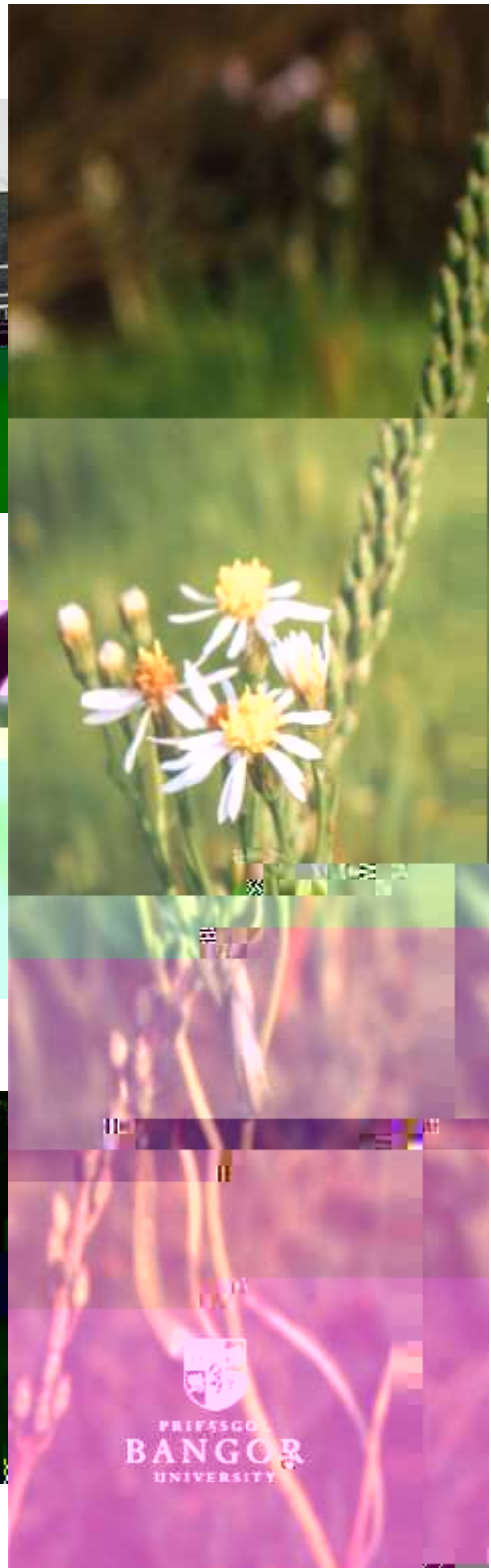
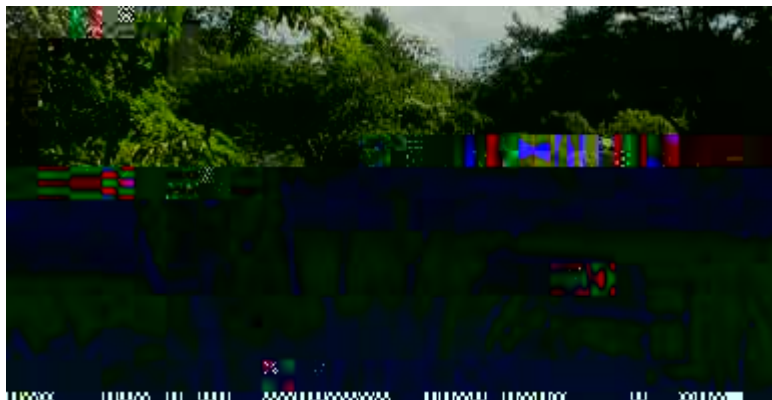
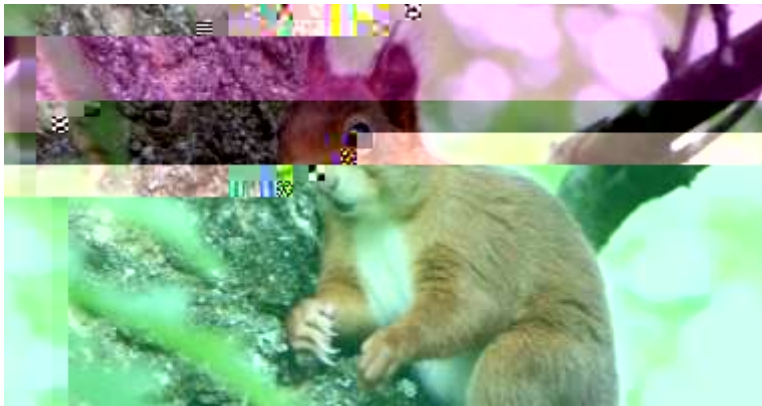


