

Nature in Carmarthenshire

...our approach for local action 2020 – 2030

PART 1 Setting the Scene

May 2020

Partneriaeth Natur
SIR GÂR • CARMARTHENSHERE
Nature Partnership



Our vision

Carmarthenshire... 'where nature matters to everyone'

The Carmarthenshire Youth Council acts as a voice for young people in the county. We asked members of the Eco Action Team for their vision for Carmarthenshire's natural environment.



"I often find peace in nature. Most of my life I've lived in a place where the community acts and thrives with its surroundings, from the woods that we used to play in when we were younger to watching the waves come to shore now. It's as if it was created, almost perfectly, yet there is

evidence of the damage that humans have done. I have seen the love from members of the community trying to restore the woods and the clean sandy beaches. Every time I go to these places now, they're different from my memories. The woods that we once played in now cleared to build houses, the beaches littered with plastic, rope and electrical goods. This has happened in my lifetime, imagine what's happened in the last 50 years. From afar it may look like nothing has changed, but I know and I'm fighting to make a change. (And it's clear that others are too.)

"Now there are litter picks every month and community gardens popping up, people are switching to local produce and using what we have. Let's show everyone what we have to offer when we keep our environment, our surroundings and our planet clean."

Arwen Skinner,
Carmarthenshire
Youth Council.



"I am lucky to live in a very green part of the world, and my hope for the future of the nature in my county, is for it to be preserved as much as possible."

"I would like to highlight the problems with plastic pollution in the rivers and on the coastline where it is being digested by, and entangling wildlife."

"I would also like to see less littering and fly-tipping in my area, where some people dump rubbish in the lanes."

Sophie Banning
Year 11, Carmarthenshire
Youth Council.



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Introduction - who is this plan for?

This document is written in four parts. Within the document the terms biodiversity and nature are used interchangeably - both describe the makeup of the natural environment of Carmarthenshire.

This plan has a broader scope than previous versions, with the aim that it will reach a wider audience and, in doing so, be a more useful and practical document.

Part 1 provides the background to the Nature Recovery Plan for Carmarthenshire and:

- explains what biodiversity is, why it is important, the threats to it, and the framework within which action has previously been taken;
- provides information on the work of the partners that make up the Carmarthenshire Nature Partnership and describes some of the work they carry out to help and conserve and enhance our habitats and species;

Part 2 outlines how others could take action and signpost where further information can be obtained. This should help provide the setting for

future action and hopefully inspire other organisations, community groups and individuals who have a common interest in protecting and enhancing our natural environment.

Part 3 focuses on the local priorities in relation to the national objectives of the Wales Nature Recovery Action Plan. Part 3:

- considers how we will address these objectives in Carmarthenshire,
- considers the challenges and opportunities of meeting these objectives,
- informs the future work of the partners within the Carmarthenshire Nature Partnership, who all have a common interest in protecting and enhancing our natural environment.

The Carmarthenshire Nature Partnership have worked together to identify priority areas for action within Carmarthenshire that reflect the objectives of the Welsh Nature Recovery Action Plan [1] and the opportunities identified within the South West Area Statement [2].

The plan has a focus on ecological resilience, with connectivity as a

central theme. This is part of a vision to restore and create better connected networks of habitats within the county, as well as networks of information sharing to inform action by a range of participants. A resilient natural environment in the county contributes to the desire for a healthy, safe and economically sustainable Carmarthenshire [3].

Part 4 contains the References and Appendices with technical information on legislation, policy, priority species and habitat lists for Carmarthenshire and a glossary.

Overall it is hoped that the plan will:

- be straightforward. Technical information re policy/legislation will largely be confined to appendices or references (Part 4) to enable users to find out more if required,
- link to relevant information on partner organizations' websites, which should further supplement the information provided in the document,
- be a dynamic document that will be updated as necessary.

“a resilient natural environment in the county contributes to the desire for a healthy, safe and economically sustainable Carmarthenshire”



PART 1 - Carmarthenshire's natural environment

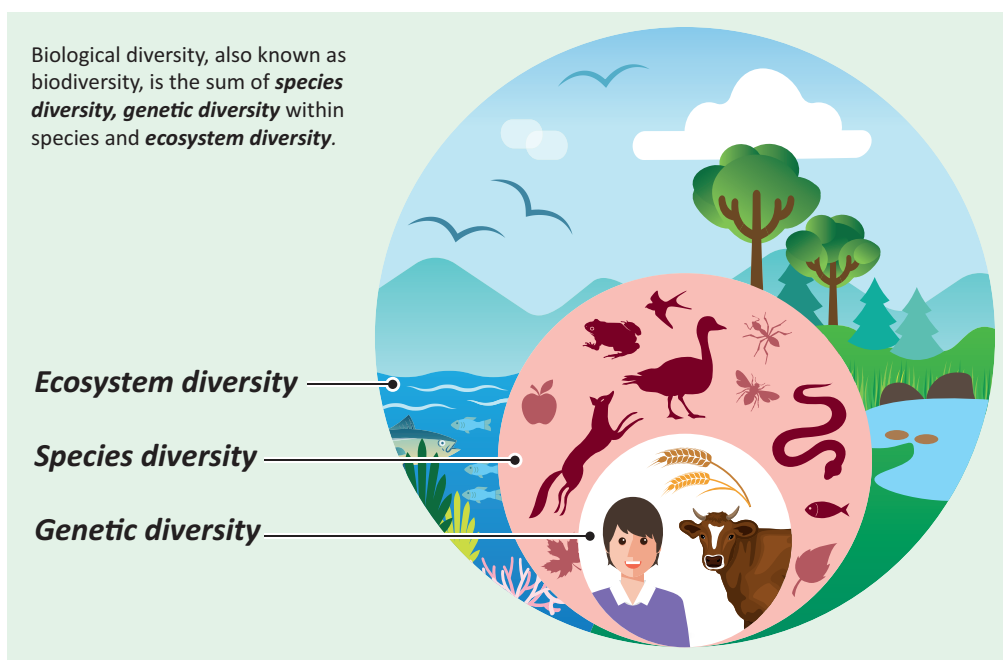
Background

1.1 What is biodiversity?

Biodiversity is all life on Earth. It is the diversity within species (genes) - individual plants, animals and fungi - between species, and finally the entire ecosystems on which they depend.

Biodiversity is everywhere: for example, it includes all the species in habitats such as gardens, fields, hedgerows, mountains, rivers and in the sea - and of course it includes us.

An ecosystem includes all living things in a given area, as well as their interactions with each other, and with their non-living environment (e.g. air, water, soil). The living and not-living parts are linked through nutrient cycles and the flow of energy. Each organism has a role to play and contributes to the health and productivity of the ecosystem as a whole.



1.2 Carmarthenshire's biodiversity - a local overview

At a local level, biodiversity greatly influences the character of our landscape and the experience of the people who live in the county. Carmarthenshire is justly celebrated for its natural environment, including magnificent coastal sand dunes, quiet estuaries, steep wooded valleys and rugged uplands. Throughout much of the rest of the county there is a

network of habitats that support biodiversity: streams and rivers, woodland, hedgerows and species-rich grassland. The sea and seabed around the Carmarthenshire coast are also rich in species, including harbour porpoise. Where collieries and heavy industry once existed, old industrial sites can now flourish with wildlife. Gardens in towns and villages are increasingly important for wildlife as natural habitats elsewhere are being

lost or degraded.

