway sidings, and Second World War military structures such as pillboxes and the barrage balloon bases near Pye Corner. There are also timber and concrete features within the intertidal muds along the fringes of the Severn Estuary.

Historic Orchards

Alongside most farms used to be an orchard, and the surviving examples are an important feature of the Levels. The end of cider making locally means that most orchards are no longer commercially viable. However, there are some fine examples, notably in Goldcliff, Redwick and Magor. The Gwent Levels orchards have produced their own specific apple and pear varieties.

Buried Archaeology

The area contains a wealth of archaeological and heritage assets of national importance, much within the waterlogged soils across the area, illustrating the history of human occupation and management of a reclaimed coastal landscape.

Recent work has shown that the Levels are particularly rich in buried archaeology, of national and international importance, both in the intertidal zone and inland of the sea wall.

Over most of the Levels, prehistoric and Roman landscapes are sealed by later alluvium. Due to the depth of this alluvium even the most advanced methods of non-interventional prospection cannot identify such sites without excavation. However, this blanket of alluvium, and the resulting waterlogged conditions, give rise to excellent preservation of archaeological deposits.

There are 14 Scheduled Monuments within the study area designated as being archaeological sites and monuments of national importance. These include for example the Goldcliff moated house site, almost certainly of medieval date; the Grangefield moated site of a medieval grange farm which was an early property owned by the Cistercian abbey of Tintern; and relict seabanks in Rumney and Undy.



Image Credit:
Nigel Pugh

The Severn Estuary

Due to recurrent phases of inundation and alluviation, there is a proven 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. These include the remains of Neolithic/ Bronze Age settlement sites, as evidenced by human footprints, lithic finds, butchered animal bone, brushwood trackways and roundhouses (e.g. in the vicinity of Collister Pill).

The long-standing relationship between local communities on the Gwent Levels and the Estuary is evidenced by small, traditional landing places for cross-channel trade, which serviced communities such as Peterstone, Goldcliff, Rumney and Redwick, and are associated with early medieval ship finds. Intertidal fishtraps from the same period are found at Goldcliff, West Pill and Caldicot, with the traditional method of “lavenet” fishing continuing to be practiced by some local fisherman.

Local fishing fleets and recreational charters continue to exploit the rich marine resources, trawling the sand banks for plaice, turbot, whiting and rays, whilst beach netting and angling occurs along the coastline, particularly on Wentlooge Level.

The importance of the Estuary for maritime trade burgeoned from the medieval period onwards, particularly following the Industrial Revolution which transformed Cardiff into one of the largest coal ports in the world (the coal sourced from the valleys supplied the Naval fleet). The import and export of goods and raw materials along the estuary fed the expansion and wealth of Cardiff, Newport, Bristol and Gloucester. The pattern of ship wrecks illustrate both the dangerous navigational conditions and the Estuary’s role as a maritime traffic route (with losses associated with the Cardiff approaches and hazards such as the Aldridge Shoal).

As well as trade and exploitation of the area’s natural resources, the strategic role of the Estuary as a key entry point into Britain by sea

has long been recognised. Both the Roman and Viking fleets made approaches via the Bristol Channel and Severn Estuary and occupied the wider area.

Today, the Estuary retains its long-standing role in marine transportation, with Avonmouth (Bristol) now expanded to be one of the UK’s major ports. Although Newport’s port functions have declined since their 19th century peak, it still plays an important role in the import and export of a range of products including containers, steel, aggregates, forest products and dry and liquid bulks. Newport sees around 1.5 million tonnes of goods pass through its port each year.



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Landscape habitats and biodiversity

The Gwent Levels is home to a rich assemblage of wildlife. The exceptionally high productivity of the alluvial soils has been a catalyst for on-going investment in drainage and agricultural improvement within the Levels since Roman times. The predominant semi-natural habitats are the extensive network of reens and ditches, which have become valuable remnant wetland habitats providing a refuge for rare and endangered wetland species. Precisely because of these gradual changes followed by centuries of stable maintenance of the watercourses, the Gwent Levels now has one of the best assemblages of aquatic invertebrates in the country. The amount and variety of watercourses, be it grips, ditches, reens or main rivers provides a myriad of opportunities for different species. The diversity of habitats and the wide range of ecological niches is dependent on sustaining the traditional management of the reens and ditches. The inter-tidal habitats of the Severn Estuary and the riparian habitats of the Rivers Wye, Usk and Rhymney are also important areas for biodiversity within the study area.

As shown on Figure 5, the majority of the study area is designated as being of European, National and Local nature conservation importance and value. The special features of these designations are summarised below.

SSSI designations

SSSIs are notified under the Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000. SSSIs are highly protected to safeguard the range, quality and variety of habitats, species and geological features in all parts of Wales.

The suite of eight SSSIs were notified between 1982 and 2010 because of the range of aquatic plants and invertebrates associated with the reens and ditches of the drainage system that have been able to take advantage of the specific environmental conditions created by the extensive network of the Gwent Levels drainage network and the pattern of both water level and vegetation management which has occurred over many years.

Collectively the suite of eight SSSIs over the Gwent Levels area, cover 5,856 hectares. By far the largest complex of lowland SSSIs in a coastal and floodplain grazing marsh in Wales. The individual site names are:

- Gwent Levels: Rumney and Peterstone SSSI;
- Gwent Levels: St. Brides SSSI;
- Gwent Levels: Nash and Goldcliff SSSI;
- Gwent Levels: Whitson SSSI;
- Gwent Levels: Redwick and Llandeenny SSSI;
- Gwent Levels: Magor and Undy SSSI;
- Newport Wetlands SSSI;
- Magor Marsh SSSI.

Qualifying features can be categorised under four headings:

- **Reen and Ditch Habitat** – this habitat is a qualifying feature in it's own right due to the species it supports
- **Plant Species** – both individually qualifying species and assemblage of rare wetland and marginal plant species

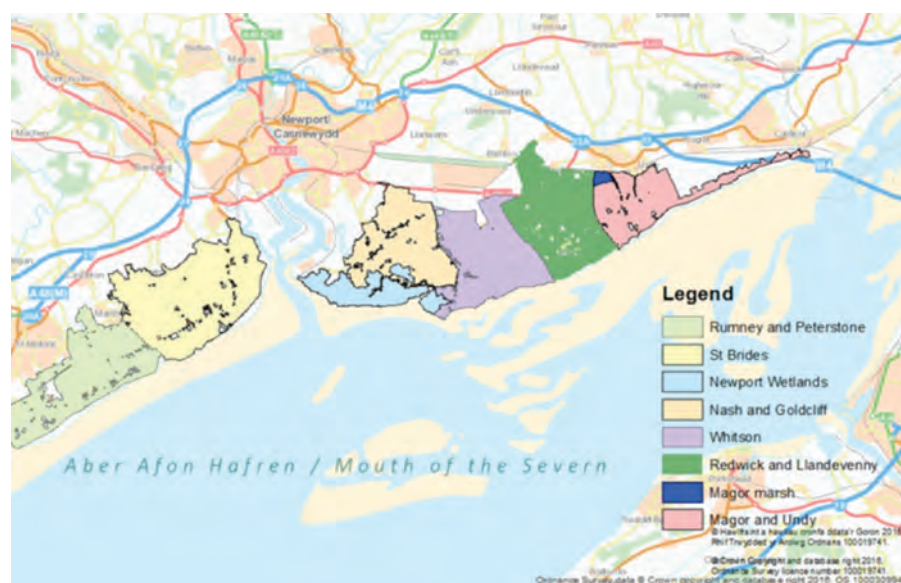


Figure 7 – Gwent Levels SSSIs

- **Insects and Other Invertebrates (aquatic)** – both individually qualifying species and assemblage of grazing marsh invertebrates. Over 260 species of wetland insect and other invertebrates have been recorded throughout the Gwent Levels. For several species including the soldier fly *Odontomyia ornata* and the water beetle *Hydaticus transversalis*, the Gwent Levels are the only recorded locations in Wales
- **Shrill Carder bee** – a terrestrial insect, once fairly widespread, now known from less than 20 sites in the UK. Within the Gwent Levels SSSIs it is associated with the reed, ditch and field margins as well as road verges and the Sea wall, where there are abundant sources of pollen.

Figure 7 above shows the locations of all 8 SSSIs.

With every field across the 5856 hectares of the Gwent Levels bounded by a water course the wildlife potential is staggering. The extensive network of reens house nationally important species, including the Great Silver

Water Beetle, and aquatic plants, many found nowhere else in Wales and only in a handful of sites in Southern England. Gwent Levels' sites support the only Welsh populations of Rootless duckweed *Wolffia arrhiza* - the world's smallest flowering vascular plant - and the 'Back Ditch' in the Magor and Undy area contains the rare beetle *Agabus conspersis*. A number of European protected species and UK protected species have been confirmed to be present, including dormice, grass snake, some bat species, otter and great crested newt. There have been recent extinctions including the native water vole. However, in recent years following a period of mink control water voles have been reintroduced at Gwent Wildlife Trust's Magor Marsh nature reserve. Mink control continues with the help of a band of dedicated volunteers much further afield. Once returned the water voles have thrived and in the course of 3 years have spread as far as the Newport Wetlands reserve (NNR) at Goldcliff a distance of at least 7km.

Additionally, the Levels are also home to many Biodiversity Action Plan species, including the rare Shrill Carder bee, and the rare hairy dragonfly. Regularly mown reed banks and rough grassland areas provide important habitat as they contain the flowers preferred by the bee for sources of nectar and pollen, such as red clover, creeping thistle and black knapweed.

Located on the western edge of the Caldicot Level, the Newport Wetlands National Nature Reserve SSSI is of importance for its bird species. The Newport Wetlands Environmental and Education Visitor Centre is owned and managed by NRW working in partnership with RSPB Cymru, Newport City Council and others, working for the benefit of wildlife and people. The site represents part of the compensation measures for the loss of the Taf/Ely Estuary SSSI to the Cardiff Bay Barrage Project. The Reserve is a wetland creation project, originally designed to provide habitat for wetland bird species. Full planning permission consent for the development of saline lagoons, reedbeds and lowland



wet grassland was granted in November 1997, subject to 29 conditions. The Reserve was acquired by the Land Authority Wales in February 1998 and habitat creation works were undertaken by Cardiff Bay Development Corporation. Ownership of the Reserve passed to CCW in March 2000. In October 2006, the British Trust for Ornithology assessed the reserve data and concluded that the reserve had achieved the Reserve Steering Group target of attracting 2 species of water bird in nationally important numbers over a five year average, and had become a “functional component of the Severn Estuary SPA” and therefore suitable for qualifying as part of the Severn Estuary SPA which was the goal set by the Secretary of State in 1996.

Newport Wetlands was declared a National Nature Reserve in April 2008. In March 2010, Newport Wetlands was declared a SSSI in its own right, with 19 notified features, 14 of which are due entirely to the reserves creation in 2000. The special features are its reens and ditches; reedbeds;

higher plants; over-wintering birds; breeding birds; insects and other aquatic invertebrates. The site supports nationally important numbers of shoveler and black tailed godwit. Cetti’s warbler are found all year round and, bittern, originally a winter visitor, have been present for the past two years during spring and summer. During summer, the wet grassland, saline lagoons and reedbeds support a variety of breeding birds, including populations of lapwing, redshank, water rail, skylark, reed bunting, little grebe, dunlin, curlew, and the rare nesting bearded tits.

Visitor numbers to the reserve initially rose to approximately 20,000 a year, and the potential for the reserve to do more than attract water birds was realised. In 2003 CCW, RSPB Cymru and Newport City Council signed a “Statement of Intent” in respect to providing environmental education. In March 2008 an environmental education and visitor centre run by the RSPB Cymru was opened. The visitor centre and car park were leased to the RSPB Cymru on a 75 year peppercorn rent. Visitor numbers reached over 106,000 in 2016 with

4000 local school children visiting the reserve annually.

The Great Traston Meadows Nature Reserve is located to the north of Newport Wetlands near Pye Corner. It is owned by Eastman Chemical Company and managed by the Gwent Wildlife Trust. The main habitat is grazing marsh, with associated ditches, reens and grips. Pollarded willows line many of the reens. The site is important for its diversity of wetland and grassland plants, breeding birds and invertebrates. Part of the reserve lies within the Gwent Levels (Nash and Goldcliff) SSSI.

