Cyswllt Amgylchedd Cymru

Wales Environment Link

The network for environmental, countryside and heritage NGOs in Wales

Briefing for AMs

What can Wales do about Insect Declines?

Insect populations are in crisis. Recent studies[1][2] paint a grim picture of the decline of essential invertebrates across the planet; current declines could lead to the extinction of 41% of the world's insect species over the next few decades. Data on many groups of insects in limited, however for species that are well monitored the indications are shocking. 60% of Welsh butterflies are in long term decline[3], seven species of Welsh bees are known to have gone extinct, and five more are at risk of extinction[4].



Meaning: 'Invertebrates' – *animals without backbones, including insects, bees, caterpillars, butterflies, moths, beetles, wasps, spiders, snails and worms.*

What needs to be done to halt and reverse insect declines in Wales?

- **Protect the most important areas for insects:**
  - Protect the best remaining wildlife sites and ensure they are managed in the right way to promote their wildlife interest, by helping teach land managers how to best maintain these sites.
  - Expand our best wildlife sites; identify and act upon opportunities to increase the size of the remaining areas of nature rich habitats.
  - Remaining areas of wildlife-rich habitat and existing High Nature Value agriculture must be maintained and promoted.
  - Local and national planning guidance should be clear that developments are expected to protect the most important sites for insects, protect our most threatened species, and incorporate wildlife-friendly green infrastructure.
- **Reconnect isolated wildlife-rich sites at a landscape scale across Wales**. Nature recovery networks, such as B-Lines, must be identified and integrated into existing schemes to target habitat restoration and creation, and increase opportunities for species to move around the countryside. In short, we need to restore, **expand and reconnect our best wildlife sites.**
- As any **future land management schemes** will only become fully adopted by 2025, we need an overarching agricultural vision now that aims to make our food and farming system more wildlife friendly and sustainable. A public goods system based on ecosystem services would protect our soils and watercourses. Including:

[1] Sánchez-Bayo & Wyckhus, 2019. Worldwide decline of the entomofauna: A review of its drivers. Biological Conservation, 232.
[2] Hallmann et al., 2019. Declining abundance of beetles, moths and caddisflies in the Netherlands. Insect Conservation & Diversity.
[3] Hayhow et al., 2016. State of Nature 2016 – Wales.
[4] Olds, Chmurova, Dinham & Falk, 2018. Wales Threatened Bee Report.

    - Adequately funded insect-friendly habitat options which should be targeted, using high quality spatial data, to deliver habitat for Wales' priority species.
    - Incentivise organic practices, including integrated pest management (IPM) and other agro-ecological practices, to reduce the use of damaging chemicals seeping into the soil, entering our water-courses and damaging our ecosystems. This includes offering free technical advice.
- Following the Welsh Government's introduction of regulations **on agricultural pollution in January 2020,** Wales should implement seasonal reporting to **track its effectiveness** and to enable quick identification of any changes or improvements needed to get us on track to minimal pollution.
- **Biosecurity plans** should be implemented to prevent the establishment of invasive non-native species (INNS). Recently arrived INNS should be eradicated at the earliest opportunity, and established INNS should be contained, and where possible eradicated.
- Freshwater invertebrates are particularly at risk from inappropriate land use and climate change. **Mitigation measures,** such as riparian planting with native species to protect and shade watercourses, should be adopted where appropriate in Wales.
- **Stop the routine use of pesticides in public green spaces and private gardens**. The Welsh Government and all public bodies should set a compulsory Welsh Pesticide Reduction Target, in order to protect our soils and water courses from the effects of chemical pollution and excessive nutrients. The public need to be educated and encouraged to stop using insecticides and weed killers wherever possible in our homes, parks, gardens and places of work.
- **We need more information on Wales' invertebrates**, particularly those on our Section 7 list, but also on the abundance of widespread and common species which provide broad ecosystem functions – with more focus on evidence gathering and monitoring. Our statutory agencies need to play a key role in supporting this. Monitoring schemes for pollinators, riverflies and other invertebrate groups should be funded so that they can provide the information required to know whether our actions are making a difference.
- Support and implement legislation and initiatives **to tackle the causes of climate change** so that we can reduce Wales' carbon footprint.

What benefits do insects give to Wales?

Invertebrates are the beating heart of every ecosystem and perform many functions that are essential to our lives, and to other species. If they're in decline, the mammals that rely on them for food are at risk as well.