Carmarthenshire supports a rich mosaic of different habitats [4] making up our landscapes, most of which have been influenced by a long history of human activity and land-management practices. Whether they cover large or small areas, all our varied habitats add to the richness of biodiversity in Carmarthenshire.

Species-rich hedgerows [5] with mature hedgerow trees are a significant landscape and historic feature across much of the county. They can be important habitats for butterflies, moths, birds and small mammals. However, the current condition of hedgerows in the county is very variable - some have been restored/replanted in recent years, but others have been removed or continue to decline through lack of appropriate management. Today we also see the impact of ash dieback disease on our hedgerow trees.

The range of species [6] recorded in the county reflects the diverse range of habitats within Carmarthenshire and the ability of species to adapt to a variety of conditions. Some species are common and others much scarcer, relying on a specific habitat to survive. For example, the brown hairstreak butterfly was once widespread in Wales but has declined severely as the annual flailing of hedgerows has become more widespread. Parts of Carmarthenshire, where young blackthorn is not cut back in this way, remain strongholds for this species.

We place many, and sometimes conflicting, demands on our natural environment and reconciling these is a

core part of the challenge facing us all when we are looking to conserve and enhance biodiversity in Carmarthenshire.

Wildlife is also strongly associated with the culture and history of Carmarthenshire. Many animals and plants have influenced the names of farms, houses and streets over the years, e.g. Cwrt-y-Cadno (Cadno = fox), Cwmysgyfarnog (ysgyfarnog = hare), Cilyblaidd (blaidd = wolf), Dôl-Haidd Isaf (dôl = meadow; haidd = barley). Some of these species and habitats are still common, some now rare and some long gone from our countryside.

In Carmarthenshire we have a network of 'designated' (protected) sites [7], protected at a national or international level, these include our Special Protection Areas and Ramsar sites, our National Nature Reserves, and Sites of

Special Scientific Interest. We also have nature reserves (often managed by wildlife organisations or the Council) and country parks.






Beyond our protected sites, other equally important habitats within the wider countryside contribute significantly to the resilience (see box below) of our natural environment. The conservation and enhancement of these habitats, as part of a national network of habitats, must be considered as integral to the future success of any plan for nature recovery in the county, and indeed any land management plan. Habitats outside designated sites can be also locally identified as Sites of Importance for Nature Conservation (SINCs). They can include sites that contain a single habitat or a variety of habitat types and/or which support a single or range of species.



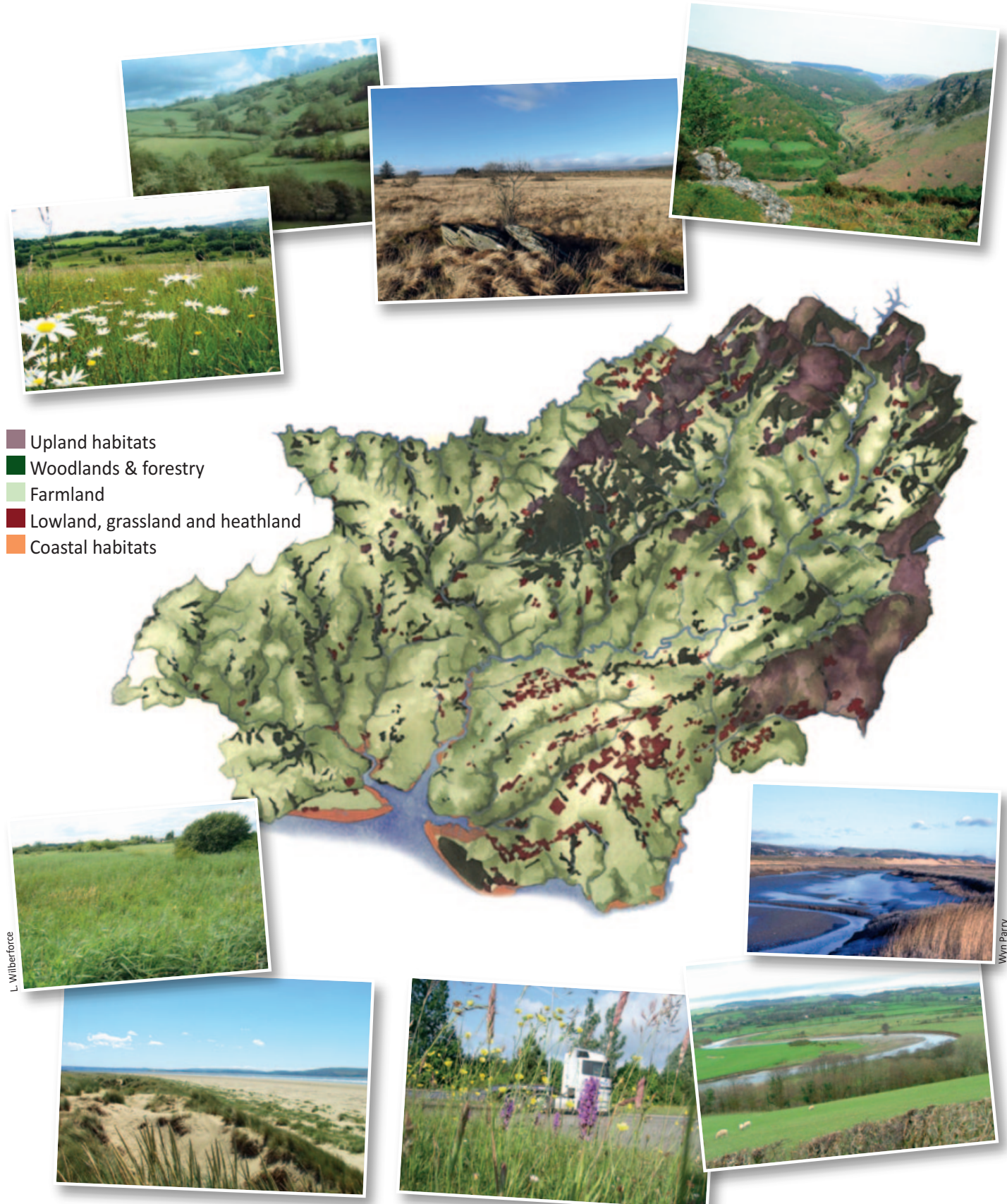
I. Morgan

Ecosystem resilience:

The Environment (Wales) Act 2016 lists the features that contribute to ecosystem resilience.