Located on the eastern part of Caldicot Level, Magor Marsh SSSI and Magor Marsh Nature Reserve are the largest remnant of the formerly extensive peat fenlands near the Gwent coast. The Magor Marsh Nature Reserve is owned and managed by the Gwent Wildlife Trust. The special features of this relatively small site are its marshy grassland; neutral grassland; swamp; standing water; and wetland invertebrate assemblage. The site is nationally important for its assemblage of

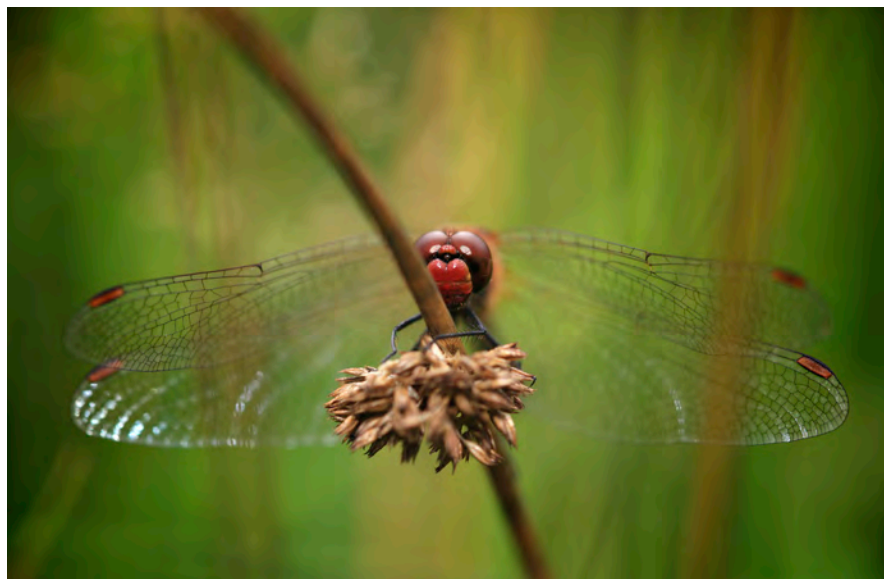


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vascular plants and supports a variety of common reed, sedge and submerged and emergent aquatic plants. Areas of wet meadow and both willow and alder carr woodland with an intersecting system of drainage ditches, reens and ponds are present. The site is an important breeding ground for water and marsh birds. The Nature Reserve comprises the Magor Marsh SSSI together with two additional blocks of land (Barecroft Common) within the Gwent Levels (Redwick and Llandeveyney).

International Conservation Designations

The Severn Estuary is protected by a number of international nature conservation designations, reflecting the outstanding value of its habitats and species. These designations include Special Area of Conservation, Special Protection Area, Ramsar Site and European Marine Site. The River Usk, which divides the Wentlooge and Caldicot Levels as it flows from Newport into the Severn Estuary, and the River Wye which enters the Severn Estuary at Newport also support habitats and species of international significance, and are both Special Areas of Conservation.

Within the study area, the River Usk SAC and SSSI runs through Newport to the confluence with the River Ebbw at Newport where it enters the Severn Estuary. The special features of the SAC are the presence of a range of fish species (including sea lamprey, brook lamprey, river lamprey, twaite shad, Atlantic salmon and bullhead) and otter. The special features of the SSSI are running water; otter; fish species; and a

group of rare craneflies. Scarce higher plant communities at the river's tidal reaches are also of special interest. Although not a special feature of the designation, there is a good range of breeding birds associated with the riverine habitats. The SSSI designation includes some areas of adjacent habitat, such as woodland, marshy grassland, stands of tall herb, swamp and fen vegetation, saltmarsh and coastal grassland.

The Severn Estuary European Marine Site incorporates SAC, SPA and Ramsar site designations. The special features of the European Marine Site are the Estuary; its subtidal sandbanks; intertidal mud and sand; atlantic salt meadow/saltmarshes; reefs; migratory fish (river and sea lamprey, twaite shad, salmon, eel, sea trout and allis shad) and assemblage of fish species; internationally important populations of migratory and wintering bird species; internationally important populations of waterfowl; rocky shores; and freshwater grazing marsh/neutral grassland. The River Severn is also designated as a SSSI, the special features of which

are the estuarine fauna, which includes invertebrate populations of considerable interest in addition to the internationally important populations of wintering waterfowl and migratory fish. In addition, the estuary fringes including areas of saltmarsh supporting a range of saltmarsh types are also special features of the SSSI.

As shown on Figure 5, the study area also includes a large number of Sites of Importance for Nature Conservation (SINCs). Examples of these local non-statutory sites include the Afon Ebbw River SINC

(a major river system flowing into the River Usk south of Newport Docks with associated semi-improved neutral grassland and marshy grassland, swamp, scrub and semi-neutral woodland); the Solutia Site SINC (a series of improved and semi-improved grasslands with traditional ditches and ponds east of the River Usk in Newport); and the Blue House Farm SINC south of Magor (a botanically interesting tall mosaic of damp and dry grassland habitats enclosed by ditches and reens).

Image Credit:
Peter Strimming



Image Credit:
Robin Drayton



Cultural Landscape

Farming

The Gwent Levels is predominantly under agricultural land use. Roughly 600 individual farmers and landowners look after c. 1200km of field ditches across the Gwent Levels landscape. There are approximately 125 active farms; these include dairy, beef, sheep, and arable, and cover approximately 6000 hectares.

The activities of the agricultural sector are therefore a key influence on the character of the landscape. Despite the urbanising influences of settlement encroachment, industrial land uses and transport/energy infrastructure, most of the Gwent Levels landscape still has a largely rural, pastoral character.

As a result of the soil quality, favourable climate and the availability of water, the area has very high yielding pasture and lush meadows that produces notable volumes of meat and dairy produce. However, much agricultural activity is dependent on the management of water levels and flooding and a fragile balance between water and farming exists.

While productive, the combination of heavy textured subsoils and poor drainage make the land challenging to manage and as a result the majority of the Gwent Levels are generally of low quality agricultural land (Agricultural Land Classification Grade 4). There are also some pockets of higher quality agricultural land which support arable fields in drier areas.

Field patterns vary widely, at times the product of cultural evolution, at others to meet prevailing systems of agriculture or to respond to topographical features. Historically, it is thought that in the earliest days the land was used largely as summer pasture before the successive engineering skills of the Romans and, later, monastic houses and the Normans developed the present sophisticated methods of draining the land and preventing encroachment of the Severn Estuary waters. Traditional agriculture has seen a steady decline over the last century with agricultural policy favouring larger more intensive farming practices. In some cases, where traditional farming is no longer viable, former agricultural land is now being used



Image Credit:
Nigel Pugh

for equestrian grazing and stabling. However, a strong farming community remains, united by their passion for the landscape they and their forbearers created; but with widely differing views on how best to protect it for future generations.

Current Agricultural support – Glastir

Glastir is the sustainable land management scheme through which Welsh Government offers financial support to farmers and land managers. Glastir pays for the delivery of specific environmental goods and services and is aimed at combating climate change, improving water management and maintaining and enhancing biodiversity. Uptake of Glastir across the Gwent Levels is poor, it is unpopular with farmers, and the future of the scheme following the Brexit vote uncertain.

Glastir Advanced provides additional financial support at targeted locations, and is intended to deliver specific conservation objectives and management options. Targeting of the advanced scheme did not originally include the Gwent Levels however, and is being reviewed in 2017.

Section 15 agreements

NRW have 27 Management Agreements with farmers within the Levels project area under s16 of the Environment (Wales) Act 2016 [previously s15 of the Wildlife & Countryside Act 1981 as amended by the Countryside & Rights of Way Act 2000]. These usually run for five years, after this NRW review the management, and can often offer to renew the agreement. Agreements have an 'area payment' component and a 'positive works' programme of ditching within it. Due to the large number of landowners and the limited budget for s16 agreements NRW cannot offer these to all farmers, rather the programme targets land where the greatest SSSI benefits can be gained.



Image Credit:
Nigel Pugh

Industry and Settlement

Settlement patterns on the Levels vary between the larger (but still small) groupings on the rising back lands, single farms at the end of narrow roads (frequently running alongside reens) and small clusters of houses. The Wentlooge Level has seen the encroachment of business and industrial parks adjacent to Cardiff. The western coastal area here is now the Lamby Way Landfill site on the coast where the Rhymney River meets the Severn Estuary - the former Lamby Way Landfill site is now awaiting restoration.

Further inland, where the landscape setting is more dominated by the modern urban sprawl of Cardiff and Newport, there are fewer remaining features of cultural importance.

The Newport Town Dock was opened in 1842 to address the needs of the coal and iron exporters and was expanded in 1858. The Alexandra Dock was initiated in the 1860s and the North Dock and associated lock opened in 1875. A South Dock opened in 1893 but was soon extended and an enlarged dock was opened in 1907 with a new South Lock opening in 1914. Just to the north of the docks the River Usk is spanned by the Newport Transporter Bridge (Grade I listed). This was constructed to link the town with industrial development on the east side of the river and was opened in 1906. A gondola or moving platform is suspended from a high level beam and carries vehicles and passengers across the river. The bridge is almost 74 m high and spans more than 195 m.

Llanwern Steelworks began production in 1961, and was formally opened by HM The Queen in 1962. Built in the back land area of Caldicot Level to the south of and adjacent to a three mile stretch of the Great Western Railway, it stood alone in the countryside to the east of Newport. Since that time the City has gradually spread eastwards to the site boundary. Although steel making ceased in 2001, there is still some sizable infrastructure based on the site. The redundant part of the works is being transformed into the extensive Glan Llyn residential development with 4000 new homes, new schools, a district centre, sports fields, shops, offices and restaurants that will greatly extend the conurbation of the City.

During the Second World War, a number of military positions were established around Newport in order to defend the docks, which were a strategic target for enemy airborne assault. A number of features associated with these wartime defences are still present in the area.

Part One – The Scheme Plan / Introducing the Gwent Levels Landscape

Modern development within the Levels and the adjacent land also includes the Uskmouth power stations, chemical and aluminium plants and also the industrial estates and business parks such as the Gwent Europark and Imperial Park. There has also been considerable settlement growth in and around the major urban conurbations of Newport and Cardiff, and also in the surrounding villages including those on the Levels.

The towers of the 133kV overhead electricity transmission lines marching across the landscape are also prominent features of the Levels. Abrupt engineered embankments associated with drainage, local roads and utilities infrastructure, are also a typical feature in many parts of the study area. In some places, the approach has been to avoid integration of infrastructure, which can serve to draw attention to these features in the open landscape.

Image Credit:
Robin Drayton



Image Credit:
Nigel Pugh



Transport Infrastructure

Motorways, other major highways and railways dominate the northern fringes of the Levels landscape, providing both a means of rapid access to and bypass of the region. The Levels are principally located to the south of the Cardiff-London Railway, except towards the north-east where they appear between the railway and the M4 and M48 that cut through the northern fringe of the Levels.

The South Wales to London Mainline railway cuts across the northern part of the Gwent Levels. It was constructed in the mid-19th century (this section opened in 1850) as the South Wales Railway and was engineered by Isambard Kingdom Brunel, enabling his Great Western Railway to extend the link from London into South Wales.

The M4 motorway runs across the eastern part of Caldicot Level and forms the northern boundary of the area. A new road from London to South Wales was first proposed in the 1930s, and in 1956 the Ministry of Transport announced plans for the M4 as one of the first major post-war trunk road improvement projects. Between 1966 and 1996, the Severn Bridge (now a Grade I listed structure), carried the M4 motorway across the River Severn and River Wye from Aust in South Gloucestershire to Chepstow in Monmouthshire. The Second Severn Crossing opened in 1996, together with new link motorways on either side of the estuary to divert the M4 over the new crossing. The existing route over the original Severn Bridge was redesignated the M48.

With the City region approach and the funding mechanism of the City Deal agreed, the Living Levels area is located on a transport and development corridor seen as vital to Wales' growth aspirations under the new South Wales Metro scheme set to be developed over the next decade. A key proposal as part of the project includes the proposed Cardiff Parkway Station in St Mellons which is currently in the first stages of the planning process. If built, it would serve a new 188 acre business park at St Mellons and up to 32,000 residents.

Image Credit:
Newport CC

Leisure, Tourism and Recreation



The Gwent Levels landscape is used by local communities and visitors for a range of outdoor leisure and recreation activities, in particular walking, cycling and bird-watching as well as fishing and wildfowling along the face of the Estuary.

Facilities and destinations include promoted recreational routes (such as the Wales Coast Path, NCN Route 4, Sirhowy Valley Walk and the Rhymney River Walk); country parks (Caldicot Castle, Parc Trederlech and National Trust Tredegar House and Tredegar House Caravan Club); nature reserves (Newport Wetlands, Magor Marsh and Great Traston Meadows); villages (such as Redwick and Peterstone); Hendre Lake near St Mellons; and the Transporter Bridge (a distinctive landmark, visitor attraction and crossing point for users of the Wales Coast Path). The Living Levels area also contains a diverse range of tourism facilities, in addition to the infrastructure of walks and cycle routes including: Sudbrook Heritage Centre and Black Rock; Newport Retail Park and Newport Sports Village; Peterstone Coarse Fishing Lakes,

Peterstone and St Pierre Golf Clubs and Wyevale Garden Centre, the Medieval Newport Ship, Cwm Hedd Fishing Lakes; Springfield Riding Stables; St Mellons Golf Club and Walnut Tree Farm.

The Living Levels area encompasses elements of several tourism destinations (counties of Cardiff, Monmouthshire and Newport) and also falls under the umbrella of brands well known by the public including RSPB Cymru, National Trust, Sustrans and the Wales Coast Path. The Levels offers many stories and experiences but these have not been organised into a coherent marketing proposition that can be used by its many partners and it would appear that even on the ground (with the exception of some of those working within the hospitality and conservation sectors) there is limited recognition by residents and communities of the area's potential appeal to visitors. The study area has patchy recognition in terms of its visitor offer among the local community and is not viewed, as yet, as a destination in its own right.

