The Second State of Natural Resources Report (SoNaRR2020)

SoNaRR2020 Register enclosed farmland assessment of SMNR

Natural Resources Wales

Final Report

Mae'r ddogfen hon hefyd ar gael yn Gymraeg

About Natural Resources Wales

Natural Resources Wales's purpose is to pursue sustainable management of natural resources. This means looking after air, land, water, wildlife, plants and soil to improve Wales's well-being, and provide a better future for everyone.

Evidence at Natural Resources Wales

Natural Resources Wales is an evidence-informed organisation. We seek to ensure that our strategy, decisions, operations and advice to Welsh Government and others are underpinned by sound and quality-assured evidence. We recognise that it is critically important to have a good understanding of our changing environment.

We will realise this vision by:

- Maintaining and developing the technical specialist skills of our staff;
- Securing our data and information;
- Having a well resourced proactive programme of evidence work;
- Continuing to review and add to our evidence to ensure it is fit for the challenges facing us; and
- Communicating our evidence in an open and transparent way.

Title: **SoNaRR2020 Register enclosed farmland assessment of SMNR**

Peer Reviews: Internal and external peer review

Restrictions: None

The Second State of Natural Resources Report (SoNaRR2020) contents

This document is one of a group of products that make up the second State of Natural Resources Report (SoNaRR2020). The full suite of products are:

Executive Summary. Foreword, Introduction, Summary and Conclusions. Published as a series of webpages in December 2020

The Natural Resource Registers. Drivers, Pressures, Impacts and Opportunities for Action for eight Broad Ecosystems. Published as a series of PDF documents and as an interactive infographic in December 2020

Assessments against the four Aims of SMNR. Published as a series of PDF documents in December 2020:

SoNaRR2020 Aim 1. Stocks of Natural Resources are Safeguarded and Enhanced

SoNaRR2020 Aim 2. Ecosystems are Resilient to Expected and Unforeseen Change

SoNaRR2020 Aim 3. Wales has Healthy Places for People, Protected from Environmental Risks

SoNaRR2020 Aim 4. Contributing to a Regenerative Economy, Achieving Sustainable Levels of Production and Consumption

The SoNaRR2020 Assessment of Biodiversity. Published in March 2021

Assessments by Broad Ecosystem. Published as a series of PDF documents in March 2021:

Assessment of the Achievement of SMNR: Coastal Margins

Assessment of the Achievement of SMNR: Enclosed Farmland

Assessment of the Achievement of SMNR: Freshwater

Assessment of the Achievement of SMNR: Marine

Assessment of the Achievement of SMNR: Mountains, Moorlands and Heaths

Assessment of the Achievement of SMNR: Woodlands

Assessment of the Achievement of SMNR: Urban

Assessment of the Achievement of SMNR: Semi-Natural Grassland

Assessments by Cross-cutting theme. Published as a series of PDF documents in March 2021:

Assessment of the Achievement of SMNR: Air Quality

Assessment of the Achievement of SMNR: Climate Change

Assessment of the Achievement of SMNR: Energy Efficiency

Assessment of the Achievement of SMNR: Invasive Non-native Species

Assessment of the Achievement of SMNR: Land use and Soils

Assessment of the Achievement of SMNR: Waste

Assessment of the Achievement of SMNR: Water Efficiency

Updated SoNaRR evidence needs. Published in March 2021

Acronyms and Glossary of terms. Published in December 2020 and updated in March 2021

Recommended citation for this section of the report:

Natural Resources Wales. 2020. State of Natural Resources Report (SoNaRR): SoNaRR2020 Register enclosed farmland assessment of SMNR. Natural Resources Wales.

Copyrights

Enclosed Farmland Natural Resource Register Assessment of SMNR

SoNaRR2020

Aim 1: Stocks of Natural Resources are Safeguarded and Enhanced

Aim 1: Progress towards meeting the aim

1.1 Glastir - sustainable land management scheme
Confidence Assessment: High

1.2 Greater Horseshoe bats - positive trends in survival and population growth have been noted
Confidence Assessment: High

Aim 1: Obstacles remaining to meeting the aim

1.3 Glastir - sustainable land management scheme. The amount of land within the scheme has reduced between 2018 and 2019.
Confidence Assessment: High

1.4 Of the 1,467 flowering plants in the Welsh flora, 38 are extinct and 302 (20.6%) are considered to be threatened or nearly so in Wales, 95% of which grow on productive farmland.
Confidence Assessment: High

1.5 Wild arable plants are the fastest declining group of plants.
Confidence Assessment: High

1.6 Many species of wild pollinator, including bumble bees, solitary bees and hoverflies, are under threat.
Confidence Assessment: High

1.7 The brown hairstreak butterfly has undergone a 43% contraction of its range since the 1970's and monitored populations in Wales are showing large recent declines.
Confidence Assessment: High

