Cynulliad Cenedlaethol Cymru | National Assembly for Wales
Y Pwyllgor Newid Hinsawdd, Amgylchedd a Materion Gwledig | Climate Change, Environment and Rural Affairs Committee
Ymchwiliad i bolisi coedwigaeth a choetiroedd yng Nghymru | Inquiry into Forestry and woodland policy in Wales

FWP 28

Ymateb gan : Prifysgol Bangor
Evidence from : Bangor University

1. This consultation is welcome and timely. Bangor University was the first university in the UK to teach a degree programme in forestry, in 1904. It remains one of the leading higher education institutions in the world for forestry teaching and research. Many significant figures in Welsh forest management (as well as in forest services around the world, including Mary Sutherland the first-ever female forestry graduate) have been alumni of the university. Forestry education and research now takes place as part of the School of Environment, Natural Resources and Geography, which ensures a holistic and multi-disciplinary approach to forestry issues.

2. We were very pleased to be rated top in the UK for forestry education with 100% student satisfaction in the 2015 National Student Survey (NSS). The University has in excess of 150 students currently taking BSc, MSc and PhD degrees in forestry.

3. Our teaching makes extensive use of our unique location by combining traditional lectures with fieldtrips that demonstrate real forestry practicalities and current environmental issues. Our extensive local, national and international networks and our active research programmes allow us to deliver high quality teaching addressing cutting-edge issues. The University's Henfaes Research Centre, Treborth Botanic Garden and proximity to a diversity of different forest types are major assets for forestry education. We work closely with, and introduce students to, UK organisations such as Natural Resources Wales, Forestry Commission, Woodland Trust, Forest Research, the Institute of Chartered Foresters and the forest industry organisation CONFOR.

4. Research takes place in a multidisciplinary and internationalised school with a broad range of expertise, ranging from silviculture and forest management, to biodiversity conservation, ecosystem services, human wellbeing, economics and modelling. A long-standing strength is in the interface of agricultural and forestry land uses, e.g. in agroforestry systems, and major new strengths are in tree-soil-microbial interactions, which are so crucial in the role of forests in carbon sequestration, life cycle assessment, and adaptation of forests to climate change effects, including elevated atmospheric CO_2, pest and disease risks, drought, and their role in flood protection.

5. We believe that while Bangor University's forestry teaching and research is of crucial strategic importance for Wales's international standing, we are also in a position

to contribute to forestry policy and practice in Wales. The following points are intended to address some of the issues raised, indicating directions which the Committee's inquiry might most usefully take.

Responding to climate change – coping with climate change and helping reduce our carbon footprint

6 Climate change policies must be based on rigorous scientific evidence and robust estimation of economic values. Researchers at Bangor are active in these fields. The Committee should examine evidence on:

- Carbon sequestration resulting from different approaches to woodland creation.
- The key issue of soil carbon, which can be very significant relative to above-ground tree biomass carbon.
- The full net impact of forest management and products on climate change mitigation via formal life cycle assessment.
- The circumstances under which management of native woodland is a net carbon benefit.
- Economic valuation of carbon issues.
- How forest composition, structure and habitat networks might be developed to secure biodiversity values in a changing climate.

Woodlands for people – serving local needs for health, education and jobs;

7. Bangor University has a long history of research and teaching around the social values of forestry both internationally and in Wales. Most forests in Wales are managed by NRW as a 'state' entity, or are in the hands of private owners. The Committee might consider whether socio-economic aspects of participatory/community forestry can be a means to promote rural development and conserve forest/natural resources in an equitable manner.

8. Forestry and wood processing are an important source of employment in Wales. However, better evidence is required of the true scale of employment, economic and social impacts of Welsh woodlands, and their management for production. It is important for the committee to consider both direct and indirect impacts of woodlands, and specifically what proportion of the impact is on disadvantaged communities in rural areas (especially given the uncertain prospects for employment in agriculture). It is also important for the committee to consider both the formal and informal sectors of forestry and wood processing. In the case of the domestic firewood sector, which has grown rapidly over the last decade or so, less than half of the supply is estimated to be associated with financial transactions. The majority of firewood supply is from the land of firewood users, or from their neighbours land, or as an exchange for other services, or from skips or other sources.