Although the Gwent Levels is not currently a competitive "traditional" tourism destination in terms of discrete geography, services or recognition, it has the potential to capitalise on the growth in experiential tourism; the desire of visitors to seek out new areas and products that are underexploited and offer "authenticity". The range of strands (from geographical, geological and archaeological to cultural and social as well as economic heritage) represent challenges in terms of catering for many interests. However, the Gwent Levels has a wealth of unexploited and under promoted stories to tell that can make content delivery rich and varied.



Image Credit:
Nigel Pugh

The Linguistic Landscape

Set in the context of an overall decline in Welsh speaking, reading and writing across Wales, communities in different parts of the Gwent Levels have seen both an increase and decrease in the use of the Welsh language from 2001 to 2011.

In the Monmouthshire part of the Gwent Levels, there was a rise in Welsh language speakers from 9.7% to 9.9%, one of only two areas in Wales to see a rise in this period. A major contributing factor to this rise was the growth of two Welsh medium primary schools in the County, one of which (Ysgol Gymraeg y Ffin) is located in Caldicot. At the time of the last Census (2011), 11.2% of the population of Severnside stated that they were able to speak Welsh, as well as 8.3% saying they could speak, read and write in Welsh.

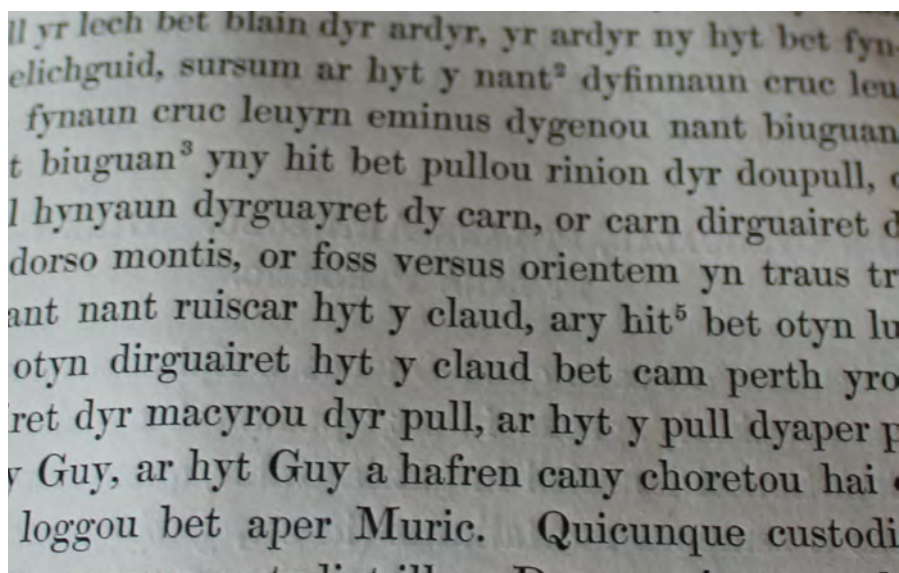
In the Newport part of the Gwent Levels, the percentage of people aged 3+ years who could speak Welsh at the time of the last Census in the electoral ward of Llanwern (on Caldicot Level) was 11.2% compared with 9.3% for Newport and 19.0% for Wales. The percentage of people aged 3+ years who could speak Welsh at the time of the last Census in the electoral ward of Lliswerry (on Caldicot Level) was 8.9%. The percentage of people aged 3+ years who could speak Welsh at the time of the last Census in the electoral ward of Marshfield (on Wentlooge Level) was 9.2%. In September 2016, Newport City Council's first Welsh Medium Secondary School was established. Ysgol Gyfun Gwent Iscoed, serves both the City of Newport and Ysgol Y Ffin catchment areas and its chosen name 'Gwent Iscoed' meaning Gwent beneath the wood (Wentwood) is a reflection of the region's historic landscape.

In the Cardiff part of the Gwent Levels, the Census indicated that only 7.8% of those aged 3+ in the electoral wards of Llanrumney, Rumney and Trowbridge (on the Wentlooge Level) are Welsh speakers, which is below the city average of 11.1%.

The Welsh language and history of the area have been interwoven through the culture over the ages. The names of agricultural fields, places, farmsteads and houses in the Gwent Levels are a mix of Welsh and English. Over the years, new people have moved in to find work, to retire or for a lifestyle change. Also, people (mostly young) have moved out of the area, predominantly in pursuit of education or in search of work. These changes have a profound effect on the use of the Welsh language and the culture.

Other languages are also spoken in the Gwent Levels, particularly in urban areas, by a number of minority groups. According to SEWREC, language can be a real barrier to integration for several minority groups including the Roma populations of Cardiff and Newport and refugee and asylum groups in particular.

The landscape has its own fascinating local 'Levels Lingo' or vocabulary - such as 'reens', 'grips' and 'noddles' - that provides an insight into the origins of the landscape over 1800 years ago and how it continues to be managed today.



Folklore

The Gwent Levels are mentioned in the Mabinogion, the collection of tales of early Welsh literature that intertwines myths, folklore, tradition and history. The story of the 'Tides' tells of a log which used to block a holy well and became covered in filth and mud. The Tyrigs used to stand on the log and it drifted out every fourth tide. However, it always found its way back, completely cleansed.

According to local folklore the sides of Monksditch, the 13th Century drainage ditch probably constructed by the monks at Goldcliff, are laced with smuggler's brandy.

Image Credit:
Nigel Pugh





The Artistic Landscape

Image Credit:
Nigel Pugh

The favourite subject of the prolific English landscape and topographical artist Henry Gastineau (1791–1876) was coastal scenery. Gastineau produced a series of water-colour paintings of views in the Mathern and Caldicot Levels for 'Wales Illustrated' (1830-1831). These included 'Caldicot Castle, Caldicot Level, Monmouthshire' (a distant view of the castle with sheep and cattle by a brook in the foreground); 'Mathern, from St. Pierre Pill, Monmouthshire' (a view across fields to the village of Mathern near Chepstow); 'Mathern Palace, Monmouthshire' (a view of the mediaeval bishop's palace near Chepstow with cattle in the foreground); and 'Sudbrook Chapel on Caldicot Level, Monmouthshire' (a view of the chapel ruin on the estuary).

Contemporary artists have also been inspired by the scenery of the Gwent Levels. For example, oil paintings of Wentlooge Level by landscape artist Peter Brown, produced in 2012 for an exhibition called 'Brown and Corsellis' at Cardiff's Albany Gallery, capture views of reed-fringed reens within the pastoral landscape.

The River Usk inspired the poetry of Paul Henry who lived in Newport, which is the subject of his 2005 poem *'Between Two Bridges' set against the backdrop of the Newport cityscape:* *"Between two bridges I follow him...Past a wave sculpted in steel, a boat they found inside the mud and thought an ark to save the port...The cradle under the big bridge is a pendulum, marking time. It ferries its load, back and fore...The river shuffles on to the sea."*

The rising and falling tides along the Gwent Levels' coastline were an inspiration to Anne Cluysenaar, a renowned Belgian born poet. Cluysenaar drew on the surroundings of her adopted home in Monmouthshire in poems such as *Timeslips* (1997), which reflected on slippages of time in landscape.

Born in St Brides Wentlooge in 1867, the actor Lynn Harding achieved international recognition in a 62 year career sharing stages with such greats as John Gielgud, Ralph Richardson and Anthony Quayle. Harding played Professor Moriarty in *Sherlock Holmes*, Bill Sykes in *Oliver Twist* on Broadway and Owain Glyndwr in Shakespeare's *Henry VII* on BBC Radio. Even at the height of his career, Harding frequently returned to his home village of St Brides, giving short performances in aid of various village affairs and local charities, especially those for poor children.

Poet William Henry Davies was also born in Newport, Monmouthshire, Wales, the son of a publican. His poem 'Leisure' is most famous for its opening lines which are printed at the top of this page.

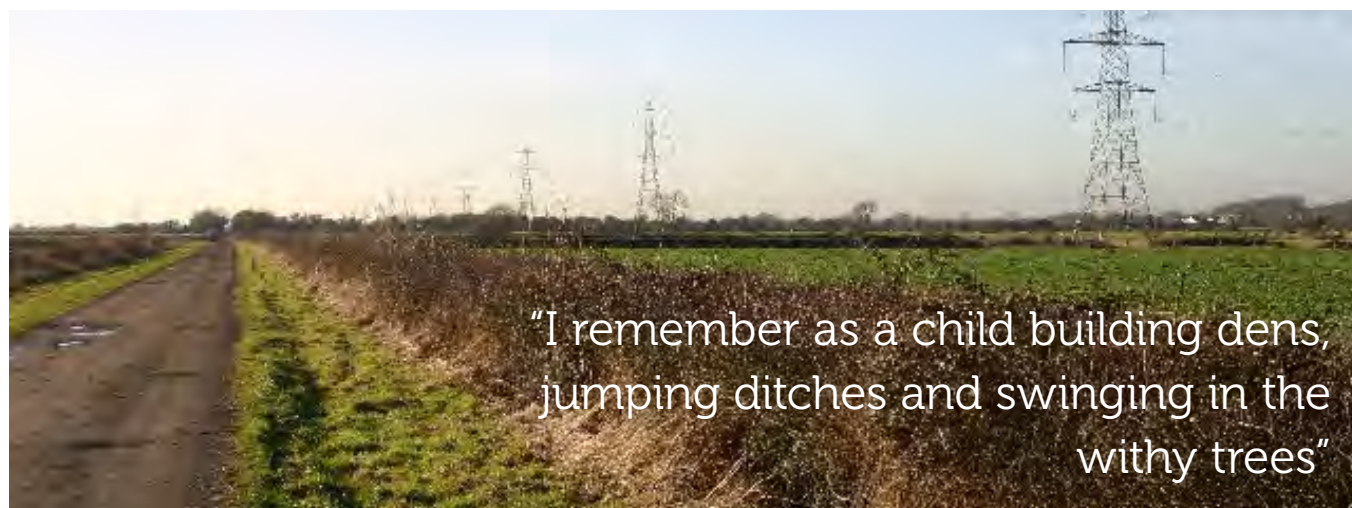


Image Credit:
Iain Macaulay

Public Perceptions of the Landscape

Feedback from the Living Levels community engagement process has been reviewed to gain an understanding of the public perceptions of the Gwent Levels landscape. From the range of comments received, it is evident that local people are extremely proud of and value their area. However, beyond those living immediately on the Levels there is much more limited awareness and recognition.

The feedback is summarised below in relation to the LANDMAP aspects:

Geological Landscape – it is generally understood that fluvial and coastal processes are a key influence in shaping the Gwent Levels and making it a “distinctive and uncommon landscape”. Importantly there remains a generation of interested and engaged local residents, landowners and workers who have a deep understanding of the unique way in which the Levels have been formed and maintained over centuries. However, our engagement revealed that awareness is higher amongst older resident communities on the Levels who have experienced and

remember the effects of serious flooding – i.e. via accounts of the 1956 floods – the last time that the Sea wall was breached. Generally there is lower awareness and concern amongst the younger communities and residents living at the edges of the Gwent Levels. Many of these residents do not even realise that the Levels have been reclaimed and that the long-term flood risk for the area is reliant on the maintenance of the current drainage system and sea defences. With new settlement patterns and other social change the historical knowledge is not guaranteed a long term future.

Historic Landscape – while there is a clear awareness of some specific heritage features in the landscape, the residents on the urban fringe and around the edges have a much lower awareness of the landscape than those living in market towns and villages located on the Levels directly. E.g. *“Heard of the Gwent Levels but no idea where they are”, “I was unaware of the historic significance of the Gwent Levels landscape as a whole”* and *“I have never heard it labelled as the Gwent Levels until now”* are typical of the comments received.

Cultural Landscape – local people living on the Levels appear to have a deep affinity with the Gwent Levels landscape, as a place of memory and as a closely knit community (e.g. *“I remember as a child building dens, jumping ditches and swinging in the withy trees”*). Access to the Gwent Levels via public rights of way for horse riding, rambling, cycling, running and dog-walking is highly valued (e.g. *“very easily accessible”* and the *“cycling is the best in the country”*). Respondents to a Newport Involve Citizen’s Panel Survey were asked *“What are the stories, myths and legends that people associate with the Gwent Levels?”* 100 comments were received and while the most common answer was ‘I don’t know any’, 15 people mentioned the Great Flood/ Tsunami or flooding and five people raised the influence of the Church and monks. Over 30 respondents said they would be keen to find out more about the stories and legends of the area and would welcome a project that explored this. There appears to be genuine interest from the wider community to discover more about this landscape.