Pollination: It has been estimated that the value of insect-pollinated fruits and vegetables grown in the UK is about £220m a year. Insects also pollinate our wildflowers - sustaining a rich and vibrant countryside. Around 80% of UK plants are insect-pollinated, many of which are crop plants.

Food chain: Insects are food for birds, mammals, reptiles, amphibians, fish and other animals. They are at the bottom of many food chains and scarcity will have a knock-on effect on the whole natural world.

Pest control: Predatory insects help maintain a natural balance and control potential crop pests.



Food chain in action: A fen raft spider feeding on a moth.



Recycling: Insects are decomposers and recyclers – they feed on dead plant and animal matter, recycling nutrients back into the soil. They also keep the soil healthy by aerating and maintaining soil structure, which is vital for growing. Freshwater insects feed in a similar manner, becoming in themselves the principle source of nutrients for the higher animals of the freshwater environment.

Environmental indicators: As insects are susceptible to changes in the environment, and react quickly, they are used as indicators of the health of our environment – such as detecting pollution in rivers and streams.

What are the reasons for insect decline?

No one factor is to blame entirely, but the four main causes of invertebrate declines are: **habitat loss, pollution, non-native species, and climate change**. We've detailed these causes below; we must restore our depleted and devastated invertebrate populations**.**

1. Habitat loss and fragmentation

Wildlife-rich landscapes and the vibrant populations of insects, other invertebrates and other wildlife that they support are fantastic for people. Our lives, and the lives of future generations will be richer and healthier if there are more wildlife-rich places in Wales. Agricultural intensification in our countryside, in conjunction with urban development, has resulted in a decline of wildflower-rich habitats – for example, 89% of Wales' lowland grassland has declined since the 1930s[5], resulting in the loss of the specialist wildlife that these grasslands support. Fragmentation of habitats leaves populations of insects marooned and unable to move in response to environmental change, such as climate change. Large areas of wildlife friendly habitat mosaics must be restored and created at a landscape scale to provide essential food and shelter for wildlife. **We need habitats that are bigger, better and more joined up.**



Grasslands are excellent insect habitats and we need far more of them.



2. Pollution and Agricultural practices

Currently there are over four hundred active substances approved for use as a pesticide protection product in the EU. Since the approval process started in 1991, over a hundred products have been banned due to their detrimental effect on the environment or human health, despite being previously deemed safe and used extensively. The excessive and

[5] NEA, 2011. The UK National Ecosystem Assessment. UNEP-WCMC, Cambridge.

inappropriate spreading of farmyard slurry and poultry litter can lead to unnatural levels of nutrients spilling or leaching into the freshwater environment, resulting ultimately in the depletion of dissolved oxygen levels below that required to support all but the most pollution tolerant forms of life. **We need to be more cautious in what chemicals are fed into the soil and explore how we can take control of pesticide use in Wales.**

3. Guard against Invasive Non-Native Species

Invasive Non-Native Species (INNS) are undoubtedly one of the greatest threats to biodiversity throughout the world. The introduction of INNS to new ecosystems typically leads to a reduction in species richness and abundance and general degradation of the environment. The annual cost of INNS to the UK economy is estimated to be at least £1.7 billion. **Biosecurity plans need to be implemented to prevent this.**

4. Climate change

Climate change poses a threat to most of our wildlife, and invertebrates are no exception. As temperatures rise and weather patterns become more unpredictable, the distribution of some insects will have to shift in response. In addition to the shift in species' 'climate space' that they can thrive in, there is some evidence[6] that the timing and emergence of herbivorous insects is becoming decoupled from their host plants. In other words, species' life cycles and their habitats are becoming out of sync, which is especially worrying for pollinators. **Wales has taken the first step in declaring a Climate Emergency, but we need action rather than words to respond to this accelerating threat.**

Increasing our knowledge

Knowledge is key to people being able to take effective action to protect and sustain insect populations. Insects are a highly diverse group that is subject to variable levels of recording, monitoring and popularity. We must keep track of insect populations, just as we would track any other key environmental or economic asset. **This needs public resource as citizen science alone isn't enough to track species' populations.**



Further information

Wales Environment Link has provided this briefing for AMs as part of the Cross Party Group on Biodiversity. If you'd like more information on the issues raised here, please get in touch with:

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Photo credits: Buglife Cymru

[6] Pyke et al., 2016. Effects of climate change on phenologies and distributions of bumble bees and the plants they visit. Ecosphere 7(3).