A competitive and integrated forest sector – innovative, skilled industries supplying renewable products from Wales

9. A vibrant and innovative forest sector depends upon high quality education and training. The Committee might consider how deeper partnerships between industry and educational institutions at all levels could be further developed. We are very supportive of the excellent work of Woodknowledge Wales and, indeed, are partnering them in innovative new projects to establish the full environmental impact of increased use of wood products derived from Welsh forests. Furthermore, Wales is the host to an internationally leading research centre in the development of innovative new wood-based products and materials, in the form of the Biocomposites Centre at Bangor University. However, there is still considerably more to be done to properly integrate commercial, research and educational organisations in Wales to make the sector more competitive, and add much greater value to products harvested from the renewable "Natural Capital" of Welsh forests.

10 We recommend that the Committee should seek evidence on the latest developments in wood technology especially in the use of timber in buildings from Woodknowledge Wales and the Biocomposites Centre.

Environmental quality – making a positive contribution to biodiversity, landscapes and heritage, and reducing other environmental pressures.

11. Many techniques and approaches have been developed in recent decades to ensure that forests contribute positively to biodiversity conservation and the full range of ecosystem services (including regulation of climate, flooding, water quality, as well as cultural services linked to recreation and the visual landscape). Despite this, there are still huge barriers to the appropriate expansion of woodland area in Wales because of many planning restrictions linked to the interpretation of environmental legislation. We strongly advocate a shift in the planning ethos so that the net impact on environmental quality is the dominant criterion used in the development of Welsh woodlands policy, and the appraisal of specific proposals for new woodland establishment. Given the need to plan for the delivery of this set of crucial ecosystem services in Wales, there is a need for more objective appraisal of which areas of land are most suited for each purpose, and therefore where in the Welsh landscape there should be a presumption in favour of woodland establishment that would not be over-ridden by narrower planning restrictions. All of this will require a strengthening of the evidence base. This requires an objective assessment of the breadth and depth of existing evidence, to identify the most crucial gaps, and the commissioning of new research to target these gaps. As an example, while the benefits of new woodlands for catchment management are prominent in current discussions, there is a lack of evidence to inform decisions about which types of woodland, in which locations, would have the greatest net benefit for flood risk mitigation.

How the strategy is contributing to the delivery of duties under the Well-being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016

12. The well-being of future generations in Wales will be heavily dependent on the combination of the nation's human capital (in terms of health, skills etc.) and natural capital. The woodlands strategy has a very important role to play in both of these for the reasons set out above. There is therefore a strong need to integrate the duties under these two acts to provide a robust joined-up framework in which to plan how Welsh woodlands can best contribute to future sustainability and resilience for people and the environment together.

How the strategy will be considered in the context of emerging policies, plans and statements (e.g. National Natural Resources Policy, Biodiversity Plans and Area Statements)

13. Bangor University is involved in a wide range of teaching and research on biodiversity and natural resource management planning. The Committee might consider how the quality of stakeholder and community engagement related to forest plans and area statements could be improved. This could facilitate identification of the appropriate balance for each location between economic employment-generating timber production, biodiversity conservation, environmental protection and recreational benefits of woodlands (or alternative forms of land use).

What are the challenges and opportunities that arise from leaving the European Union?

14. Bangor University, with RSPB Cymru and Cynidr Consulting, worked in partnership, with support from the Welsh Government on a recent conference on "The future of upland farming beyond the CAP". A number of researchers at Bangor are examining socio economic issues, and the impact of agricultural and environmental policy change on ecosystem service delivery.

15. The success of the Welsh rural economy and of forestry in particular after leaving the European Union will depend upon two main approaches:

- The effective development of policies that take the most rigorous approach to public support of rural land uses, which maximises the long-term socio-economic benefits with restricted financial resources.
- The most modern approaches to forestry, including sustainable intensification of forest production in appropriate sites to enable land sparing for biodiversity conservation elsewhere, and land sharing between forest production and environmental protection through methods such as lower cost silvicultural systems, in each case underpinned by improved genetics and technical practices.

Bangor as a source of expert evidence available to the Climate Change, Environment and Rural Affairs Committee

16. We believe that staff at Bangor University represent a world-class source of expertise in forestry issues. Our staff would be very happy to assist the Committee in its inquiry.