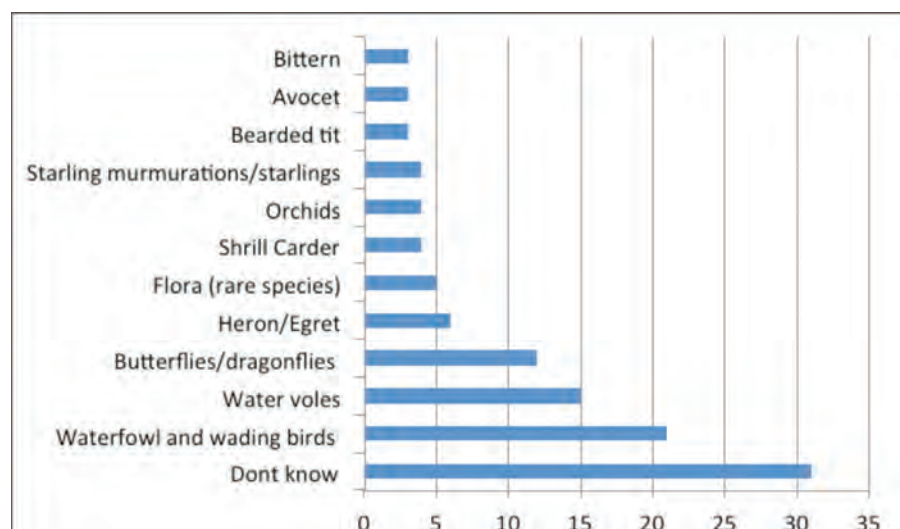


Chart showing iconic species associated with the Gwent Levels.

Landscape Habitats – the importance of the Levels as a sanctuary for wildlife, and as a place where people can reconnect with the natural environment and learn about wildlife, is widely understood and valued by the community (e.g. *“incredible we have this nature on our doorstep”* and *“the best thing is to have space to explore and be closer to nature”*). Conservation and restoration activities ranked second in both of our surveys for activities that the public wanted to see the LLLP develop. Asked what iconic species, if any, do people associate with the Gwent Levels, the most common answers are charted above (128 comments were received through the Newport Involve Citizen’s Panel Survey – the full survey returns are included in appendix 12).

Whilst there were a lot of ‘don’t know and no idea’ answers, it was encouraging to see some of the well-known success stories such as the reintroduced water vole featuring and some of the rare invertebrates and flora also being referred to by name (see above).

Visual and Sensory – the changing light, fresh air and open skies of the Levels is widely valued by the public, as are the opportunities afforded for a tranquil, peaceful escape from busy city life (e.g. the Gwent Levels are *“only a few miles from Newport but it’s a different world!”* and they are *“romantic, beautiful and natural”*). However, many people feel they are blighted by fly-tipping and local environment quality is poor – particularly down at the Wentloog end, *“Gradually being destroyed by fly-tipping”, “Wentloog end-scruffy and unloved- needs a cleanup.”*





Image Credit:
Newport CC

Recreation and Sites of Interest

Natural and Semi-Natural Greenspaces

Natural and semi-natural greenspaces encompass a broad range of habitat types that can be found both within and outside of designated sites and nature reserves, such as the foreshore of the Estuary beyond the Sea wall; reedbeds; wet meadows, grazing marsh, woodlands and dry grasslands; and previously developed/brownfield land.

In addition to supporting a range of habitats for wildlife, these natural and semi-natural greenspaces can also provide managed access for informal recreation (such as walking and bird watching at Newport Wetlands, Great Traston Meadows and Magor Marsh nature reserves, which are partially accessible).

Green and Blue Corridors

Green and blue corridors are predominantly linear landscape features encompassing semi-natural and natural terrestrial and aquatic habitats. In addition to their vital function in supporting the dispersal of wildlife between natural and semi-natural greenspaces within the agricultural landscape and urban areas, these corridors can also provide opportunities for walking, cycling and other outdoor recreation activities where these functions coincide. Within the study area, significant green and blue corridors include:

- The ditch and reed network (important green/blue corridors incorporating public access in some places)
- The Rivers Rhymney, Usk/Ebbw and Wye (important green/blue corridors incorporating public access, including links to long distance walking routes along the River Usk and River Wye in some places)
- The Severn Estuary (an important marine blue corridor for migration of fish and birds).

- The Sea wall (an important green corridor for plant communities and pollinators, incorporating the Wales Coast Path for much of its length)
- Historic green lanes and byways, many of which are part of the public rights of way network which include bridleways and link to Sirhowy Valley long distance route
- NCN Route 4 and Route 88
- Highway and railway verges (important green corridors)

Farmland, Orchards and Allotments

Farmland, orchards and allotments can contribute to local food production and landscape character. Within the study area, farmland includes both commercial farming businesses and small holdings. Historically, orchards were a distinctive feature of the landscape found alongside most farms and the Gwent Levels orchards produced their own specific apple and pear varieties. However, the end of cider making locally means that most orchards are no longer commercially viable and they are now limited to a few sites in the vicinity of Goldcliff, Redwick and Magor on Caldicot



Image Credit:
Newport CC

Image Credit:
Nigel Pugh



Level, plus a small number on Wentlooge Level. There are also a number of allotments within the study area such as the 'Grow Your Own' scheme at Castleton and a few community gardens.

Cemeteries and Churchyards

In addition to providing important habitats for wildlife, cemeteries and churchyards can also provide opportunities for quiet reflection and spiritual enrichment that contribute to people's well-being. Examples within the study area include urban cemeteries, churchyards associated with small rural parish churches (such as those at Peterstone Wentlooge, Nash, Whiston and Redwick), and cemeteries and churchyards on the edge of larger conurbations such as Rogiet and Portskewett.

Parks and Gardens

Public parks and gardens provide opportunities for informal recreation that can contribute to people's health and well-being, and also provide habitats for wildlife. Within the study area, there are a number of urban parks in east Cardiff (Parc Coed y Nant, Parc Coed y Cwar, Parc Tredelerch and Fishpond Wood) and in Newport. The study area also includes Tredegar Park and Caldicot Castle Country Park.

Amenity Greenspaces

Amenity greenspaces predominantly provide opportunities for formal outdoor sports and recreation that contribute to people's health and well-being. Examples within the study area include formal amenity greenspaces associated with sports facilities such as the Newport International Sports Village, Peterstone Coarse Fishing Lakes, Peterstone, St Mellons and St Pierre Golf Clubs and a range of more informal amenity greenspaces in urban areas, such as those associated with the Severnside settlements.

Heritage Sites

Heritage sites provide opportunities for informal recreation and intellectual access to history that contributes to people's health and well-being. Examples within the study area include historic estates such as Tredegar House and Llanwern Park, and historic monuments such as Caldicot Castle, Chepstow Castle, Magor Church and Procurators House, the Transporter Bridge (grade one listed), and grade one listed churches (St Mary, Caldicot, St Mary, Undy and St Thomas, Redwick).



Demographics

The demographics of the Local Authority areas are complex; they are a mix of urban wards surrounded by rural wards on their outskirts and around their coastline. The rural wards are a mix of sought after, more affluent wards with unemployment figures below the Wales average and deprived communities disadvantaged by their location with poorer access to services to support employment.

This landscape includes the most populated and developed part of Wales. The built-up land comprises the town of Chepstow and the Severnside settlements in Monmouthshire (Caldicot, Rogiet and Magor/Undy); the southern and eastern edge of the City of Newport (including the neighbourhood of Duffryn, the Docks, the Llanwern Steelworks and the adjacent Glan Llyn major development site); and the eastern edge of the City of Cardiff (including Marshfield).

The historic relationship between the Gwent Levels and these settlements has been significantly disrupted by modern railways, motorways and urbanisation. Despite the proximity of these major conurbations and large towns, today there are increasingly limited visual connections and cultural associations between these communities and the Levels. Nonetheless, existing and new communities on the Gwent Levels remain connected to the area's landscape history through their shared vulnerability to flooding and inundation if drainage systems are not maintained.

Chepstow and the Severnside Settlements

Monmouthshire is a predominantly rural county with a total population of 85,000. The Severnside area includes several areas of population in the south of the County – including Portskewett, Caldicot, Rogiet, Magor and Undy within the LLLP area, which together combine to form the largest area of urban population in the county (almost 20,000 people). The population of Monmouthshire

is forecast to increase by less than one percent over the next twenty years. Of far greater significance are changes in the age profile of the county with the number of over 85 year olds predicted to more than double by 2039 while the number of people under 18 will decline by 14% (Monmouthshire Well-Being Assessment, 2017).

Census figures from 2011 show 98% of Monmouthshire's population are of white ethnicity. Those who consider themselves of Asian ethnicity the next most common with 1% of the population (900 persons). There are only small numbers of black and minority ethnic residents in Monmouthshire.



Image Credit:
Jeremy White

City of Newport

Five wards in Newport are within the LLLP boundary – Llanwern, Lliswerry, Pillgwenlly, Tredegar Park and Marshfield.

The age structure of the population in Newport is different to the Wales average with a higher percentage of people under the age of 15, a lower percentage of over the age of 65, and high numbers of vulnerable low income families. (Newport, Community Well-Being profile 2017).

This table reveals an age divide between urban wards (Lliswerry, Pillgwenlly, Tredegar Park) and rural wards (Marshfield and Llanwern) with higher numbers of young people (0-15) present in the more urban wards and higher numbers of over 65s in the rural wards.

The city has the second largest number of people from a minority background of all the Welsh Councils after Cardiff. The 2011 census found that 8% of Newport's residents were born outside the UK but this figure is rising. In order of highest numbers first were: Pakistan, India, Bangladesh,

Age profile by wards in LLLP area - Newport

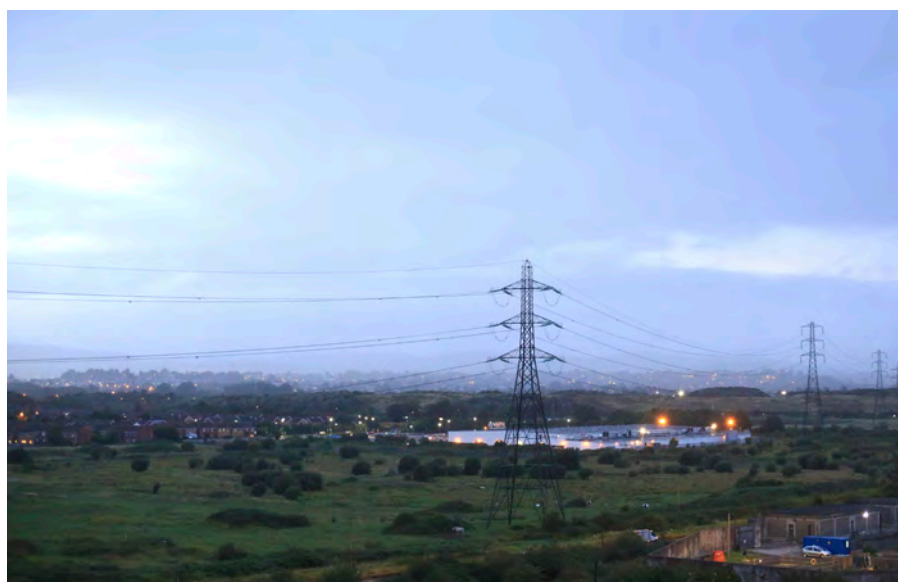
| Ward | All Ages | Aged 16 to 64 | Aged over 65 |
|---------------|----------|---------------|--------------|
| Lliswerry | 12694 | 8232 (65%) | 1621 (13%) |
| Llanwern | 2952 | 1892 (64%) | 517 (18%) |
| Pillgwenlly | 7490 | 5022 (67%) | 772 (10%) |
| Tredegar Park | 4446 | 2785 (63%) | 550 (12%) |
| Marshfield | 6364 | 4070 (64%) | 1001 (16%) |

Poland, Philippines, Germany, South Africa, Nigeria, Italy and Zimbabwe. The highest concentration of Black and ethnic minority groups are in urban areas. In rural wards such as Marshfield and Llanwern, over 96% of the population is ethnically white whereas it is between 65 and 89% in Pillgwenlly and 89% in Lliswerry (Newport Community Well-being profile, 2017). Welsh Government Local Authority data projections estimate the population of the Newport region is predicted to increase by 17% by 2036.

Newport has one of the highest populations of Gypsy, Roma and

traveller communities in Wales. 28 households living in Newport are headed by someone who was a Gypsy or Irish Traveller, likely a very significant underrepresentation of the true figure as many households would likely not have completed the census. This is therefore an important minority community within Newport.

Image Credit:
Nigel Pugh



City of Cardiff

Within the study area, the eastern edge of the City of Cardiff is located within a well-defined landscape setting with prominent ridges to the north and the Severn Estuary to the south. The river valley of the Rhymney provides an extensive and continuous green corridor running from the Gwent Levels through the urban area. Over the last 50 years or so, there has been considerable encroachment of urban residential development onto Wentlooge Level as Cardiff has expanded eastwards, such as the Pwll-Mawr Business Park.

The Cardiff East Neighbourhood Partnership Area is comprised of the Electoral Wards of Llanrumney, Rumney and Trowbridge –falling within the LLLP boundary. Cardiff East has a resident population of 36,700; accounting for around a tenth (10.3%) of the total Cardiff population. It has the largest population of people aged 0-14 in all the Cardiff Neighbourhood partnership areas (22%) and a high proportion of people aged 20-29 (20%). The

main residential communities of Cardiff East are located north of the main-line railway.