Environment (Wales) Act 2016 Part 1 Section 6: The Biodiversity and Resilience of Ecosystems Duty - 2022 Report



Avoid use of environmentally harmful substances, materials, and processes
Use native planting and develop suitable habitats for native wildlife
Include biodiversity within decisions regarding investment, procurement, planning and design, new construction, servicing, and maintenance
Create new green space and ensure ecological connectivity
Use biodiversity to promote health and wellbeing
Minimise and mitigate negative impacts of university operation on the environment
Raise awareness of biodiversity conservation inte

Maintaining the Healing Garden at Fron Heulog used by Headway Gwynedd, the Brain Injury Foundation and students for growing fruit and vegetables
Biodiversity surveys conducted by staff, students & volunteers
Conducting world-leading research on topics related to enhancing biodiversity and creating resilient ecosystems

Our actions for biodiversity have delivered positive outcomes in the following ways so far:

Benefits for health

Gardening sessions for health and wellbeing for staff

Key enabling factors:

Excellent communication with students,

the embedment of sustainability work streams within the university's operations and its high-level decision making.

As previously testified, biodiversity has formed a part of the university's environmental performance reporting for many years and will continue to be a key theme of our commitment of continual improvement in environmental management.

Awareness, Training & Involvement

Treborth Botanic Garden is the 'Rose Window' to the university's biodiversity commitment and activities. Staff and volunteers at the Garden have an extensive, year-round programme of events, including seminars and engagement activities that are open to the public as well as university students and staff.

Between August 2019 and October 2022 Treborth Botanic Garden hosted many events related to biodiversity, ecology, and conservation. Event themes included:

- The importance of protection specific species
- Seminars explaining biodiversity and conservation related

Section 7 Special Species and Habitats

Numerous biodiversity surveys of sites across the university's estate are undertaken by university staff and volunteers (students, staff & public). Regular surveys include:

- Macromoths (400 species recorded over 30 years of survey data)
- Unimproved grassland surveys (annually)
- Orchid surveys (annually)
- Red Squirrel monitoring (monthly)
- Wildlife pond water monitoring for aquatic flora and fauna
- Dormouse activity monitoring

Details of some sighted species can be found on the [Treborth Botanic Garden 'Wildlife' webpage](#).

Red Squirrel ()

There is a documented population of red squirrels at Treborth Botanic Garden. The university has a

Soprano pipistrelle () - Uncertain status due to easy confusion with other species, several confirmed recent detections.

Brown long-eared Bat () - A few recorded detections.

Bat boxes and tiles have been installed in many buildings across the university's estate, to support and protect local bat populations. As part of the development of the St Mary's Student Village a house-style building was constructed specifically for the benefit of bats detected in the area during the ecological survey.

Otter ()

Reported sightings of otter along shores of the Menai Straits have been on the increase, including records of otter spraint. To protect the otters and encourage their continued use of the area, the shoreline area is being left deliberately undisturbed.

Polecat ()

Individuals were recorded from live trapping in 2005, with some individuals also recorded as casualties of vehicles between 2005-2010. Sightings are still reported but are not regular.

Areas of lowland woodland habitat and old boundary walls are being protected at Treborth Botanic Garden specifically for the purposes of protecting and encouraging polecats.