 Diversity Generally speaking, more diverse ecosystems are more resilient to external influences and their impacts. This includes biological, geological and physical diversity	 Connectivity Both within and between ecosystems	 Scale & Extent The bigger the ecosystem extends, without fragmentation, the more resilient it is likely to be	 Condition Ecosystems need to be in a healthy condition to function effectively, to deliver a range of important ecosystem services	 Adaptability The ability of ecosystems to adapt to events, understanding that ecosystems are not static and will change over time
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Schematic map of main habitat types within Carmarthenshire



L. Wilberforce

Wyn Parry



I. Morgan

There are 81 Sites of Special Scientific Interest (SSSI) in the county (excluding the area within the Brecon Beacons National Park) covering 17,088 Ha, and ranging in size from small fields to large areas of mountain sides and long rivers. They cover approximately 7.2% of the county. Some of these also make up the three Special Protection Areas and eight Special Areas of Conservation, sites of international importance.



J. Weatherburn

Carmarthenshire has more marshy grassland than any other county in Wales [8]. This important habitat supports the marsh fritillary butterfly, one of the most rapidly declining butterflies in Europe. The conservation charity, Butterfly Conservation with the help of volunteers undertake regular surveys for marsh fritillaries and in 2018 recorded 15 new populations in Carmarthenshire. The county now supports 45% of all known marsh fritillary populations in Wales [9].



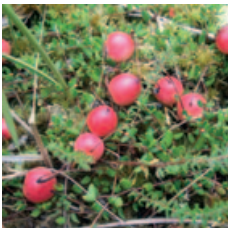
N. Matthew

Pant-y-llyn, near Carmel on the limestone ridge, is the only known example in mainland Britain of a 'turlough' - a seasonal lake with no inlet or outflow streams and fed entirely by groundwater. It fills up each autumn and drains as in the summer the water table drops. A surprising depth of sediment has been found on the lake floor, going down more than 6m. The sediments at the bottom of the lake have been dated at over 10,000 years old [9A].



P. Aubrey

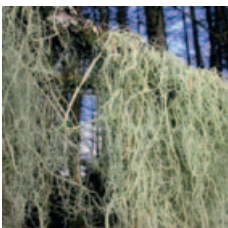
The endangered strandline beetle is now restricted to a few beaches in Carmarthen Bay, including Cefn Sidan (Pembrey) and Laugharne - Pendine. The beetle is an indicator of the health of strandline communities, which include a range of rare and scarce species likely to be similarly threatened. Ironically they use plastic waste on beaches as refuges – which means that beach cleans here have to be undertaken with care [10].



The Carmarthenshire Bogs Project [11] has been working on six sites with lowland raised bog habitat. Peat bogs soak up water like a sponge and can help reduce flooding. Healthy bogs store carbon from the atmosphere. At Pyllau Cochion near Horeb, Swansea University have studied the preserved pollen, charcoal and plant remains taken from an 8-m deep core from a bog that started forming after the last Ice Age, tracing its development through time.



Water vole numbers have declined dramatically across the UK, but Carmarthenshire continues to support important populations around Llanelli, Laugharne and Pendine. The Wildlife Trust of South and West Wales and Natural Resources Wales have reintroduced ~400 water voles bred from Carmarthenshire stock to Ffrwd Farm Mire nature reserve in Pembrey. Water voles on the reserve and in the surrounding areas are now thriving.



S. Bosanquet

Sausage beard lichen was not recorded in the county until 2006. Since then recording effort has increased the records of this internationally important species, which is highly sensitive to pollution, and it has been recorded from over 20 locations in the county.

The Welsh Government (WG) has produced a list of priority species and habitats in Wales, which they consider are of key importance to sustain and enhance biodiversity in Wales. We have a significant number of these in Carmarthenshire. **Appendix 2** lists the priority habitats and species recorded in the county. This list is being reviewed by WG and expert groups and will be updated. While there is a national focus on the conservation of these species and habitats the Carmarthenshire Nature Partnership has also identified local priorities. By maintaining and enhancing the priority habitats we will be helping all the diversity of species associated with them.

Find out much more about Carmarthenshire's priority habitats and species at: www.carmarthenshire.gov.wales/biodiversity

Invasive Non-native Species (INNS) - are plants plant or animals which have been introduced to parts of the world where they would not naturally be found. They have the ability to spread, causing damage to the environment, the economy, our health and the way we live. INNS are the second greatest threat to biodiversity after habitat loss and fragmentation. INNS have been estimated to cost the UK economy at least £1.8 billion pounds annually [12]. At the end of 2019 over 70 INNS

species had been recorded in Carmarthenshire with 25 being assessed as priority species of concern in Wales [data from Welsh INNS project]. Japanese knotweed, Himalayan balsam, grey squirrels and American mink have all had significant impacts on protected habitats and species in Carmarthenshire. The Wales Biodiversity Partnership has an INNS group to help identify INNS priorities in Wales. An important role of this plan is to consider how we can take a collaborative approach to recording and dealing with these species in the future.



“Invasive Non-native Species (INNS) - are plants and animals which have been introduced to parts of the world where they would not naturally be found”

















1.3 Why our biodiversity matters

Primarily, biodiversity has an intrinsic value, not tied to any economic benefit it might give us. The species we see around us today in Carmarthenshire are the result of millions of years of continuing evolution and adaption to their changing environment - a vast ecological 'library' of information that help make the county the distinctive place it is to live and work in today [13].

Of course biodiversity has many benefits to society and us as citizens. A healthy natural environment is a vital part of a sustainable and robust society in Wales*. Wildlife provides us with pleasure, inspiration and attractive communities but it also provides us with many of the things that sustain our lives, through a number of important 'ecosystem services' [14]: provisioning, regulating, supporting and cultural services.

[This is recognized in the second of the Well-being goals set out in the Well-being of Future Generations (Wales) Act 2015 – Goal 2 – A Resilient Wales - Appendix 1.]*

Ecosystem services: how can they help us?

Provisioning services - any type of benefit to people that can be extracted from nature.	 FOOD	 RAW MATERIALS	 MEDICINE	 FRESHWATER
Supporting services - these processes allow the earth to sustain life. Without them the other services would not exist.	 HABITATS	 GENETIC DIVERSITY	 PHOTOSYNTHESIS	 NUTRIENT RECYCLING
Regulating services - work together to make ecosystems clean, sustainable, functional and resilient to change.	 BIOLOGICAL CONTROL	 CLIMATE REGULATION	 WATER REGULATION	 POLLINATION
Cultural services - are non-material benefits that contribute to the development and advancement of people.	 RECREATION	 INSPIRATION	 TOURISM	 SPIRITUAL

A lot of these ecosystem services we get for free. The cost of replacing these (if possible) would be extremely expensive. For example, bees are vital to our economy - they pollinate many of our crops including strawberries and apples as well as animal fodder crops, e.g. clover. The value of pollination as a contribution to the UK crop market in 2007 was estimated to be £430 million and the cost of hand pollination, were we to lose this valuable service, has been estimated at £1.8 billion per year in

the UK [15]. Without pollinators we would struggle to grow many commercial vegetable and fruit crops, including apples, pears, strawberries, beans and peas and oilseed rape.

Carmarthenshire's natural environment surely matters to us all - for a variety of reasons: ethically, emotionally, environmentally and economically. It is at the very foundation of our society and the basis of our economic success and our physical and mental wellbeing.

The Carmarthenshire Nature Partnership believes that nature really matters in the county - for its own sake and for the support it gives us. This core value underpins the work of the Partnership in the conservation and recovery of nature (biodiversity) in the county. It will take action from us all to help nature and the CNP will encourage and support others to take positive action.

Regulating	The coastal saltmarsh habitats along the Carmarthenshire coast act as a very effective defence against waves. They absorb wave energy reducing the height of waves thereby reducing the risk of flooding and erosion. They also store and can sequester (trap) carbon and also have a provisioning role providing us with meat from sheep and cows grazed on the marshes.
Supporting	The range of habitats in the county support the diversity of species that use them. The agricultural and forestry economies in Carmarthenshire are influenced by and influence all types of ecosystem services, e.g. soils can be negatively impacted by intensive agriculture. Agriculture relies on clean water supplies but can both agriculture and forestry can have adverse impacts on the quality of our water.
Cultural	Tourism generated £441 million in Carmarthenshire in 2018. Carmarthenshire's varied habitats and landscapes are the natural resource on which this economic activity is based, be it a day on the beach or a bike ride through the forests or enjoying locally produced produce whilst eating out [16].
Provisioning	In 2019 in Carmarthenshire there were approximately 749 apiaries (a place where bee hives are kept) made up of an estimated 4120 hives. Based on average honey production per hive in Wales in 2019 of 26 kg/hive this would equal honey production of approximately 107 tonnes, with an estimated value of £824K (pers. comm. Regional Bee Inspector)

“In 2019 in Carmarthenshire there were approximately 749 apiaries (a place where bee hives are kept) made up of an estimated 4120 hives”



The State of Nature

1.4 Recognising the loss of biodiversity...

It can hardly be ignored that today that our natural environment is under ongoing and increasing threat. Hardly a day goes by when we do not see or read about declines in population numbers and the distribution of species, and the extent and quality of habitats.

In May 2019 this was highlighted forcefully by the release of a report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), when they released the results of the most thorough planetary health check yet [17]. Its key messages include:

- that nature and its vital contributions to people are deteriorating worldwide,
- that the direct and indirect drivers for change have accelerated during the past 50 years,
- that goals for conserving and sustainably using nature may only be achieved through 'transformative' changes across economic, social, political and technological factors,
- that nature can be conserved, restored and used sustainably through urgent and concerted effort.

In October 2019 the UK State of Nature Report [18] shows that, on average, Wales' wildlife has declined in recent decades. Wales' wildlife is undergoing rapid change – the proportion of species defined as showing strong changes in distribution, either increasing or decreasing, rose from 24% over the long term to 46% over the past 10 years.

Also, in 2016 Natural Resources Wales published a State of Natural Resources Report [19], which assessed the current condition of our natural resources (which includes biodiversity). It raised concerns about the state of the natural environment in Wales, with the main findings summarised below:

- many plant and animal species are in decline;
- Wales failed to meet its 2010 international and national biodiversity targets with the decline continuing in many cases [and it is highly likely it will miss most of its targets for 2020];
- diversity is declining as shown by the loss of habitats and species;
- the extent of some habitats has declined significantly;
- the condition of habitats shows mixed results, with some improving and some declining;
- connectivity between habitats has greatly reduced;
- all habitats have problems with resilience.

The following factors have all been identified as key pressures impacting on our biodiversity, leading to habitat fragmentation and loss and the decline in species [20].

1.4.1 Factors affecting / contributing to the loss of biodiversity in Wales

• Climate change.

There is clear evidence of climate change in Wales, e.g. increase in mean daily temperatures, reduction in air frosts, and increase in storm events [21]. This is predicted to have a range of impacts on habitats and species including a decline in native species, changes in migration patterns and



increases in invasive species.

For example, long-term data (1981–2005) from Llyn Brienne reservoir highlights the sensitivity of the invertebrate community in headstreams (streams that are the sources of a river) to climatic effects, suggesting changes in the composition of the invertebrates found there and reductions in their abundance [22].

In addition, the State of Natural Resources Report [19] identified the potential for increased coastal erosion, affecting beaches, intertidal areas and other coastal features – this could have a significant impact along our extensive coastline.

It should be noted though, that some species can benefit from climate change. Some species are expanding their range northwards or not migrating back to the continent. Short-distance migrant birds, such as blackcaps and chiffchaffs, are already benefitting from the warmer, wetter winters that the UK has experienced over recent years and are increasingly overwintering here rather than migrating back to southern Europe.

- **Agriculture** - since the Second World War changes in farming practices (e.g. silage production, increase in field size, intensified grazing and increased use of chemicals and fertilizers) have all impacted on our species and habitats [23].
- **Development** is a big driver of land use and habitat change in certain areas of the county. Housing, commercial and industrial development, quarries, road building, wind-farms and recreational developments have been key drivers of landscape change and biodiversity loss in Carmarthenshire.

- **Pollution** though impacts on air, land and water can have an adverse effect on biodiversity. Agricultural runoff has impacted on our water courses and air pollution from transport, industry and agriculture can have an adverse impact on grasslands, soils and woodlands.
- **Invasive non-native species.** Species such as Himalayan balsam and Japanese knotweed are well established in Carmarthenshire and the grey squirrel and American mink have had a significant negative impact on the red squirrel and water vole, respectively in the county.

The IPBES assessment (2019) has shown the strong interrelationship between climate change, the loss of biodiversity and human wellbeing. Any local framework to address climate change should consider the impact on Carmarthenshire's biodiversity and also consider how our natural environment can help with mitigation and adaptation to climate change. We cannot solve the threats of human-induced climate change and loss of biodiversity in isolation. We either solve both or we solve neither.

Welsh Government [24] and Carmarthenshire County Council [25] have now declared a Climate Emergency. Perhaps it could be argued that it should have declared a Climate and Nature emergency as the two issues are so intimately connected [26, 27].

1.5 In Carmarthenshire - what does the loss of biodiversity mean?

Living in Carmarthenshire this biodiversity crisis might be hard to recognise - compared with other areas of the UK the county is still comparatively diverse and 'green'.

Whilst out walking or travelling through the county it might be hard to believe that there have been changes. Some of these changes might not be obvious - we still have our watercourses flowing through the county from mountain to sea but are they still supporting healthy aquatic wildlife? We have thousands of hectares of green fields but what proportion of them now are species-rich hay meadows? Are our bog habitats still forming peat and storing water? Are our habitats still connected so that wildlife can move through the landscape?

For our species we might need to sit back and think about the changes to their populations. When did you last hear the curlew or cuckoo or see a hare or a hedgehog? You might have seen/heard them regularly when you were younger but not so often these days. Today you might see more Himalayan balsam and fewer orchids, more monoculture grassland and less species-rich meadows. Is this our legacy for the next generation?

Biodiversity loss

Think of the county as a room lit by a lightbulb with a dimmer switch. Over the years as our biodiversity has declined, each loss/decline could be seen as a taking the dimmer switch down a notch. Our eyes adjust and get used to the slightly darker/less biodiverse 'room'/county. However, there will come a point where we can no longer function within our 'room' and the county's natural environment can no longer support us effectively due to the cumulative loss of biodiversity.

The State of Nature in Wales 2019 report [28] identified that there has been a considerable change in Welsh wildlife in recent decades with evidence of the decline in the diversity of species and the extent of natural and semi-natural habitats. Within Carmarthenshire:



The fen orchid has been lost from our coastal habitats due to loss of the wet hollows within the sand dunes.



Curlews are now a rare and local breeding bird in the county (although it is a more common winter visitor to our coastline) due to loss of suitable nesting habitat in upland and lowland grasslands.

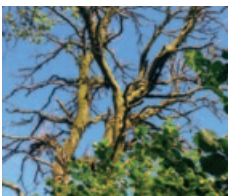


D Rees

Annual recording has shown the continued decline of the brown hairstreak butterfly in areas of Carmarthenshire – a stronghold for this rare species. Brown hairstreaks continue to thrive so much better in the Teifi valley, where generally intensive annual flailing of hedges is less widespread and scrub blackthorn patches are often allowed to persist for several years.



Bog habitats are now scarce in the county, isolated within the wider agricultural landscape. They have been drained, planted on or lost to development.



We are likely to see significant changes in our woodland and hedgerows as trees succumb to ash dieback disease.

Sometimes it is possible to look back and see how things have changed directly. Nature in Wales, the old journal of the Wildlife Trusts provides some revealing evidence relating to two species of dove recorded in the county.

In volume 10 in 1967 there is a report that, in July 1965, a collared dove (near right photo) was reported at the vicarage in Caio in April, feeding with the hens, stating that this is first record for Carmarthenshire. Today, over 50 years later, the collared dove is a common and widespread resident breeding bird having spread west from Asia, quickly adapting to new environments.

Conversely the migratory turtle dove, once a much more common summer visitor, has declined drastically, with only one recent record in Carmarthenshire, in 2016 at

Penclacwydd. Today the turtle doves are virtually extinct as a breeding bird in Wales (State of Birds in Wales 2018) due to loss of habitat in both breeding and wintering areas among other factors.



Landscape change in Bynea area since 1973

Carmarthenshire's landscapes have constantly evolved over thousands of years. In rural areas the more recent changes to habitats and species might seem less obvious but in urban areas the transformation of the local landscape in recent decades can be more dramatic. These photographs illustrate this clearly.

The first photo, taken in 1973, shows the coastal floodplain habitats east of Llanelli largely intact and being used for agriculture. However, much of this coastal floodplain grazing marsh is itself the result of previous change. It was formed from saltmarsh habitat reclaimed for agriculture in previous centuries. If you look closely you can see lines of old channels that ran through the saltmarsh. This is evidence of historical landscape change.

Focusing on this first photo, south of the settlements of Bynea and Llwynhendy, the most noticeable artificial feature through the landscape is the main railway line (shown in red). The site of the current Morfa Berwig Local Nature Reserve is outlined in orange and the dashed line shows an old road, now no longer in existence. South of the railway line are Penceiliogwydd, Pen-y-Bryn and Bryn Carnarfon farms. These would have been managed in a fairly low intensive manner and wetland species would have occurred.

The 2018 aerial photograph shows approximately the same area (although at a slightly different angle). Much has changed in the 45 years since 1973. New roads (A484 and coastal link road) have been created and a water treatment works and a holiday park have

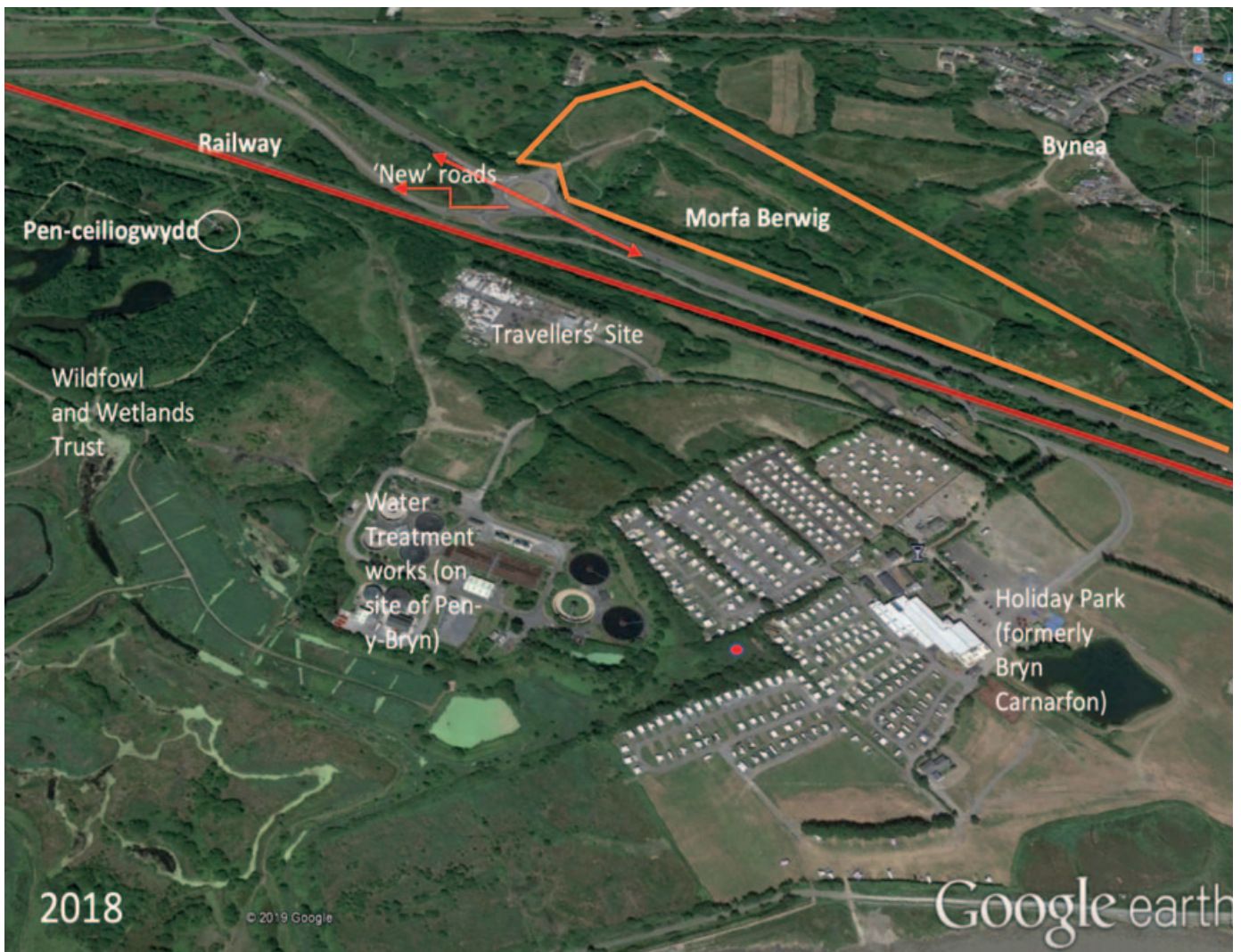


been developed. Much of the coastal floodplain grazing marsh has been lost. In addition, the Wildfowl and Wetland Trust (WWT)'s Millennium Wetlands, which was created in 1998-2000, has created new wetland habitats south of Penceiliogwydd farm.

There have obviously been impacts to the local biodiversity. The landscape has been fragmented and developed, areas of remaining land are no longer managed in the same way and may have scrubbed over. Species like the yellow wagtail and little owl, recorded here around the time of the 1973 photo now no longer occur. The rare water vole would have occurred much more widely in the landscape, but this species is now much declined in the wider area. Today there are efforts to try and reverse some of these impacts. WWT, NRW and CCC have worked to conserve

and create suitable habitat for water voles in this area and Morfa Berwig Local Nature Reserve has been designated for its habitats and species to protect it for local people.

As a result of this work at WWT and Morfa Berwig there now exists a diversity of habitats including reedbed, new ditches, lakes, ponds, scrub, and wet woodland, which now support a number of priority species including breeding willow tit, lapwing, water vole, otter, barn owl, pochard, and over 20 species of dragon and damselfly.



1.6 But let's be positive...

It would be easy to be overwhelmed by the scale of biodiversity loss and the issues that need to be addressed to reverse its decline. However, there are reasons for taking a more positive attitude:

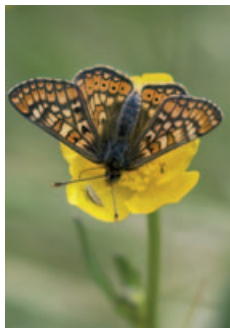
- the fact that there is more coverage in the news and on television to raise awareness about the importance of biodiversity and the threats to it,
- that Welsh legislative and policy structure and action planning has been developed to directly consider the natural environment in Wales, the way we manage it, and its links to health and well-being. This will be used as the context for future action in Carmarthenshire and is described in Appendix 1 and Part 3 of this plan.

- that so many more people/communities/schools are more aware and concerned about the issues and are taking positive action.
- that organisations and others undertake conservation work not because it is easy, but because the challenges are worth the hard work involved!

This will help us to find solutions, to believe that change is possible and to encourage and undertake action to build resilience and to reverse the declines in biodiversity. Certainly in Carmarthenshire there are positive stories.



The **Mid Wales Red Squirrel Partnership** was The Mid Wales Red Squirrel Partnership (MWRSP) was established in 2002 [29]. The Partnership aims to expand and protect the unique population of red squirrels in mid Wales; one of only three significant red squirrel populations in the whole of Wales. The Partnership has worked to establish sound baseline information about the red squirrel population in mid Wales, leading to the development of a robust understanding of the work required to conserve this species in mid Wales.



Marsh fritillary butterfly - Carmarthenshire continues to be a stronghold for this rare species, with 45% of current populations in Wales found in the county – the impact of recorder effort. The Caeau Mynydd Mawr Marsh Fritillary Project [30] began in 2013 and is successfully mitigating the impacts of development on the protected marsh fritillary butterfly and the habitat that supports it in the Cross Hands area. Funded by developer contributions, the project is essential to the delivery of the Council's Local Development Plan, securing sufficient habitat to support the butterfly population in the area. The project received an award for 'Planning in the Natural Environment' category at the National RTPI Awards for Planning Excellence in 2018.



The **Carmarthenshire Meadows Group** was formed in 2015 and now has over 80 members. It has developed into a group largely run by its members. A range of organisations and local ecologists support the group, hosting site visits and providing talks and training. This, along with the opportunity to get together and share experiences, is giving many small landowners in the county the confidence and knowledge to manage their meadows and contribute to the conservation and enhancement of this scarce habitat. Meadows are not only a habitat to a range of plants and wildlife but part of our cultural heritage, often with locally distinctive Welsh names.



Volunteers/recorders. Carmarthenshire has many people and groups that volunteer their time and expertise to help conserve and record biodiversity in the county. Every conservation organisation working here will be supported by the valuable input of volunteers. There are active groups for a range of species including plants, birds, fungi and butterflies. All are supported by expert county recorders and the **West Wales Biodiversity information Centre (WWBIC)**, which collects and collate all the biological records in the area. WWBIC continues to support the growth of this significant evidence base and holds biological recording days at sites in the county and organised wildlife identification training.

Partnership working in Carmarthenshire...

1.7 Carmarthenshire Nature Partnership

First set up in 1998 the Carmarthenshire Nature Partnership (formerly Carmarthenshire Local Biodiversity Action Plan Partnership) is made up of a number of partners with a depth of knowledge, experience and enthusiasm for the county's biodiversity. The Partnership is individual to our area and for over 20 years has provided probably the only opportunity for local organisations, ecologists and recorders to network, share experiences and develop projects in partnership.

The Partnership has been chaired and facilitated by the County Council and has close links with the Wales Biodiversity Partnership [32] who provide a steer on priorities for action in Wales and the Welsh Government policy and legislation connected to our natural environment.

The group meets three times a year. The partners' work focuses on action that seeks to maintain and enhance biodiversity within Carmarthenshire either through the management of land, or action to help specific species. All raise awareness about the county's species and habitats, and the issues affecting biodiversity in Carmarthenshire. By sharing experience, knowledge and best practice, partner projects develop from these meetings. The knowledge and expertise within the group aims to inform the implementation of national legislation and policy at a local level. An annual report is produced each year to highlight the work of the partners.

The public bodies within the Partnership (e.g. Natural Resources Wales and Carmarthenshire County Council) have direct duties under Welsh legislation that influence their work. For example, the Environment (Wales) Act 2016 places a biodiversity duty on all public bodies to 'seek to maintain and enhance biodiversity' as part of their functions (**Appendix 1**). These organisations have produced plans that evidence how they are embedding that duty within their organisations. These public bodies are also driven by national policies and organisational strategies and plans connected to the natural environment.

The individual conservation organisations within the Partnership, make up a broad spectrum of expertise on a wide range of species and habitats (including our best and least known wildlife).

amphibian and reptile conservation 

Amphibian and Reptile Conservation work to conserve amphibians and reptiles and saving the habitats on which they depend. In Carmarthenshire they have worked with landowners to create valuable pond habitats in the county. Now, as part of a HLF-funded project across South Wales, they are working locally on a '**Connecting the Dragons**' project, working with partners to protect and conserve some of our most vulnerable native species of amphibian and reptile. In Carmarthenshire the focus will be on adders and grass snakes - training volunteers to survey and monitor sites and help with practical conservation work. Pond networks

are still a key priority in the area but further funding is required.



The **Bat Conservation Trust** supports local volunteer bat groups and works locally and nationally on projects. Work focuses on discovering more about bats and how they use the landscape, taking action to protect bats and inspiring people about bats and their environment. In Carmarthenshire BCT have provided training for council staff, supported the local bat groups and arranged an urban bat survey with volunteers.



The **Botanical Society of Britain and Ireland** advances the study and understanding of our wild plants and supports their conservation across Britain and Ireland. Locally a recording week is arranged each year for experienced and inexperienced botanists and provides an opportunity for the informal development of identification skills, exploring sites in the county to identify new and updated plant records. Our county plant recorders co-ordinate local botanical survey work as part of national plant monitoring schemes.



Butterfly Conservation (BC) in Carmarthenshire manages Caeau Ffos Fach nature reserve near Cross Hands for the marsh fritillary butterfly and, with volunteers, have carried out extensive survey for this species in the county, greatly increasing knowledge about their range and extent. They offer advice, when possible, to landowners on habitat management. BC volunteers also spend each winter surveying for the eggs of the brown hairstreak butterfly and undertaking management at key sites. Their work means that we now know much more about the distribution of these rare butterflies in the county.



Buglife has been working in the county with partners to identify 'B-Lines' – networks of habitat with a focus on creating / restoring flower-rich habitat with local communities / landowners. Officers have also helped out with surveys of local wildlife sites in the county and, through their Threatened Bee Report, highlighted the presence of several important bee species in the county and action required to help them.



Bumblebee Conservation Trust has delivered events and training across Carmarthenshire as part of their Bee Wild West Wales project. This included activities with local schools, Beewalk Information Days, guided walks and

rare bee surveys. They have also produced a new guide to creating bumblebee-friendly community greenspace. BBCT also created bumblebee habitat at Sandy Water Park and Mynydd Mawr in partnership with Carmarthenshire County Council and local residents.



In the Cross Hands area the Council's **Caeau Mynydd Mawr Marsh Fritillary Project** works with local landowners to improve marshy grassland habitat for the marsh fritillary butterfly to help ensure the butterfly population can sustain itself in an area of high development. The project has surveyed a large area of land to assess the quality of the marshy grassland habitat in the Cross Hands area, which will inform future development and allow targeting of sites for potential management.



Clwb Adar Sir Gaerfyrddin Carmarthenshire Bird Club

The **Carmarthenshire Bird Club** promotes the observation, recording and protection of wild bird populations in Carmarthenshire. It arranges indoor meetings and field trips for members and is an excellent way to meet other birders and visit sites of ornithological interest. The Club produces an annual bird report and has contributed significantly to the long-term monitoring of birds in the county.



Carmarthenshire County Council manages land, including country

parks, nature reserves, parks and amenity space, undertakes biodiversity projects and delivers a range of functions that can impact on the natural environment, e.g. planning, highway maintenance, regeneration projects. The Environment (Wales) Act 2016 puts into place a duty to require all public bodies, when carrying out their functions to seek to 'maintain and enhance biodiversity' where it is within the proper exercise of their functions and seek to 'promote the resilience of ecosystems'. The Council has prepared a Forward Plan to evidence how it will integrate this legislation into the delivery of its services.



The **Carmarthenshire Meadows Group** was established in 2015. Its aim is to inspire the establishment of a county-wide community that supports each other to conserve and enhance our wildlife-rich meadows, large or small, across Carmarthenshire. Walks, talks and site visits take place each year, training is offered and a group website is available. A number of the partners have contributed to supporting the Meadows Group.



Coed Cymru works in the county to give help and advice at wide range of woodland and farm sites, including supporting landowners with applications for grant aid for woodland planting and management. Officers have advised on the

woodland management at a number of CCC sites and work on specific projects such as that to help landowners affected by the Brechfa Forest Wind Farm Connection to carry out small-scale landscape and ecological enhancements.

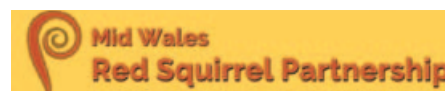


Natural Resources Wales (NRW) is WG's sponsored public body which works to ensure that the natural resources of Wales (land and sea) are sustainably managed. NRW has a wide remit including looking after Carmarthenshire's many protected sites (SSSIs, SACs and SPAs), managing national nature reserves and areas of commercial forestry, regulating and permitting a wide range of activities, providing grant aid, monitoring and survey and providing advice on a wealth of environmental issues. NRW also works in partnership with a range of organisations, and in Carmarthenshire has collaborated on projects such as the control of invasive species, habitat restoration, sand dune management and installation of fish passes. They are leading on the local Area Statement process in south-west Wales which will provide an opportunity to rethink the way our natural resources are managed and used.

LLANELLI NATURALISTS

The **Llanelli Naturalists** was formed in 1973 and organises field and indoor meetings throughout the year. The society publishes a newsletter, which includes articles on the natural history of the county and reports on the society's field meetings. The group offers an excellent opportunity to meet other naturalists of all abilities and to visit places of wildlife interest. There is also an informal

educational element to all meetings which enables those with an interest in wildlife but with less experience, to learn from the knowledge of other members. The members have contributed significantly to the recording effort of species in the county.



The **Mid Wales Red Squirrel Partnership**, led by the Wildlife Trust of South and West Wales, was established in 2002. The Partnership aims to expand and protect the unique population of red squirrels in mid Wales; one of only three significant red squirrel populations in the whole of Wales. The Partnership has worked to establish sound baseline information about the red squirrel population in mid Wales, leading to the development of a robust understanding of the work required to conserve the red squirrel in mid Wales.



The **National Botanic Garden of Wales** carries out applied research in three core themes, 'Saving Plants and Fungi', 'Saving Pollinators' and 'Science and Society' and has recently set up the National Seed Bank for Wales. The Garden farms its Waun Las Natural Nature Reserve to encourage biodiversity and a thriving conservation volunteer group carries out a wide-range of wildlife recording tasks. Special events such as Wales Fungus Day and the Pollination Festival, and the Garden's Biophilic Wales, Growing the Future and Tyfi Cymu projects provide many

opportunities to inspire and educate its visitors about actions they can take to conserve our native wildlife and plants.



The **National Trust** owns eight coastal and countryside sites in the county, around 5500 acres. This includes Dinefwr, a parkland National Nature Reserve in Llandeilo where it looks after some of the most impressive veteran trees in the county and is delivering an extensive hay meadow reversion project. At Dolaucothi the Trust manages native woodlands and is also reverting its coniferous woodlands by replanting with native species and controlling invasive rhododendron and supporting the re-introduction and protection of native species such as the pine martin, red squirrel and brown hare. The Trust as a whole is working towards ensuring that all of its in-hand land and 50% of its let land is classed as being of Higher Nature Status by 2025. Volunteers contribute significantly to the Trust's work throughout the county.



Plantlife manages a grassland reserve near Cwmann, Lampeter. This site is a remnant of the flower-rich grassland once abundant in Wales. Plantlife led a WREN-funded partner project, which included Carmarthenshire sites, to manage invasive sea buckthorn within our dune habitats to increase bare sand habitat so benefiting many rare plants, invertebrates and reptiles. Plantlife has also just launched a Wales-wide project, Magnificent Meadows/Gweirgloddiau Gwych

Cymru. Working in partnership it will restore a network of meadows using local seeding techniques, train people to identify, monitor and manage grasslands and undertake community activities aimed at improving well-being and celebrating our meadows.



PONT (Pori Natur a Threftadaeth / Grazing, Nature and Heritage) is the conservation grazing organisation for Wales. PONT have been advising on conservation grazing and sourcing livestock for sites in Carmarthenshire. Sites include the Wildfowl and Wetland Trust Llanelli, Morfa Berwig Local Nature Reserve, Carmel National Nature Reserve, marsh fritillary sites around Cross Hands and private land throughout the county. Appropriate grazing will ensure that the habitats are more resilient, present less of a fire risk, improve access and increase biodiversity.