9.4% are non-white and the majority of these are mixed/multiple ethnic groups (3.3%) Asian/Asian British (2.9%) and Black/African/Caribbean both at 2.1 %. Gypsy or Irish Travellers stand at 0.7% (Cardiff East Liveable City Report, 2016).

There is a mix of housing tenures, with over 30% of the dwelling stock in Llanrumney and Trowbridge wards being in the social rented sector. To the south of the main-line railway are the employment and business areas of Wentloog, as well as the Shirenewton Traveller site (Cardiff East Neighbourhood Action Plan 2016-17).

Socio-economic trends

The high populations of the towns and cities on the doorstep of the Gwent Levels and higher than average levels of deprivation in the landscape area place significant pressures on the landscape and challenges for the LLLP. The Gwent Levels has the potential to provide access to high-quality greenspace for the residents of Cardiff and Newport and the wider “City Region” and to help deliver community health and well-being benefits.

Deprivation is generally higher in urban areas although varies according to the indicator. Píllgwenlly ranks in the top 10% most deprived areas in Wales as do some of the Lower Super Output Areas in Lliswerry and Tredegar Park (WIMD, 2016). There are also more affluent communities in rural areas such as Redwick, Llanwern and Underwood - a small community on the outermost north eastern edge of the ward accessible only via Llanwern or Langstone villages.

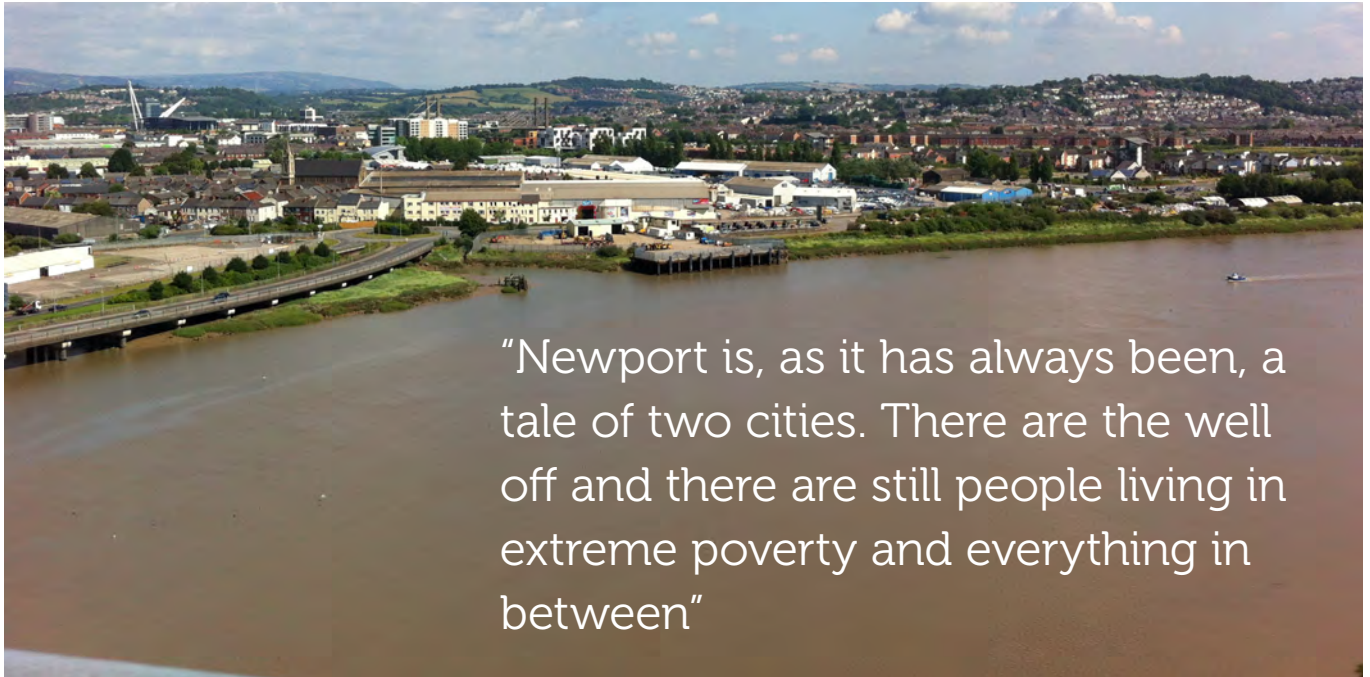
More than two-fifths (43.5%) of the 23 LSOAs in Cardiff East are ranked in the 10% most deprived areas in Wales, while three-fifths (60.9%)

are deemed to be in the 20% most deprived areas (Cardiff East Liveable City Report, 2016).

Monmouthshire is generally a prosperous area and has no LSOAs in the top 20% most deprived in Wales. However, three of the 11 most deprived areas in Monmouthshire are located within Severnside. Although Monmouthshire’s natural environment is a big asset, the rural landscape brings with it some challenging issues associated with isolation, mobility, deprivation and access. Access to services is a particular challenge: of 56 ‘LSOAs’ in Monmouthshire, 22.4% are in the most deprived 10% in Wales including areas inside Portskewett and Rogiet in the LLLP area for this indicator (WIMD, 2016). Many services such as hospitals, supermarkets and schools and activities for disabled people are in urban areas or designed to be accessed by car (Monmouthshire Well-being assessment, 2017).

Economic indicators

Nine LSOAs in the East of Cardiff rank in the top 25% most deprived by the employment indicators of WIMD and Cardiff East (16.7%) has the second highest percentage of all regions in Cardiff of its population aged 16-64 claiming out-of-work benefits (Cardiff East Neighbourhood Partnership, 2016). Cardiff is just below the Wales average in terms of number of workless households, however, while Cardiff communities like Rhiwbina and Radyr have less than 5% of children under the age of 20 living in low-income families, the figure sits at 34.8% for Cardiff East (Liveable City Report, 2015).



Five LSOAs in Newport within the LLLP boundary feature in the top 25% most deprived by the employment indicators. Pillgwenlly performs worst with 30% or more of the working-age population claiming at least one out-of-work welfare benefit whereas Pillgwenlly and Tredegar Park are amongst those with the highest rates (40%) of low income for families with children for Newport - a key indicator of poverty. The rural fringe wards tend to record significantly lower levels with rates typically a quarter or less than urban counterparts (Newport Community Well-being Profile, 2017).

In Monmouthshire there has been an increase in the percentage of children living in workless households rising from 4.9% in 2009 to 6.6% in 2015 - still much lower than the Wales average of 13.6% (Monmouthshire Well-being Assessment, 2017). However, this measure is generally regarded as a key indicator of poverty and suggests that poverty is still deeply embedded in some isolated pockets of Monmouthshire. Where poverty exists in the county it can be all the more stark where it features alongside significant affluence. Compounding this, people on low incomes increasingly tend to live in areas with others who are materially disadvantaged. Deprived neighbourhoods often have inadequate housing and a lack of basic amenities and services, all of which can contribute to stress and other health and well-being issues.

Health and Well-being

Air quality is the leading cause of the environmental burden of disease in Europe. In February 2016, it was reported that 40,000 additional deaths per year are attributable to poor air quality, with a health cost of £20 billion per annum (Royal College of Physicians, 2016).

As can be seen in Figure 8, given the proximity of urban areas, the entire LLLP area covers some of the worst performing Air quality areas in Wales.

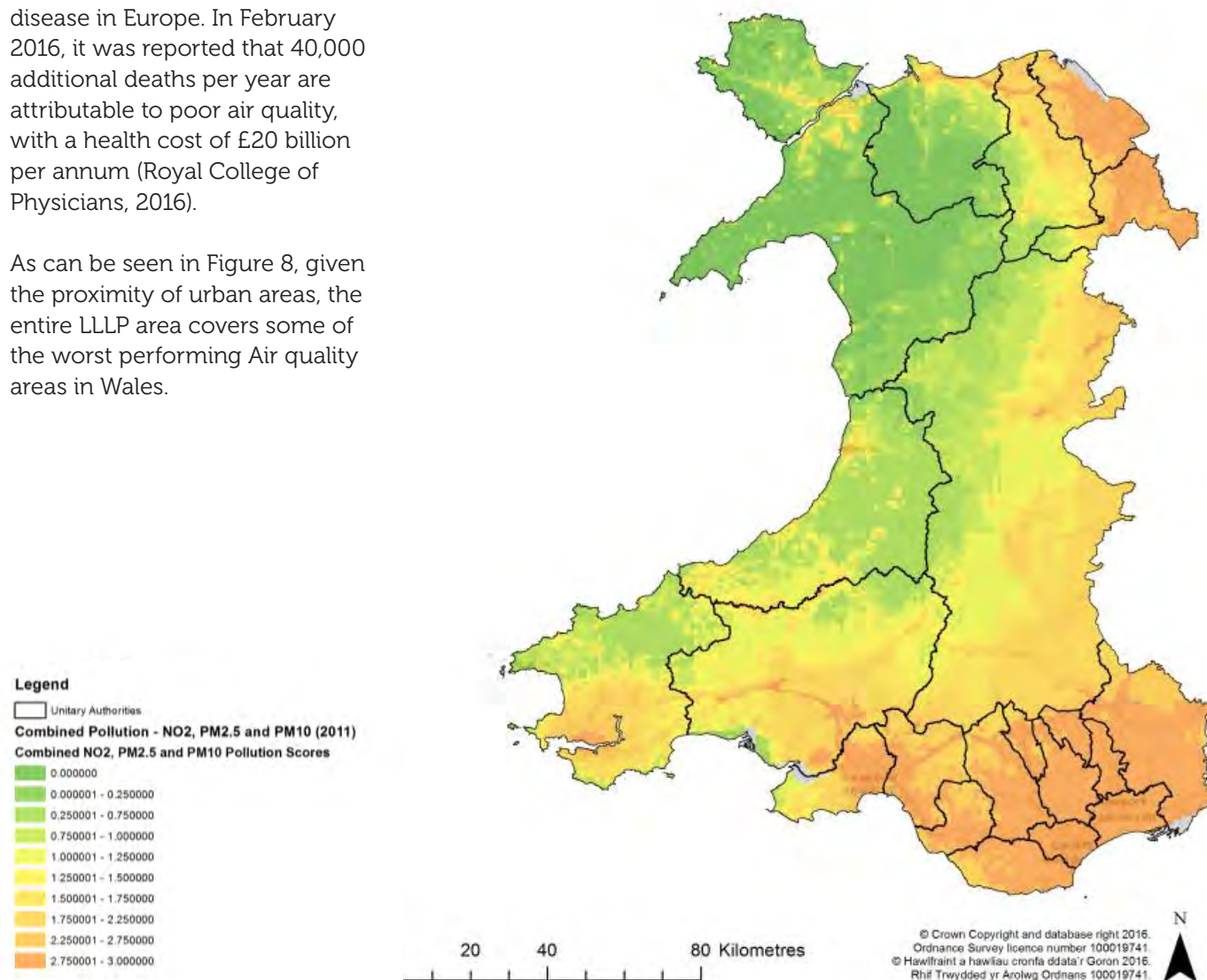
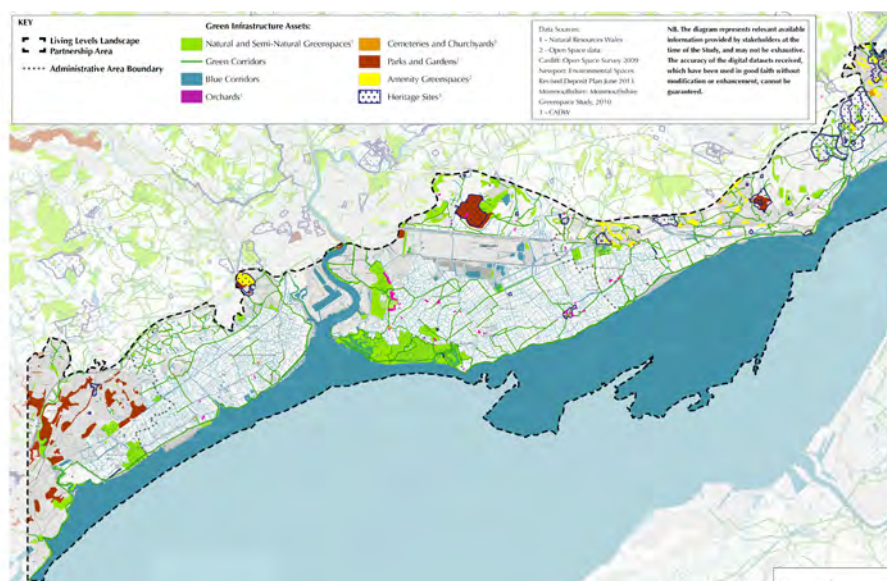


Figure 8 –
Air Quality Map of Wales

Figure 9 – GI Assets



Hospital admissions and Deaths per 100,000 population from cardiovascular and respiratory disease are above the Newport and Wales averages in Pillgwenlly in particular (Newport Community Well-being Profile, 2017).

In Cardiff, seven LSOAs within the LLLP boundary rank in the top 10-20% most deprived in terms of health, in particular St Mellons, Rumney and Trowbridge. Life expectancy and other health indicators suggest people are generally worse across a range of health indicators in Cardiff East compared to the rest of Cardiff (Cardiff East Neighbourhood Partnership, 2016).