1.8 Between 1995-2016 starlings have declined by 72%, curlew by 63%, yellowhammers by 58% and both turtle dove and corn bunting are virtually extinct as breeding birds in Wales.
Confidence Assessment: High

1.9 The recorded soil pH on improved grassland is now below the optimum pH for grass growth of 6.0.
Confidence Assessment: Medium

1.10   From Land Use & Soils Chapter - Soil Erosion, Estimates of annual rates of erosion of 0.54 – 1.37 t/ha/yr in UK grassland, 0.1-10t/ha/yr on UK cultivated land and 10-200t/ha/yr on UK bare soils (Nicholson et al., 2020)
Confidence Assessment: Low

Aim 2: Resilient Ecosystems

Aim 2: Progress towards meeting the aim

2.1   From Ecosystem Resilience Chapter - Arable land and hedgerows have shown historic losses that have now either stabilised or slightly increased, so their extent is considered moderate.

Aim 2: Obstacles remaining to meeting the aim

2.2   In 2019, 113 water bodies have been identified across Wales to be failing Water Framework Directive standards associated with agricultural activities (NRW Challenges and Choices Consultation, 2019).
Confidence Assessment: High

2.3   Diversity in intensive arable systems is very low.
Confidence Assessment: Medium

2.4   From Ecosystem Resilience Chapter - Diversity but low in other modified habitats such as arable fields and agriculturally improved land where intensive management has focussed on cultivating a small number of species.

- From Ecosystem Resilience Chapter - Agriculturally improved land was high in extent and connectivity. Low in diversity and condition.
Arable fields were medium in extent and low in connectivity. Low in diversity and condition.
Confidence Assessment: High

- Diversity in hedgerows was variable but medium in extent, low in condition and medium in connectivity.
Confidence Assessment: High

- Parkland and wood pasture were high in diversity low in extent and condition and medium to low for connectivity.
Confidence Assessment: Low

- Traditional orchards were high in diversity but scored low for the three other attributes of extent, condition and connectivity
Confidence Assessment: Medium

2.5   Animal richness is negatively influenced by intensive land use and unaffected by soil properties (George et al, 2019; Soil Association, 2019; ADAS, 2019; IBPES, 2016).
Confidence Assessment: High

Aim 3: Healthy Places for People

Aim 3: Progress towards meeting the aim

3.1   Between 2016 and 2019, there was 1,300 ha of new woodland creation funded by grant in Wales (WG, 2020)
       Confidence Assessment: High

3.2   Wales Land Management Forum Sub Group on agricultural pollution are committed to deliver the recommendations identified by the members to tackle and eliminate agricultural pollution.

Aim 3: Obstacles remaining to meeting the aim

3.3   In 2018 agriculture is estimated to have contributed around 14% of total Welsh greenhouse gas (GHG) emissions. These are dominated by methane (62%) and nitrous oxide (28%), with only 10% of sector emissions as carbon dioxide (Welsh Government, 2019b; NAEI, 2020).
       Confidence Assessment: High

3.4   Agriculture accounts for approximately 60% of nitrates in rivers (Hunt et al. 2004).
       Confidence Assessment: Medium

3.5   Agriculture is also a major source of phosphorus, the primary nutrient responsible for eutrophication in freshwater (Jarvie et al. 2010).
       Confidence Assessment: High

3.6   Agricultural sources are responsible for 91% of ammonia emissions, with cattle manure management alone accounting for over 35% of emissions.
       Confidence Assessment: Medium

3.7   In 2018 the total treated sewage sludge produced and applied to agricultural land in Wales was 43,194 tonnes of dry solids spread over an area of 7,844 ha (DCWW, 2019).
       Confidence Assessment: High

Aim 4: A Regenerative Economy

Aim 4: Progress towards meeting the aim

4.1   There was an area of 67,057 ha of land within Glastir organic contracts for conversion and maintenance in 2019 (WG figures).
       Confidence Assessment: High

Aim 4: Obstacles remaining to meeting the aim

4.2   The total loss of Best and Most Versatile (BMV) land over the period 1939 to 2011, was 21,300 hectares (6.7% of the resource).
       Confidence Assessment: High

4.3 Altered water availability due to climate change is forecast to increase the risk of more frequent prolonged periods of dry weather, increased risk of soil saturation, standing water and flooding.
Confidence Assessment: High

4.4 No agreed indicators for measuring and reporting on soil condition.

4.5 The increase in maize production in Wales could lead to soil erosion with bare fallow at unfavoured times. Conversion of grassland to arable can increase GHG emissions.
Confidence Assessment: Low

4.6 From Land Use & Soils Chapter - Modify and innovate current practices and supply chains to improve productivity and resilience of agricultural production systems.
Confidence Assessment: Medium