Conservation efforts for polecats also fall within the remit of the university's partnership with Red Squirrel Trust Wales.

Lesser-spotted Woodpecker ()

Occasionally sighted visiting species.

Slow worm ()

Slow worms have been recorded on the university's estate. Treborth Botanic Garden has installed Hibernacula specifically for slow worms to seek shelter and safe hibernation.

Wild cotoneaster ()

Wild cotoneaster is the rarest plant in Britain. Although not located on the university's estate, Treborth Botanic Garden are working in partnership with National Botanic Garden of Wales, Millennium Seed Bank and Chester Zoo on a project to conserve the Wild Cotoneaster on the Great Orme in Llandudno.

Management of Protected Sites (Henfaes Research Centre and surrounding area)

The University's two parcels of land at Abergwyngregyn, Gwynedd, constituting approximately 221.5 hectares, are within the boundary of Snowdonia National Park; Henfaes Ffridd and the Centre for Hill and Upland Management (previously noted in section 1, Introduction & Context).

The Centre for Hill and Upland Management includes the sessile oak woodland statutory conservation feature within the Coedydd Aber Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR) and Special Area of Conservation (SAC). The feature is the largest contiguous extent of this habitat type along the north Wales coast.

In total, 94.5 hectares of university owned land falls within the Coedydd Aber SSSI/SAC and 87.5 hectares within the National Nature Reserve.

The Woodland canopy comprises Sessile Oak () and Downy Birch () with transitions to Common Ash () woodland and extensive areas of Alder () woodland along the valley floor. A rich lower-plant flora exists within the woodland, including the rare mosses and , and the lichens and . The lichen assemblage is one of the most interesting in north Wales, with over a hundred species recorded.

The woodland breeding bird assemblage is also an SSSI/NNR feature within the site. The site also contains a number of Scheduled Ancient Monuments.

Henfaes Ffridd in Llanfairfechan is an enclosed grazing ffridd, containing unimproved and semi-improved acid grassland, with smaller areas of agriculturally improved grassland. Much of the site is designated a Scheduled Ancient Monument comprising a Romano-British field system.

Henfaes Research Centre at Abergwynt
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Management of Protected Sites (Treborth Botanic Garden)

Treborth Botanic Garden is located along the Menai Straits, between Pont Menai, the Menai Suspension Bridge, and Pont Britannia Bridge. The Garden is comprised of a range of habitat types and land under a range of special designations.

The woodlands at Treborth Botanic Garden cover approximately 16 hectares, at altitudes ranging from High Water Mark to 40 metres above sea level. The site is notable for the extent of shoreline (1.5km) directly fringed with high canopy forest, an uncommon landscape feature in Wales.

Approximately one

Up to 6 pairs of grey heron () breed annually in Strait-side trees and shelduck () breed annually along the wooded bank of the Strait.

The overall breeding bird list for the woodlands stands at 33 species.

Landscape & Habitat Management (Pesticides, Herbicides & Planting)

In recent years, the Campus Services' Grounds & Landscape team have been trialing alternative approaches to managing weeds, in an effort to reduce the use of glyphosate and similar weed killer. This has included the use of acetic acid and weed burners as well as alternative management regimes that do not rely on weed removal. Alternative management approaches include reduced mowing, both in terms of frequency and extent, to allow areas to become wilder, encouraging and supporting a greater range of plant and animal biodiversity.

At Treborth Botanic Garden, herbicides are no longer used for the purposes of keeping paths clear of weeds. Whilst the use of herbicides on paths continues at other sites, it is possible that the university could institute a policy where use is less or even eliminated in future.

Further management changes have included the removal of some traditionally lawned areas (or parts thereof) and replaced with herbaceous planting or wildflowers. This approach provides more varied habitats which support a greater number and variety of animal species, as well as reducing t

communication it is possible that changes to mowing could be misinterpreted as cost-cutting or a reduction in service rather than as a deliberate strategy.