LSOAs in Monmouthshire in the 10% most deprived LSOAs in Wales for health and 81% of people in Severnside consider their general health to be good or very good which is above the Wales average. Key pressure in Monmouthshire in terms of healthcare is predicted to come from its ageing population - the population aged 65 and over is projected to increase by 61% and, more significantly, those aged 85

and over by 185% by 2039. This is above the increase projected across Wales of 72% and the second highest increase in Wales after Flintshire (Monmouthshire Well-being Assessment, 2017). During 2015, dementia overtook heart disease as the leading cause of death in England and Wales, in part because people are living longer but also because of improved detection and diagnosis.

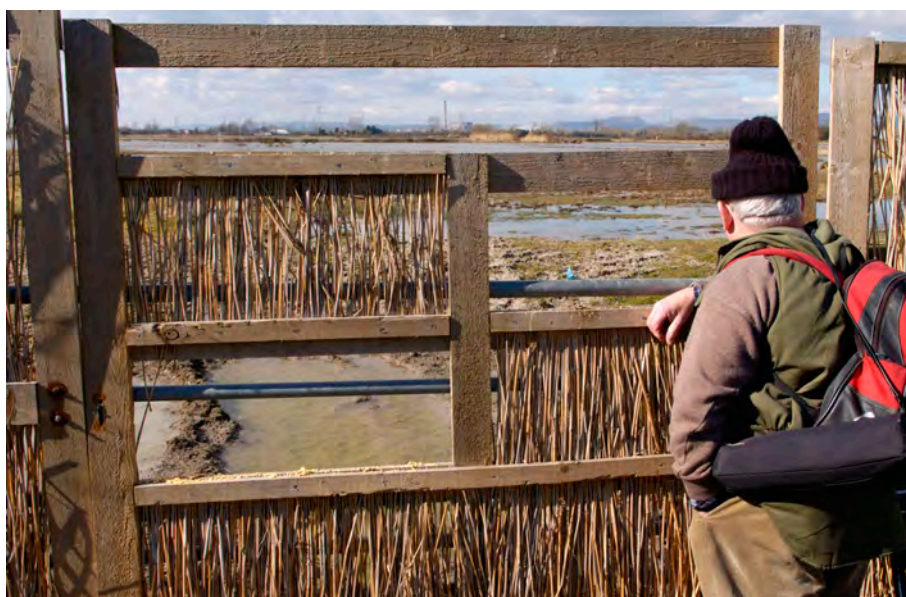
The cost of physical inactivity to Wales is estimated to be £650 million per year. Public Health Wales are also warning of a Type 2 diabetes epidemic in Wales. However, it's widely recognised that several of the key health issues faced by Wales (and other countries) are considered to be 'preventable' (Chief Medical Officer Annual Report 2013-14 & 2014-15). The Monmouthshire and Newport well-being assessments identifies obesity as the most potent risk factor for Type 2 diabetes. Across Wales rates of diabetes have increased from 5% in 2003/04 to 7% in 2015/16 with 7% of Monmouthshire residents currently being treated. Newport is above the Welsh average for obesity in adults (62% compared to 59%) with the trend for obesity increasing. Cardiff East has the

highest levels of overweight and obese adults and children in Cardiff. Compounding this, higher percentages of people in the most deprived areas are reported as being obese compared to people living in the least deprived areas.

Increasing levels of physical activity across Wales, particularly amongst the least active, is a stated priority for the Chief Medical Officer for Wales (CMO Annual report 2013-14). Using the outdoors as a means of encouraging recreation has been well documented, and the Gwent Levels offers many opportunities to access the outdoors for responsible recreation.

Figure 9 shows the potential for the Living Levels area to act as vital community greenspace as set out in the Regional Green Infrastructure Strategy:

In addition, the landscape could offer significant mitigation opportunities from air pollution by offering recreational resources to escape effects (Mirzaei, 2015). According to a recent MIND report on ecotherapy there is a significant opportunity for GP's to consider prescribing conservation projects



or walking groups as a serious treatment options for some mental health conditions. The evidence for the benefit of physical activity for mental health conditions is compelling (NICE, 2013), and there is a growing body of evidence that suggests this effect is magnified when in the right kind of tranquil, natural space (Mass, et al, 2006).

Research shows that when communities engage with their local green spaces, and when green spaces are fully integrated with the built environment, there are direct health and well-being benefits for people, wildlife and habitats (Van den Berg et al, 2010).

These benefits can impact a wide range of the population leading to higher educational achievement, reduced unemployment, reduced reliance on welfare and disability benefits, higher productivity in the workplace, reduced crime and anti-social behaviour, better social relationships and community involvement and reduced costs to health and social services. However as always, it is the most vulnerable of society that have the most to gain and the least chance of engaging.

Key vulnerable groups include:

- Young people (especially obese, overweight and sedentary) and those within their first 1000 days of life i.e. ACE/Adverse Childhood Experiences
- Older people, those excluded digitally and with poor mobility
- Low income families, especially single parent
- Residents with poor respiratory health
- Residents from minority backgrounds

Image Credit:
Nigel Pugh



Well-being Objectives

The public body partners in the LLLP are required to publish well-being objectives and a well-being statement as set out in the Well-being of Future Generations (Wales) Act 2015. By May 2018 the relevant Public Service Boards (Cardiff, Monmouthshire and Newport) will build on these and the well-being assessments to prepare and publish a local well-being plan, setting out their local objectives and the actions they will take to meet them. The partners' well-being objectives are as follows:

Natural Resources Wales

- Champion the Welsh environment and the sustainable management of Wales' natural resources
- Ensure land and water in Wales is managed sustainably and in an integrated way
- Improve resilience and quality of ecosystems
- Reduce the risks to people and communities from environmental hazards like flooding and pollution
- Help people live healthier and more fulfilled lives
- Promote successful and responsible business, using natural resources without damaging them
- Develop us into an excellent organisation, delivering first class customer service

(17/18 business plan
<https://naturalresources.wales/media/681430/business-plan-document-2017-18.pdf>)

Monmouthshire County Council

- Provide children and young people with the best possible start in life to help them achieve better outcomes
- Maximise the potential in our communities to improve well being for people throughout their life course
- Maximise the benefits of the natural and built environment for the well-being of current and future generations
- Develop opportunities for communities and businesses to ensure a well-connected and thriving county

(Approved by Council
20 March 2017
<https://democracy.monmouthshire.gov.uk/documents/s8590/9g.%20Appendix%20-%20Well-being%20Objectives%202017.pdf>)



Image Credit:
Nigel Pugh

Newport City Council

- To improve skills, educational outcomes and employment opportunities
- To promote economic growth and regeneration while protecting the environment
- To enable people to be healthy, independent and resilient
- To build cohesive and sustainable communities

(Approved Cabinet 20 March 2017
<http://www.newport.gov.uk/en/Council-Democracy/About-the-council/Well-being-objectives.aspx>)

Cardiff Council

- Priority 1: Better education & skills for all
 - Every Cardiff school is a great school
 - Looked after children in Cardiff achieve their potential
 - Supporting people into work and education
- Priority 2: Supporting vulnerable people
 - People at risk in Cardiff are safeguarded
 - People in Cardiff have access to good quality housing
 - People in Cardiff are supported to live independently
- Priority 3: An economy that benefits all our citizens
 - Cardiff has more and better paid jobs
 - Cardiff has a high quality city environment where population growth and transport needs are managed sustainably

- All young people in Cardiff make a successful transition into employment, education or training
- The Council has high quality and sustainable provision of culture, leisure and public spaces in the city
- Priority 4: Working together to transform services
 - Communities and partners are involved in the redesign, development and delivery of local public services.
 - The Council has effective governance arrangements and improved performance in key areas
 - Our services are transformed to make them more accessible, more flexible and more efficient

(Corporate Plan 2017 – 2019
<https://www.cardiff.gov.uk/ENG/Your-Council/Strategies-plans-and-policies/Corporate-Plan-16-18/Pages/default.aspx>)

Summary

Use of the natural environment can support social resilience by providing opportunities for interaction and engagement. This helps build social cohesion, along with improving mental well-being and increased physical activity, both of which are of particular benefit in more deprived areas, where social resilience is often at a lower level.

The high population cities on the doorstep of the Levels offer significant potential for our programme to engage with large numbers of people, from a wide range of ages, ethnicities and social backgrounds.

We aim to increase the satisfaction of existing audiences and broaden the range of people engaging with heritage so that it better represents the socio-economic diversity within the area.

The Living Levels programme has the potential to help deliver significant health and well-being benefits for the relevant populations.



Visitors / Who Visits and Who Could Visit

Another important task during the Development Phase has been to develop a better understanding of visitor usage of the Gwent Levels and the potential for developing the area as a visitor destination.

There is a lack of primary data for visitors to the Levels area as an “entity” – both quantitative and qualitative data is light - but we do know, from studies carried out by Tredegar House (80,000 visits per year), Caldicot Castle (55,000) and Newport Wetlands (100,000 visits per year) – the three key visitor attractions in the LLLP area at present - that these individual attractions are recording healthy, consistent visitor numbers and, also, data available from the 2016 Wales Visitor Survey for each of the individual destinations helps us consider what those visitors rate as important aspects of their decision to visit.

Monmouthshire’s appeal (evidenced in the 2016 Visitor survey) is clearly for couples and families with young children enjoying the outdoors, history, heritage and events, although these are largely seasonal; Newport and Cardiff both benefit significantly from business orientated visits, helping to iron out the peaks and troughs of seasonality and mid week occupancy levels. The latter has also seen a rapid growth in city leisure breaks in recent years as Cardiff’s national and international profile has been boosted (and visitor interest fed by constituent accommodation promotion, infrastructure development and event programming that has put the destination at front of mind for many considering a UK short break).

The visitor economy of South East Wales is worth more than £2bn to the overall region with Cardiff generating 50% of tourism income generation – the Capital represents latent opportunities to attract visitors who may have been drawn, initially, to its high profile city offer and sport and cultural events to embracing a wider suite of experiences (on offer in the Levels) that lie within easy reach (Cardiff Tourism Strategy and Action Plan, 2015).

Despite some good studies for specific areas, currently there is no real on-the-ground attempt to tell the stories of the Levels to either existing users (who are as varied as shoppers in the retail park, to walkers on the Wales Coast Path, to birdwatchers at the Wetlands centre) or potential users. If people don’t understand why the Levels area is ‘special’ then they are unlikely to appreciate it. This deficit needs to be addressed, so that users are more understanding of the precious character of the Levels and their own role in its sustainability.



Image Credit:
Roy Parkhouse

Most recent data (2016 South East Wales Visitor Survey, Beaufort Research) gives us a general picture for the region as a whole.

Notably “The majority of visitors to South East Wales are from Wales (71%), which is higher than for Wales as a whole. This reflects the higher proportion of day visitors to this area than to Wales generally” in addition to which “the age profile of visitors to South East Wales also reflects the all Wales profile; younger people aged 16 – 34 years account for just under a quarter of visitors (23%), while around four in ten are aged 35-54 years and 55+ years.” Also of interest when considering delivery planning is “...the high prevalence of ABC1 visitors; these make up around two thirds of visitors to South East Wales (64%), while C2DE visitors account for just over a third (35%).”

STEAM figures can give us a picture of current tourism activity (2015)

- **Monmouthshire** Visitors 1.2m staying and 1.7 day
- **Newport** Visitors 0.7m staying and 2m day visitors (the latter driven, in part, by business tourism)
- **Cardiff** Visitors 2m staying and 18.5m day

Image Credit:
Robin Drayton



Living Levels STEAM Analysis ⁴

A breakdown of data (disaggregated as far as possible) relating to the Living Levels area gives us an impression of current activity that, although not detailed, at least provides a baseline upon which to monitor future trends.

2015 Figures (extract from STEAM report 2015)

| Category | Tourist Number (thousands) |
|--------------------------------|----------------------------|
| Serviced Accommodation | 206.3 |
| Non-Serviced Accommodation | 7.9 |
| Visiting Friends and Relatives | 108.2 |
| Day Visitors | 1,048.1 |
| TOTAL | 1,370.5 |

Wales Coast Path usage

In general, user figures for the whole of the Cardiff to Monmouthshire stretch of the WCP have been consistently down compared to other regions in Wales. WCP counters show very uneven usage along the Gwent Levels stretch, ranging from the higher end numbers of 27,568 at East Usk Lighthouse and 20,315 at Black Rock to the lower end figures of 3,069 at Redwick Sea Wall and St Brides footbridge 1,270 (WCP counters report, 2015). The variability of ease of access from population centres, local economics and coastal geography are very different which explains some of this lack of uniformity. The Black Rock figure is located on a very well used stretch of path between Sudbrook and Black Rock and so captures a lot of users walking this short length and dog walking from both Black Rock car park and the residents of Sudbrook, reflecting high levels of local usage. It is also one of the easiest access points on the whole of the WCP in Monmouthshire. The Lighthouse Inn is a popular starting point for many short walks with both a pub

and a private car park that is open for public use with a charge (now in very poor condition).

