

## Environment, Food and Rural Affairs Committee call for evidence on tree planting and woodland

### Response submitted by Green Alliance

Green Alliance is a charity and independent think tank, focused on ambitious leadership for the environment. With a track record of over 40 years, Green Alliance has worked with the most influential leaders from the NGO and business communities. Green Alliance's work generates new thinking and dialogue, and has increased political action and support for environmental solutions in the UK.

This response to questions 1, 2 and 5 in the call for evidence is based on analysis carried out by Green Alliance and originally reported in our 2019 publication *Cutting the climate impact of land use* available here: [https://www.green-alliance.org.uk/resources/Cutting\\_climate\\_impact\\_of\\_land\\_use.pdf](https://www.green-alliance.org.uk/resources/Cutting_climate_impact_of_land_use.pdf)

### Question 1: Are the UK Government's targets for increasing forestry coverage, and tree planting, for England and the UK sufficiently ambitious and realistic?

Green Alliance carried out analysis into the measures required in the next 10 years for the agriculture and related land use sector to be on track to meet its voluntary target of net zero by 2040. Amongst other important measures on peat restoration and diet, the analysis showed that 70,000 hectares of new woodland is required each year up to 2030 to be on track for the 2040 target. This is considerably higher than the government's current target of 30,000 hectares a year by 2025.

In the UK, agriculture and land use account for around 11 per cent of total emissions, and emission from these sectors have not fallen since 2008.<sup>1</sup> The sector has a vital role to play in reaching net zero in the UK by 2050. Currently, UK forests, which account for 13 per cent of UK land area, are a net carbon sink (-13.7MtCO<sub>2</sub>e per year in 2016).<sup>2</sup> However, without further action the rate of carbon sequestration is expected to decline in future due to the reduced rate of sequestration in mature trees and the dramatic reduction in tree planting in recent years, to an average of 9,000 hectares per year in 2018., although this has increased recently, mainly due to increased planting in Scotland.<sup>3</sup>

The Climate Change Committee estimates that rapid decarbonisation will only take place with afforestation rates of 50,000 hectares a year. This is not far off the peak afforestation rates the UK achieved in the 1970s.<sup>4</sup> These high planting rates, assumed in the Committee's 'high biomass/natural peatland' (HBP) scenario, as well as a greater share of forest brought into active management, would result in forestry providing a net sink of 15.2MtCO<sub>2</sub>e a year by 2030, of which 5.3MtCO<sub>2</sub>e a year would be from forests planted after 2016.<sup>5</sup> As trees require about ten years to achieve a substantial sequestration rate, an immediate step change in tree planting rates is needed.<sup>6</sup>

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<sup>1</sup> Committee on Climate Change (CCC), 2018a, *Progress report to parliament*

<sup>2</sup> CCC, 2018b, *Land use: reducing emissions and preparing for climate change*, p39

<sup>3</sup> Ibid

<sup>4</sup> Ibid

<sup>5</sup> A Thomson, et al, 2018, *Quantifying the impact of future land use scenarios to 2050 and beyond – Final report for the Committee on Climate Change*, p34

<sup>6</sup> The Royal Society, 2018, *Greenhouse gas removal*

Building on the work of the Committee on Climate Change (CCC) and the Royal Society, we show in “Cutting the climate impact of land use” (2019) that emissions from agriculture and related land use (excluding urban land use) could be cut by nearly 60 per cent by 2030, from 47MtCO<sub>2e</sub> in 2016 to approximately 19.6MtCO<sub>2e</sub> in 2030.<sup>7</sup> This would put the sector on track to achieve net zero by 2040 and is achieved by:

A 40 per cent increase in the CCC’s recommended 50,000 hectares of new woodland per year, to 70,000 hectares per year;

Measures to sequester carbon in soils, and restore salt marshes;

Accelerating the shift to healthier, more sustainable diets, cutting red meat and dairy consumption by 30 per cent by 2030.

Rapid progress in the short term, over the next ten years, will be critical to support this long-term ambition and send the right signals to farmers and land managers to invest in low carbon practices.

## **Question 2: Are the right structures in place to ensure that the UK wide target for increasing forestry coverage is delivered?**

So far there has not been a strategic approach to land use, with efforts to encourage tree planting being limited and piecemeal. The changes required to achieve net zero emissions from land by 2040 will not be achieved through incremental improvements.

Transformational change is required to ensure the extensive degree of afforestation needed and to move to a system that operates within natural limits. UK farmers and land managers will be important agents of this change and beneficiaries of the transition, but the policy environment must support them by providing the right incentives to innovate and adopt new measures and by encouraging and rewarding low carbon best practice. Since there are competing demands for land use in the UK, policy across agriculture, forestry, biodiversity, heritage, and energy must also be joined up.

