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Climate change and potential carbon loss from Scottish peatlands

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The Scottish Government is committed to reduce carbon emissions by 80% by 2050 (compared to a 1990-1995 baseline). Peatlands have been recognised as a key environment for the carbon balance as they sequester and store great quantities of carbon, but they also have the potential to release it. In Scotland, peatlands cover more than 20% of the surface (more than 90% of which is blanket bog) and store about 1620 Mt of carbon. Blanket bogs are very climate reliant and as a consequence of climate change, many areas in Scotland may not be able to support peatlands in the near future. Bioclimatic envelope models have been used to obtain a first estimate of how the distribution of blanket bogs in Scotland could vary according to climate change in the 2050s and in the 2080s. The potential losses of carbon arising from climate change have then been calculated. Results showed that in the 2050s more than half of the carbon currently stored in Scottish blanket bogs will be at risk of loss. This is much higher than the amount of carbon emitted in 2016 from all the sectors in Scotland (27.3MtCO_2) and, if emissions from peatland occur and are taken into account, it will greatly hamper efforts to meet emission reduction targets set out in the Climate Change (Scotland) Act of 2009.