The 2013 Wales Coast Path Visitor Survey reported figures for the Cardiff to Monmouthshire stretch as its own separate category but the 2015 survey aggregated them together with the Vale of Glamorgan, Neath Port Talbot and Cardiff which could distort the figures for the Cardiff to Monmouthshire stretch. For that reason we have used figures from the 2013 survey to give a truer reflection of the stretch of interest to the LLLP.

The average distance travelled in one visit for the Cardiff to Monmouthshire section of the path was 1.3 miles (1.8 miles was the average across the whole of Wales). The NRW WCP survey points out that high numbers of older path users are likely to bring this average distance down with younger singles and couples walking on average further per visit. In terms of socio-economic data, the majority of the path

⁴ This is based on ward boundaries and includes high footfall sites including Tredegar House, Caldicot Castle and the Wetlands Centre. It also includes St Mellons and St Pierre Hotels but excludes the Coldra major accommodation cluster.



users nationally are from the higher social grades of ABC1 (72%). However, users of the Cardiff – Monmouthshire stretch are most likely to belong to the C2DE groups (35%). The average age of path users here is 51 (compared to a national average 53) and less than 19% of users are under 34, (though this is higher than the national average of 13%).

The Cardiff to Monmouthshire stretch had the lowest percentage of mobility-restricted users of all the WCP at just 5% usage compared to a national average of 12%. This stretch also had a much greater proportion of day users compared to the average at 91% (national average, 61%). In terms of spend, the average total daily spend by the walking party excluding accommodation was also the lowest in 2013 for all regions for the Cardiff to Monmouthshire stretch at just £6.98 compared to the average of £15.62. In addition, the 2015 WCP report highlights that the South Coast stretch also had the lowest number of visitors from England and the rest of the UK at just 7% compared to the national average of 38%.

Despite its investment, the Gwent Levels coast remains an under-utilised and often underappreciated asset. The Living Levels Visitor Destination Management Plan concludes that there is considerable room to grow the overnight stays and trips from further afield with the potential of adding greater value to the local economy than at present.

Cycle Routes

Part of the Chepstow to Swansea section of the National Cycle Route 4 crosses the Gwent Levels, linking Chepstow and the Newport Transporter Bridge via a 22 mile stretch. This is part of the so-called Celtic Trail – a strategic Sustrans promoted route of 377 miles in length linking Chepstow to the Pembrokeshire Coast National Park via NCN routes 4 and 47. From here, it is possible to link NCN 4 with the newly created Route 88 to Marshfield via a new stretch which was opened by Newport City Council in 2015. Route 88, when completed, will be a coastal route between Newport, Cardiff, Bridgend and Margam Country Park. Currently it is being developed and only parts are

open. The Newport to Cardiff link, when completed, will provide a continuous commutable cycle route over to Cardiff from Newport centre, however, currently only the Newport section of route 88 has been completed. Cardiff Council have set out their proposals for an East West Primary Route from the centre of Cardiff in their Integrated Network Map which will provide a link to St Mellons Business Park via Newport Road and Cypress Drive. Proposals are to be sent out to consultants to detail up during 2017-2018. St Mellons Business Park is in the Cardiff Local Development Plan as a 'strategic site for employment' and the plan also refers to the potential for a link between the end of NCN Route 88 and Hendre Lake.

Currently there are no people counters or usage figures available for route 4 and counters have only recently been installed this year for route 88 in the Gwent Levels stretch – these will need to be added for route 4 and readings taken so as to establish baseline usage levels for different user categories and changes following any future investments in cycling infrastructure.

Part One – The Scheme Plan / Visitors

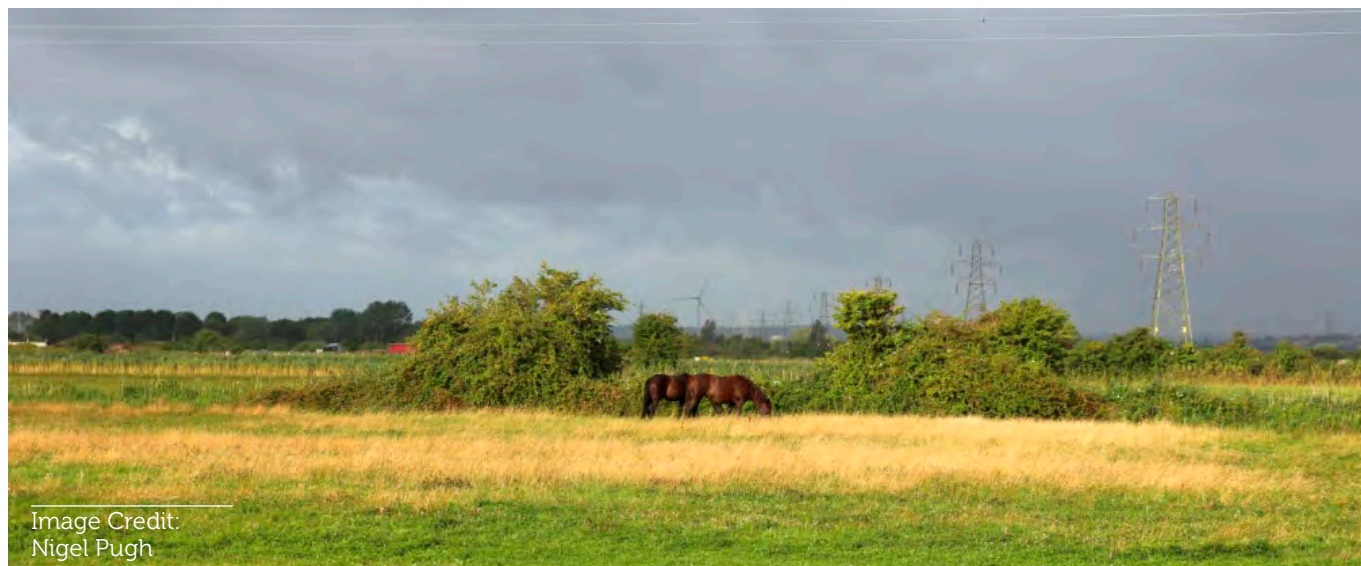
As part of engagement during the Development Phase, the Living Levels Community Engagement Officer ran an informal consultation exercise aimed primarily at a family audience at the Newport Family Cycling Festival in 2016. Twenty families were asked what routes they liked and disliked, and where they would most like to see investment. Top current routes in the Levels included local sections of Route 4 and routes taking in the Transporter Bridge (a popular

attraction when open). There was demand for a better link from Tredegar House to Newport Wetlands and for improved waymarking to help people get on to the routes from starting points which are not located on or near to the routes – currently people find it very confusing to navigate on to the main strategic routes which puts them off. There were also safety concerns, particularly with the Coast Road (B4239) through the Wentlooge Level and parts of Broadstreet Common.

Over the course of the Development Phase the issue of the lack of a Newport to Cardiff cycle route for commuters has been repeatedly raised as a concern and Sustrans have informed us that this is a frequent issue raised with them. Cycling has also been a frequent topic raised as part of the Good Levels, Bad Levels exercise – both for positive and negative reasons. Below is a summary of the responses received which relate to cycling and equestrian access:

Theme: Cycling/Equestrian

| | Positive | Negative |
|------------------------------|---|---|
| Number of Comments Collected | 20 | 14 |
| | What People Said | What People Said |
| | Very easily accessible-cycling is the best in the country | You can cycle to the Bay but the (Cardiff)East end of the Levels is pretty hair-raising |
| | Cycling in the area very popular - all around the Levels superb for cycling, distributor road has really opened up for Newport cyclists-from Newport through Nash to the Wetlands | Access routes for bicycles are challenging/ sometimes blocked (private land)-no mini circular routes |
| | Cycling clubs in the area always looking for somewhere safe to cycle | No horse friendly routes other than roads! |
| | Hardest part of cycling on the Levels is having to say hello to everyone! | More cycle lanes (i.e. Caldicot to Langstone- more than enough room. Caldicot to Rogiet cycle lane just stops |
| | Cycle routes very important | No cross-Levels equestrian route |
| | The 47 Loop is very good | Cycle route Newport to Cardiff not great |
| | Cycle Route 4 is a beautiful route-needs a bit of tender loving care | No horse friendly roads |
| | Would be great to have a good family day out cycling then be able to cycle home | Some of the (national) cycle routes not great therefore better cycle links/access needed |
| | Have noticed more cyclists, particularly on Sunday but increasing during the week, beginning to go down the Levels on the smaller roads | Not safe for bikes - especially kids |
| | Magor Church good cycling venue: Cakes n' Coffee! | Becoming rat-runs for motorists so if we are encouraging more cyclists then we need to be aware and careful |



Equestrian

Newport City Council held a series of open days in 2011 at Goldcliff and Peterstone to seek feedback on equestrian access during which concern was raised over the limited opportunities for horse riding and this led to the commissioning of a report, 'a Rights of Way Improvement Plan : Improvement of Routes for Horse Riders' in August 2012. The report looked at opportunities for:

- ensuring the rights of way network is available to all user groups
- negotiating with landowners to create well sign posted circular routes for horse riders
- ways in which green lanes could be linked to the public rights of way network

Key points that emerged:

- there are a significant number of horse riders within and close to the City boundary, several livery yards, and a number of landowners keep horses.

- there is a high demand for safe additional routes in the area
- however there are few places where circular routes could be identified due to the fragmented nature of public routes and/or to avoid routes joining roads with heavy traffic

A meeting was held during 2012 with local horse riders to identify suitable routes. Six routes were identified for circular rides, those within the study area are:

- Route 2 Whitson and Redwick 12km
- Route 3 St Brides and Coedkernew 5km
- Route 5 Wetlands 6km

In addition, the 'Ponderosa' Riding stables located in Llanwern attended a Living Levels business engagement forum looking to broaden their offer.

In Monmouthshire, since the start of the Wales Coastal Access programme, the Council has identified the limited opportunities and lack of a coherent network

for equestrian use across the Monmouthshire coast. The only stretches of the WCP in Monmouthshire available for equestrian use are the short bridleway section from Sudbrook to Black Rock and the restricted byways across Caldicot Moors.

In 2014/15 the Council commissioned, with WCP grant support, an assessment of the potential to improve bridleway access in the coastal corridor. This study built on the similar work carried out by Newport Council. Two potential areas to provide better links were identified, to the west and east of Caldicot Moors, however subsequent discussions with landowners have revealed very little prospect of achieving these routes by agreement and options are severely constrained by limited access points across the motorway and railway. Consequently no further progress has been made in their delivery. It will be revisited through the Living Levels delivery period but unless key landowners can be convinced, it's unlikely that the position will change.

Image Credit:
Robin Drayton

Visitor Demographics

In terms of exploring the opportunities for the Living Levels Landscape it is important to understand the local and wider sub-regional demographic profile. As part of the Destination Management Study a demographic review of the residential population living within the 0 to 30, 0 to 60 minute drivetime contours was carried out. Due to the size of the study area three nodal points were selected – Caldicot Castle in the east, Tredegar House in the West and more centrally the RSPB Cymru Newport Wetlands Centre. The local market, particularly within the 0 to 30 minute drivetime contour is likely to be the key driver of users along with visitors generated from the wider tourism base. The visitor flows from the tourism market are subject to seasonal variations. It is acknowledged that the further residents are located away from the Gwent Levels, the propensity to visit and interact with the landscape will decrease and the competitive marketplace will be extended.



Headline population

The headline residential population figures are set out in the table below. Within the immediate 30 minute drivetime contour of each site the population reached varies between just under 100,000 residents for Caldicot Castle, 240,000 for RSPB Cymru Wetlands Centre and over half a million for Tredegar House.