Tree planting is an ongoing activity at Bangor University. This includes an orchard of 140 native Welsh apple trees planted on the university's Ffriddoedd site around student residential halls, tree planting behind Thoday building and in front of Deiniol building on the science site, and cherry trees planted around Pontio Arts and Innovation Centre. The trees will provide habitat for a range of wildlife and support and encourage pollinating insects and the orchard is an example of how food can be produced locally.

There is a further orchard of rare and special native Welsh fruit trees, including apple trees, cherry trees, and plum trees, at Treborth Botanic Garden. As an educational facility, Treborth Botanic Garden established the orchard to teach people about native Welsh fruit trees. Treborth Botanic Garden has also planted new hedgerows to serve as wildlife corridors, connecting habitat areas.

Non-native Species

The university's main involvement with the management of non-native species has been in the control of Japanese Knotweed (*Reynoutria japonica*). There have been four separate instances/areas of Japanese Knotweed identified on the university estate in recent years. Of these, two occurrences are confirmed as having been fully eradicated and one site seems to have been eradicated although monitoring is ongoing to ensure no resurgence occurs. In the remaining site, management and removal is ongoing.

Treborth Botanical Garden also has issues with the non-native plants, particularly Rhododendron (*Rhododendron ponticum*) and Cherry laurel (*Prunella laurocerasus*), in the area of woodland along the Welsh Coastal Path, Menai Strait side of the site, and removal and management of these invasive species is also ongoing.

Resource Management

Grass clippings and plant cuttings are composted on-site, with the resulting compost being used by the Grounds and Landscape team to fill some of the containerised plant displays that are found across the estate, and as a soil amendment in planted beds. The student Healing Garden at Fron Heulog, which is run and managed by the student volunteering project 'Headway Healing Garden' also utilises compost and woody & chipped material on-site

Evidence, Research and Knowledge Sharing

Bangor University has a reputation as a world-leader in the field of research and more than 90% of the research undertaken in the Environmental Sciences was 'world-leading' as published in the [2021 Research Excellent Framework results](#).

Within our Schools of Natural Sciences and Ocean Sciences there is significant focus on [research into the importance of biodiversity within Wales and globally](#), as well as into best approaches to maintain and enhance biodiversity and ecosystems.

Between 2019 and 2021, researchers at Bangor University contributed 820 scientific publications on biodiversity, habitats, ecosystems, and ecosystem services, disseminating new knowledge internationally. Research highlights include:

Microplastics alter multiple biological processes of marine benthic fauna -
2022

Variation in root morphology amongst tree species influences soil hydraulic conductivity and macroporosity – 2022

Lakes in Hot Water: The Impacts of a Changing Climate on Aquatic Ecosystems –
2022

Trawl impacts on the relative status of biotic communities of seabed sedimentary habitats in 24

Choosing best practices for managing impacts of trawl fishing on seabed habitats and biota -
2020

A framework linking ecosystem services and human well-being: Saltmarsh as a case study -
2019

Mapping the consequences of artificial light at night for intertidal ecosystems -
2019

Net Gain: Seeking better outcomes for local people when mitigating biodiversity loss from
development - 2019

Impact of long-term nitrogen deposition on the response of dune grassland ecosystems to
elevated summer ozone - 2019

Ecological Surveys and Planning Consent

As previously discussed, the u

Maintaining and enhancing biodiversity across its estate
Influencing future generations to be aware of their impact on the environment
Communicating the university's commitments and policies on enhancing biodiversity to students, staff, and the wider community
Continuing to engage with students, staff, and the wider community on ecological and environmental issues
Raising awareness and the importance of biodiversity through campaigns
Enhancing and improving understanding of our local habitats and species, including through surveys and data collection
Continuing to educate and promote understanding and appreciation of the natural environment and its biodiversity

Appreciation

The University would like to thank everyone who has contributed to the compilation of this report, particularly staff from:

- Treborth Botanic Garden
- Campus Environmental Performance Team
- Grounds and Landscape Team
- Henfaes Research Centre
- Campus Services
- Students' Union