RSPB manage the 600 Ha Gwenffrwd-Dinas reserve in north-east Carmarthenshire made of Atlantic oak woodland on steep-sided valleys and wet alder woodland bisected by fast-flowing rivers. There is a good diversity of lower plants and important populations of woodland birds, many of them migrants, e.g., pied flycatcher, wood warbler and redstart. The RSPB is part of the LIFE Celtic Rainforests project and will be undertaking clearance of the invasive rhododendron and looking at the woodland management to improve resilience.



West Wales Biodiversity information Centre (WWBIC) collects and collates biological records in the Carmarthenshire. WWBIC works continuously to improve and support the growth of this significant evidence base and holds biological recording days at sites in the county and organised wildlife identification training. The environmental data it holds are used by national, regional and local partners to make informed, evidence-based decisions which will meet the objectives of our Nature Recovery Plan in safeguarding biodiversity and improving ecosystem resilience. This is done by making biodiversity information available to people at all levels and to a wide audience through online tools and the wildlife recording phone App.



The **West Wales Rivers Trust** was formed to restore and safeguard the rivers, lakes and wetlands of Pembrokeshire, Carmarthenshire and Ceredigion. The objectives of the Trust are to promote awareness of environmental issues and best practice; promote recreational enjoyment of rivers, lakes and wetlands and undertake research and development to help restore damaged habitats. In Carmarthenshire an area of focus is a catchment-scale project within the Tywi to improve the access for migratory fish to important spawning tributaries in this once great fishing river.



The **Wildfowl and Wetlands Trust** manages 450 acres of lakes, scrapes, pools, ditches and lagoons adjoining the salt marshes and shore of the scenic Burry Inlet, Llanelli. Over the years they have used innovative ways to maintain and enhance wetland habitats and improve conditions for important wetland species such as reconnecting existing reed bed areas into a larger contiguous area of wetland habitat. Grazing is now taking place on previously inaccessible areas and dredged ponds and ditches will help water voles in the Millennium Wetlands. Volunteers are vital to the Trust's work and public and schools engagement.



The **Wildlife Trust of South and West Wales** manages 10 reserves within the county, six of which are designated for their importance for nature conservation. They also manage one upland farm in partnership with the landowner. The Trust's reserves make up a range of habitats and regular work parties with volunteers allow essential management work to be undertaken as well as survey and monitoring. A significant part of their remit is to engage with people in Carmarthenshire and they have worked with schools and led on landowner engagement projects.



The **Woodland Trust** protect and campaign on behalf of this country's woods, helping local communities

and land owners to plant trees and restoring ancient woodland for the benefit of wildlife and people. In Carmarthenshire the Trust manages 13 woodland reserves, including Coed Ffos Las. This was bought by the Trust in 2014 to create a Centenary Wood to honour the special part Wales played in the First World War. This former colliery land and farmland (almost 50 ha) site near Carway will eventually have been planted with 90,000 trees. Over time the site will develop into woodland habitat with access for all - wildlife and people.

Most partner organisations have nature conservation at their core and many manage sites, undertake survey and research, collect data and engage with the public. Nationally they also have an important role in working with the Wales Biodiversity

Partnership to influence policy and legislation within Wales. Also, although not directly bound by WG's Environment Act 'Biodiversity Duty', the principle of maintaining and enhancing biodiversity and promoting ecosystem resilience is at the heart of what they do.

Local Nature Partnerships are in a good position to work at a smaller scale, to take local action as individual organisations or to inform/participate in large-scale partner projects within their area. In addition they can assess local priorities for action and provide/promote information to the public.

Local Nature Partnerships are 'knowledge networks' with extensive know-how, experience, connections, capacity, continuity and common

purpose. Whilst they might work to address specific issues concerning the natural environment in Carmarthenshire their underlying values are the same as a range of other organizations that are working to make Carmarthenshire more a more 'resilient' place to live and work. Whilst the Partnership wants to conserve biodiversity for its intrinsic value, it recognises that, whether it is to address climate change, improve citizens' health and well-being or create a more sustainable economy, a healthy, resilient natural environment is linked to all these desired outcomes.

Partners (and others) are currently (2019 onwards) working on a range of larger projects, which include a focus in the county - **See Appendix 3.**



“organisations and others undertake conservation work not because it is easy, but because the challenges are worth the hard work involved”

1.8 The previous Biodiversity Action Plan

This plan replaces the Local Biodiversity Action Plan for Carmarthenshire, which was launched in 2000. The original plan contained over 50 individual habitat and species action plans! The original impetus for these plans arose from the 1992 Convention on Biological Diversity (CBD) [33], which had an overall objective to 'the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources'. This objective was then reflected national strategies and was seen as a way to deliver effective action at a local level for key habitats and species.

Suffice it to say targets for a significant reduction in the rate of biodiversity loss by 2010 were not met and nor will the revised 2020 targets be met. In 2020, the 15th Convention of the Parties to Convention on Biological Diversity (CBD) will adopt a post-2020 global biodiversity framework as a stepping stone towards the 2050 Vision of "Living in harmony with nature" [34].

Note: Covid-19 has inevitably meant that this conference will not now take place till 2021.

Whilst there has been a range of policy, strategies and frameworks over the years in Wales, the continuous effort, enthusiasm and passion at many levels has not faltered. However, the worrying situation for biodiversity described in the CBD is also reflected in Wales.

Welsh Government produced lists of priority species and habitats in Wales - see section 1.1 and **Appendix 2** [these are referred to as Section 7 (of the Environment Act) priority species and habitats]. These are lists of species and habitats 'of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales'. Action has focused on those species and habitats in these lists that are recorded in the county. In addition, other local species not on the list were identified that the Partnership thought needed special attention.

This original Carmarthenshire Biodiversity Action Plan was probably over ambitious in what it could be

realistically achieved within an environment where resources (human and financial) were limited and it was not promoted to full effect. Action was often opportunistic as resources/time allowed and the plan was reviewed and revised during its lifetime as guidance was updated.

However, much has been achieved by partners during the plan's lifetime, both by individual organisations and in partnership, and often heavily supported by volunteers (see annual reports since 2012 on the Council's biodiversity pages).


The Action Plan informed grant applications to undertake core and project work by partners in the county. It helped raised the profile of our diverse natural environment and the issues affecting it to the public and within individual organisations.

The Nature Recovery Plan for Carmarthenshire moves this process forward in the light of recent policy and legislation in Wales.



L. Mansel



An aerial photograph of a lush green valley in Carmarthenshire, Wales. The landscape is characterized by rolling hills, dense forests, and a small farmstead with several buildings. The sky is filled with dramatic, dark clouds, suggesting an overcast day. The overall scene is a beautiful representation of the natural environment of the region.

“Whilst here has been a range of policy, strategies and frameworks over the years in Wales, the continuous effort, enthusiasm and passion at many levels has not faltered.”