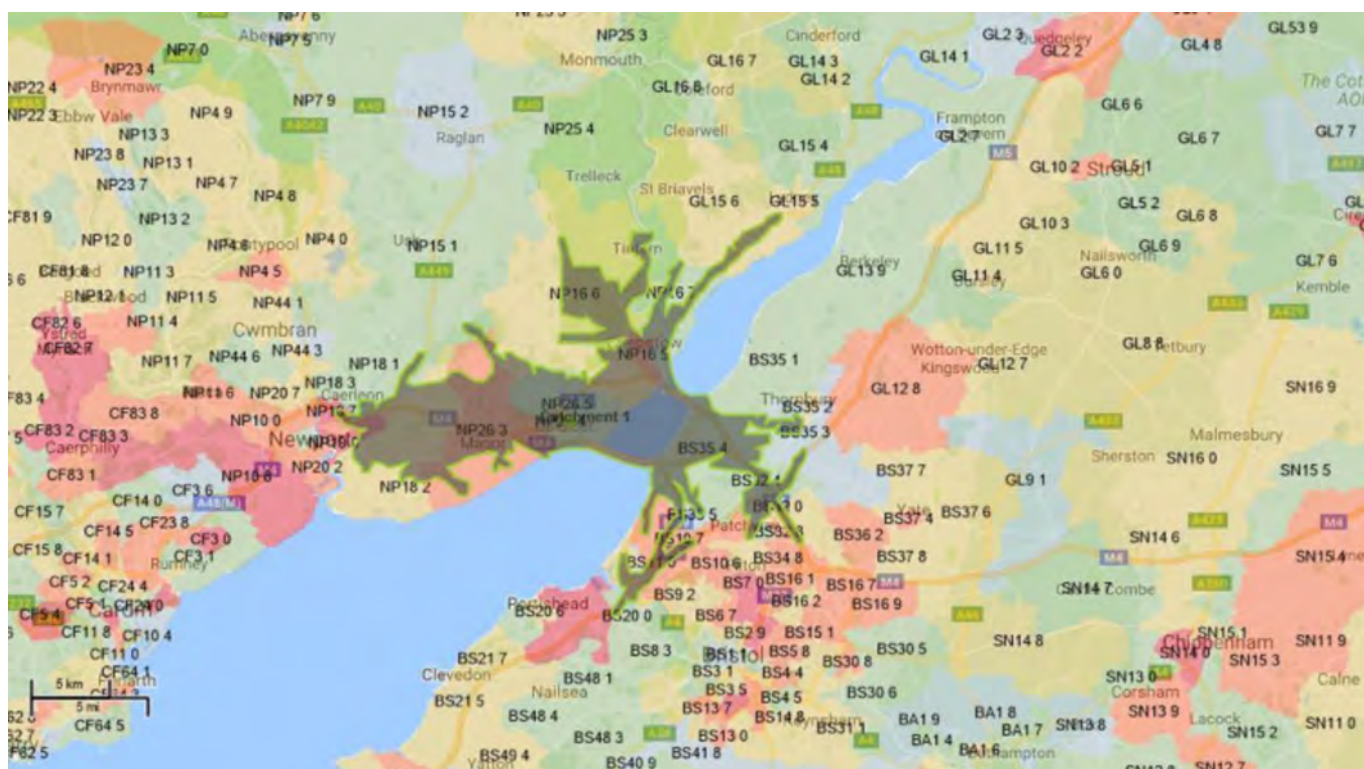
Within the overall 60 minute drivetime contours of each nodal point the residential population is over 1.6 million residents and for Tredegar this reaches to just under 2 million residents. In terms of the size of the market these are strong headline population figures across all three nodal points.

| Drive Times (Minutes) | Caldicot Castle | RSPB Cymru Newport Wetlands | Tredegar House |
|--------------------------|--------------------|-----------------------------------|-------------------|
| 0 to 30 | 87,671 | 239,341 | 539,757 |
| 0 to 60 | 1,673,570 | 1,699,093 | 1,962,781 |

Source: GeoPlan

On the following pages we set out the 30 minute drivetime maps for all three points.

Caldicot Castle:



30 minutes – source GeoPlan

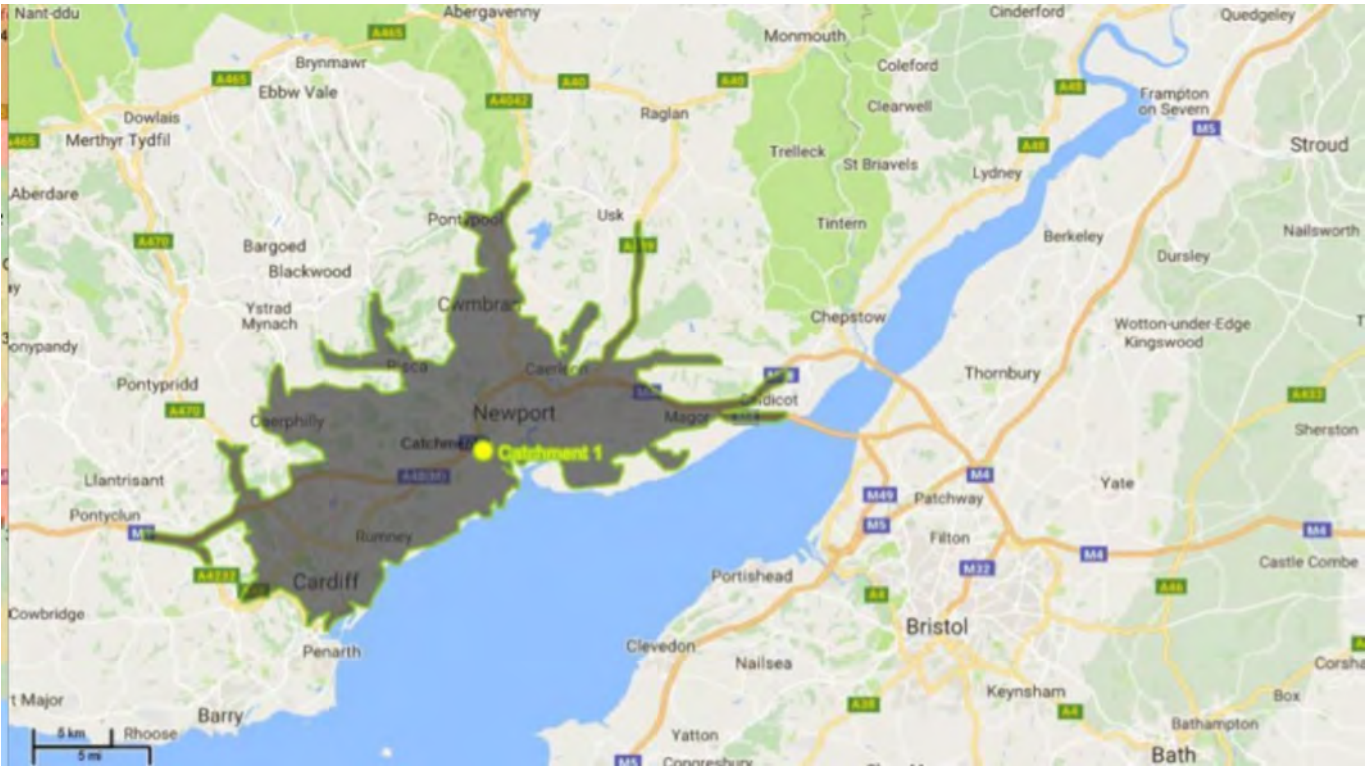
Part One – The Scheme Plan / Visitors

RSPB Newport Wetlands Centre:



30 minutes – source GeoPlan

Tredegar House:



30 minutes – source GeoPlan

| Age | Market | | | | | | | | | | | | | | |
|-----------------|-----------------|--------|-------|----------------|--------|-----------------------|---------------|--------|-------|----------------|----------------|-------|---------------|--------|-------|
| | Caldicot Castle | | | | | RSPB Newport Wetlands | | | | | Tredegar House | | | | |
| | 0 - 30 minute | | | 0 to 60 minute | | | 0 - 30 minute | | | 0 to 60 minute | | | 0 - 30 minute | | |
| | Area total | Area % | Index | Area total | Area % | Index | Area total | Area % | Index | Area total | Area % | Index | Area total | Area % | Index |
| Age 0 to 15 | 17,350 | 19.79 | 105 | 308,027 | 18.41 | 98 | 47,777 | 19.96 | 106 | 317,681 | 18.70 | 100 | 100,723 | 18.66 | 99 |
| Age 16 to 24 | 9,972 | 11.38 | 95 | 230,537 | 13.78 | 116 | 30,122 | 12.59 | 95 | 231,820 | 13.64 | 114 | 84,764 | 15.70 | 113 |
| Age 25 to 44 | 22,389 | 25.54 | 93 | 462,926 | 27.66 | 101 | 62,683 | 26.19 | 104 | 476,188 | 28.03 | 102 | 149,933 | 27.78 | 101 |
| Age 45 to 64 | 23,087 | 26.34 | 103 | 407,374 | 24.34 | 95 | 60,253 | 25.17 | 101 | 412,745 | 24.29 | 95 | 125,957 | 23.34 | 91 |
| Age 65 and over | 14,869 | 16.96 | 103 | 264,667 | 15.81 | 97 | 38,504 | 16.09 | 102 | 260,632 | 15.34 | 94 | 78,373 | 14.52 | 89 |
| | | | | | | | | | | | | | | | 95 |

Source: GeoPlan Social grades – there is some variance across all three points (please see the table below).

| Social Grade | Market | | | | | | | | | | | | | | |
|--|-----------------|--------|-------|-----------------|--------|-----------------------|----------------|--------|-------|-----------------|----------------|-------|----------------|--------|---------|
| | Caldicot Castle | | | | | RSPB Newport Wetlands | | | | | Tredegar House | | | | |
| | 0 - 30 minutes | | | 0 to 60 minutes | | | 0 - 30 minutes | | | 0 to 60 minutes | | | 0 - 30 minutes | | |
| | Area total | Area % | Index | Area total | Area % | Index | Area total | Area % | Index | Area total | Area % | Index | Area total | Area % | Index |
| AB Middle and upper middle class | 5,772 | 21.9 | 99 | 129,019 | 24.5 | 110 | 13,842 | 18.9 | 85 | 126,056 | 23.4 | 106 | 21.6 | 97 | 136,902 |
| C1 Lower middle class | 7,520 | 28.6 | 93 | 169,839 | 32.2 | 104 | 22,076 | 30.1 | 97 | 172,598 | 32.1 | 104 | 33.2 | 107 | 194,115 |
| C2 Skilled working class | 5,738 | 21.8 | 104 | 102,742 | 19.5 | 93 | 15,008 | 20.4 | 98 | 103,870 | 19.3 | 92 | 17.6 | 84 | 122,407 |
| D and E Working class / Lowest levels of subsistence | 7,270 | 27.6 | 106 | 125,270 | 23.8 | 91 | 22,505 | 30.6 | 118 | 135,616 | 25.2 | 97 | 27.6 | 106 | 164,495 |
| | | | | | | | | | | | | | | | 102 |

Image Credit:
Jeremy White



From the engagement carried out during the Development Phase it has also been possible to establish key perceptions of the Gwent Levels as a place to visit. Out of 175 respondents to the question 'What do you associate with the Gwent Levels?' in the Newport Involve Survey, 19 people had never heard of the Gwent Levels at all, and 60 people associated it narrowly with the Newport Wetlands Reserve area and Goldcliff; there were only 5 people who mentioned any place names or features on the Wentlooge Level. The graph and wordcloud below show the range of answers received:

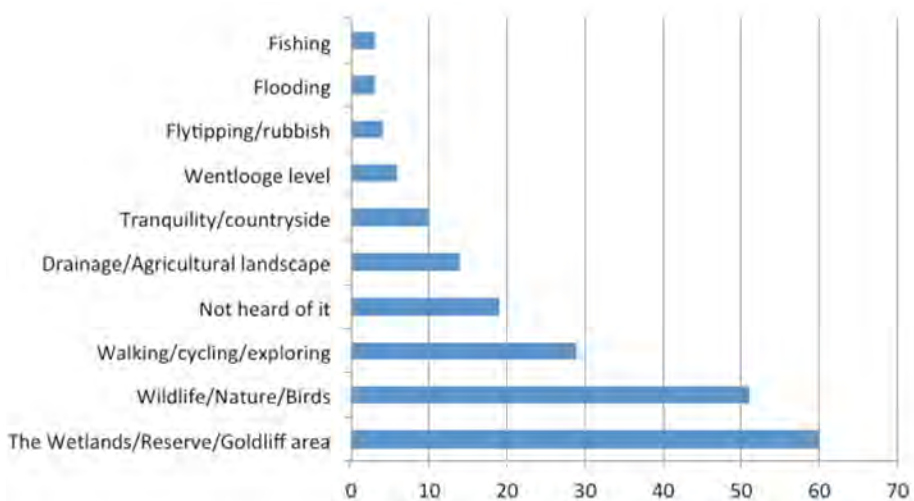




Image Credit:
Nigel Pugh

Sample answers:

- Flooding and travellers. Irish tinkers illegal dumping of rubbish.
- Water and wildlife. I regularly visit to see and survey wildlife and carry out conservation work.
- Outdoors, clean air, exercise, nature. They are, with Wentwood, the lungs of the city it seems.
- Lots of moors, streams, reens, etc. with appropriate wildlife. Sparsely populated, with somewhat 'stark' but attractive features.
- Just googled it. If you had said wetlands I would have known what this was about. Wild life, nice walks, good café fresh air

Transport was perceived to be biggest barrier stopping more people from visiting the Levels (140 comments received) as well as parking, lack of organised information and time to plan trips.

A few other sample answers are given below:

- Transport and, to an extent, access to 'land / fields'.
- Removing the hedges so small field become big fields easier to work destroys the nature of the place. Filling in ditches has same impact. Removing the traditional drainage by grip and furrow in a few fields lowers the water table and makes a large area drier, again changing its character.
- I have mobility problems and find it difficult to use the facilities as I walked using a rollator and the ground last time I visited was uneven.
- Lack of knowledge about the area, don't know what land is farmed and privately owned..
- Money. Everything revolves around money.

- Infrastructure is poor; roads are dangerous for running and cycling, heavy industry alongside puts people off exploring the areas.
- The Wales Coastal Path not well publicised or waymarked.

On the question of new routes that people would like to see developed / enhanced as a way of improving cycle, equestrian and walking access across the Gwent Levels, 95 comments were received. These were fairly wide-ranging in views - the following issues were raised by more than five people:

