

Appendix 1: Technical Methodology

Scope

The scope of the Greater Gwent State of Nature was set by the project steering group as species found within the Greater Gwent area, plus a 2km buffer ('the study area'), within a timeframe of 1970 to 2019.

The list of species included was developed in consultation with the steering group, local experts, and Local Nature Partnerships according to presence within the study area, data availability, and local interest. The aim was to produce a State of Nature that reflected the character of the area and showed a sample of species ranging from widespread to rarities, across different taxonomic groups, and from a variety of different habitats.

Methodology

Species records for Greater Gwent and the Welsh part of the buffer zone were sourced from the South East Wales Biodiversity Records Centre (SEWBReC) and other Welsh Environmental Records Centres through Aderyn, whilst records from the English part of the buffer zone were sourced from Gloucester Ecological Records Centre (GERC), Herefordshire Biological Records Centre (HBRC) and the National Biodiversity Network (NBN) Atlas. Additional records for certain species were sourced from Project Splatter and Natural Resources Wales (NRW) for the entire study area. Whilst NBN also covers Wales, it was felt that combining NBN and SEWBReC records would lead to more duplicate records than new records.

Records were processed to remove duplicates (where possible) and records outside of the timeframe, and records were grouped by decade. Records with a date range were only included if the start date was after 1970, and the end date used for grouping by decade. Where available and appropriate, records of interest, such as road mortalities, high abundance or breeding records were highlighted.

For each species or species group, density of records per square kilometer and most recent record per square kilometer was plotted in using the FSC Tom.Bio Tool. Records with low resolution grid references were placed at the centre of the grid reference. Note that records may be of one individual or many, so results refer to density and distribution of records, not individuals. Relative mobility of species is not considered in this report but should be noted.

To analyse records from protected areas, GIS layers of protected areas were edited and combined to remove overlapping and multiple designations, with priority being given to higher levels of protection. Records from protected areas are presented as a pie chart of the total number records. Note that the reasons for designation are not considered, so a species may be within a protected area, but not be a listed feature or meet designation criteria itself.

Where a species or species group was covered by a national recording or monitoring scheme, efforts were made to obtain records for the study area. This data was used to indicate levels of participation in such schemes, and, if the data was suitable, provide population trends. In most cases, the sample size of the data was too small for robust statistical analysis, so these should be treated with low confidence.

Where relevant, species records were measured against national and local criteria, such as the Wildlife Sites Criteria for South Wales,¹ to identify important sites or areas for that species or taxonomic group. Where relevant, reference is made to spatial work carried out by conservation organisations at the national level, such as the identification of priority areas. These are shown if they fall within the study area.

All GIS work was carried out using QGIS.

References

- ¹ Gwent Wildlife Trust (2004) *Guidelines for the Selection of Wildlife Sites in South Wales*. The South Wales Wildlife Sites Partnership.

Appendix 2: Data Sources

Reference

Local Authority boundaries (high and low water mark) From Lle.gov.wales Contains public sector information licensed under the Open Government Licence v2.0.

Protected Areas and Sites Special Areas of Conservation (SAC), Special Protected Areas (SPA), National Nature Reserves (NNR), Sites of Special Scientific Interest (SSSI), Local Nature Reserves (LNR), National Parks, and Areas of Outstanding Natural Beauty (AONB)

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Sites of Importance for Nature Conservation (SINC) Provided by South East Wales Biodiversity Records Centre, except those within Brecon Beacons National Park, which were provided by Brecon Beacons National Park Authority.

Geology British Geological Survey. 2020. BGS Geology 625K Bedrock dataset. Contains British Geological Survey materials © UKRI (2020)

Rivers Main Rivers dataset. 2005. Contains Natural Resources Wales information © Natural Resources Wales and Database Right. All rights Reserved. Contains Ordnance Survey Data. Ordnance Survey Licence number 100019741. Crown Copyright and Database Right 2021.

Flood zones Flood Map: Flood Zone 3 dataset. Contains Natural Resources Wales information © Natural Resources Wales and Database Right. All rights Reserved. Some features of this information are based on digital spatial data licensed from the Centre for Ecology & Hydrology © NERC (CEH). Defra, Met Office and DARD Rivers Agency © Crown copyright. © Cranfield University. © James Hutton Institute. Contains OS data © Crown copyright and database right 2015. Land & Property Services © Crown copyright and database right 2021.

Ecosystems

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Farmland Post 1988 Agricultural Land Classification (Wales) Surveys. Welsh Government. 2017. © Crown copyright. Mapping derived from soils data © Cranfield University (NSRI) and for the Controller of HMSO 2021 © Crown copyright 2020, the Met Office. Contains OS data © Crown copyright and database right 2021. Contains Natural Resources Wales information © Natural Resources Wales and Database Right. All rights Reserved.

Provisional Agricultural Land Classification (ALC)(England) Natural England Open Data (2018) © Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right (2021).

Upland Data from OS Terrain 50. Contains OS data © Crown copyright and database right 2021.

Urban Built-up Areas (Wales) dataset. Office of National Statistics. © Crown Copyright and database right 2021. Ordnance Survey 100021874.

Woodland National Forest Inventory Woodland Wales 2018 dataset. Broadleaf, Conifer and Mixed woodland. Contains information supplied by the Forestry Commission. © Crown copyright and database right 2019 Ordnance Survey (100021242).

Freshwater & Wetlands Natural Resources Wales. 2021. Water Watch Wales. River Waterbodies Interim Assessment 2018. Water Watch Wales:
<https://waterwatchwales.naturalresourceswales.gov.uk/en> (accessed 14/03/2021).
Main Rivers dataset. 2005. Contains Natural Resources Wales information © Natural Resources Wales and Database Right. All rights Reserved. Contains Ordnance Survey Data. Ordnance Survey Licence number 100019741. Crown Copyright and Database Right.

Coastal Saltmarsh extents dataset (2009–2016). Contains Natural Resources Wales information © Natural Resources Wales and database right and Special Areas of Conservation (SAC), Special Protection Areas (SPA), National Nature Reserves (NNR) and Special Sites of Scientific Interest (SSSI) datasets Contains Natural Resources Wales information © Natural Resources Wales and Database Right. All rights Reserved. Contains Ordnance Survey Data. Ordnance Survey Licence number 100019741. Crown Copyright and Database Right.

Species records

Provided by the South East Wales Biodiversity Records Centre (SEWBReC), Gloucester Centre for Environmental Records (GCER), Herefordshire Biological Records Centre and the National Biodiversity Network Atlas (NBN Atlas).

The following organisations gave permission to use their records on the NBN Atlas:

Amphibian and Reptile Conservation (ARC), Bat Conservation Trust (BCT), Botanical Society of Britain and Ireland (BSBI), British Dragonfly Society (BDS), British Trust for Ornithology (BTO), Butterfly Conservation, Joint Nature Conservation Committee (JNCC), Natural England (NE), Natural Resources Wales (NRW), People's Trust for Endangered Species (PTES), Project Splat, Royal Society for the Protection of Birds (RSPB), The Biological Records Centre (BRC), The Mammal Society, Welsh Government.

The following organisations also kindly provided data from national recording schemes:

Amphibian and Reptile Trust: National Amphibian and Reptile Recording Scheme

Bat Conservation Trust: National Bat Monitoring Scheme

Botanical Society of Britain and Ireland, UK Centre for Ecology & Hydrology, Plantlife & Joint Nature Conservation Committee: National Plant Monitoring Scheme

British Dragonfly Society: Clubtail Count

British Trust for Ornithology: Breeding Bird Survey, Wetland Bird Survey

Butterfly Conservation, UK Centre for Ecology & Hydrology, British Trust for Ornithology and JNCC: UK Butterfly Monitoring Scheme

Game & Wildlife Conservation Trust: National Gamebag Census

Natural Resources Wales: Electrofishing data, National Otter Survey of Wales

People's Trust for Endangered Species: National Dormouse Monitoring Scheme, Hedgehog Street, National Water Vole Monitoring Program

Project Splatter: Project Splatter

Appendix 3: Abbreviations

AONB	Area of Outstanding Natural Beauty
AOO	Area of occupancy
ARC	Amphibian and Reptile Conservation Trust
ASNW	Ancient Semi-Natural Woodlands
BAP	Biodiversity Action Plan
BBNP	Brecon Beacons National Park
BBS	Breeding Bird Survey
BDS	British Dragonfly Society
BNM	Butterflies for the New Millennium
BOU	British Ornithologists Union
BRIG	Biodiversity Reporting and Information Group
BSBI	Botanical Society of Britain and Ireland
BTO	British Trust for Ornithology
CABI	Centre for Agriculture and Bioscience International
CBC	County Borough Council
CCW	Countryside Council for Wales
CEH	UK Centre for Ecology and Hydrology
CPLD	Catch Per Licence Day
CUOP	Cardiff University Otter Project
EOO	Extent of occupancy
ERLoB	European Red List of Birds
ERLoB	European Red List of Birds
FCS	Favourable conservation status
GERC	Gloucester Ecological Records Centre
GG	Greater Gwent
GOS	Gwent Ornithological Society
GWCT	Game and Wildlife Conservation Trust
HBRC	Herefordshire Biological Records Centre

IAPA	Important Arable Plant Area
IFA	Important Fungus Area
INNS	Invasive Non-native Species
IPA	Important Plant Area
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
LERC	Local Environmental Record Centre
LNR	Local Nature Reserve
MMBG	Monmouthshire Moth and Butterfly Group
MTAC	Make the Adder Count
NARRS	National Amphibian and Reptile Recording Scheme
NASCO	North Atlantic Salmon Conservation Organization
NBMP	National Bat Monitoring Programme
NBN	National Biodiversity Network
NDMP	National Dormouse Monitoring Programme
NEA	National Ecosystem Assessment
NMRS	National Moth Recording Scheme
NNR	National Nature Reserve
NNSS	Non-native Species Secretariat
NPMS	National Plant Monitoring Scheme
NPS	National Pond Survey
NWVMP	National Water Vole Monitoring Programme
PRR	Potential Reinforcement Region
PTES	People's Trust for Endangered Species
RDB	Red Data Book
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SEWBRcC	South East Wales Biodiversity Records Centre
SEWRT	South East Wales Rivers Trust
SINC	Sites of Importance for Nature Conservation

SPA	Special Protected Area
SPG	Supplementary Planning Guidance
SQI	Species Quality Index
SSSI	Site of Special Scientific Interest
SWTRA	South Wales Trunk Road Agent
UKBAP	UK Biodiversity Action Plan
UKBMS	UK Butterfly Monitoring Scheme
WaREN	Wales Resilient Ecological Networks
WCBS	Wider Countryside Butterfly Survey
WeBS	Wetland Bird Survey
WWT	Wildfowl and Wetlands Trust