For the UK to be on track by 2030 to meet net zero targets, change in both policy and practice is needed now. This should include higher levels of ecosystem restoration and afforestation to allow soils to recover and trees to mature, to maximise their climate change mitigation potential by 2030. Delay will make the challenge bigger and increase the cost of action.

While our analysis of the measures to 2030 looks at the whole of the UK, in line with the CCC’s approach, the policy interventions we recommend are tailored to England’s context.<sup>8</sup> However, they should also provide useful insights for Scotland, Wales and Northern Ireland, as well as further afield. We recommend government should:

1. Drive forward increased woodland cover

Defra need to immediately establish concrete policies to drive much higher rates of afforestation. Both financial and non-financial barriers should be addressed as soon as possible to increase tree planting, as outlined in the CCC’s 2018 report to parliament.<sup>9</sup> By

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<sup>7</sup> For the full methodology for the numerical analysis, including an overview of the reduction potential of different combinations of measures and different deployment rates, see [www.green-alliance.org.uk/resources/cutting\\_carbon\\_from\\_land\\_use\\_methodology](http://www.green-alliance.org.uk/resources/cutting_carbon_from_land_use_methodology)

<sup>8</sup> Green Alliance, 2019, *Cutting the climate impact of land use* [https://www.green-alliance.org.uk/resources/Cutting\\_climate\\_impact\\_of\\_land\\_use.pdf](https://www.green-alliance.org.uk/resources/Cutting_climate_impact_of_land_use.pdf)

the early 2020s, the government should establish priority areas for afforestation and ecosystem restoration, based on robust spatial mapping to maximise climate change mitigation (as well as other environmental benefits) and avoid negative impacts on existing ecosystems. These areas could form part of the Nature Recovery Network, or of an expanded set of Forestry Investment Zones, and should be linked to clear incentives for climate action and be consistent with biodiversity objectives.

Defra should identify opportunities for strengthening the domestic market for carbon credits from land based projects. As outlined in our 2019 report, New routes to decarbonise land use with Natural Infrastructure Schemes, private funding could support the decarbonisation of farming and land use with new revenue streams alongside government funding.<sup>10</sup> This would allow farmers and land managers to go further in their efforts to cut carbon emissions. To enable this, Defra should set guidelines on how public and private funding can work together. It should also create a strategic framework for farmers and land managers to generate carbon credits in the forthcoming emissions reduction plan for agriculture.

## 2. Shape demand for biomass production

Low carbon construction should be the norm. Wood could be substituted for high carbon construction materials in many buildings, providing long term storage for carbon sequestered in trees, as well as cutting emissions from construction. Examples of low carbon buildings in the UK have between 25 and 50 per cent of the embodied carbon of conventional buildings and were built at no extra cost.<sup>11</sup> Setting requirements for low carbon construction, as recommended in our report *Smart Building*, would provide a long term market for commercial forestry in the UK, attracting private investment to support the rates of tree planting needed for higher carbon sequestration.<sup>12</sup>

## 3. Invest in key enablers to guide action

A strategic and integrated approach to land use will require investment in a new set of tools, including spatial maps of the climate change mitigation potential of UK land, harmonised metrics for food production and a robust emissions accounting system. The government should take action immediately to put these in place and use them to guide policy development and delivery of low carbon solutions. Additionally, the Environmental Land Management system should be designed to provide a nationally consistent approach to climate change mitigation based on the CCC's recommendations and spatial data on mitigation potential across different areas. Cutting emissions from land use is not a challenge that the UK faces alone. Through innovative solutions and a robust policy framework for low carbon farming and land management, the UK could lead international action to decarbonise land use.

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<sup>9</sup> CCC, 2018a, op cit

<sup>10</sup> A Francis and J Elliott, 2019, *New routes to decarbonise land use with Natural Infrastructure Schemes* [https://www.green-alliance.org.uk/new\\_routes\\_to\\_decarbonise\\_land\\_use.php](https://www.green-alliance.org.uk/new_routes_to_decarbonise_land_use.php)

<sup>11</sup> Green Alliance, 2018, *Less in, more out*, [https://www.green-alliance.org.uk/resources/Less\\_in\\_more\\_out.pdf](https://www.green-alliance.org.uk/resources/Less_in_more_out.pdf); Green Alliance, 2018, *City consumption: the new opportunity for climate action*, [https://www.green-alliance.org.uk/resources/City\\_consumption\\_the\\_new\\_opportunity\\_for\\_climate\\_action.pdf](https://www.green-alliance.org.uk/resources/City_consumption_the_new_opportunity_for_climate_action.pdf)

<sup>12</sup> Green Alliance, 2020, *Smart building How digital technology can futureproof UK construction* [https://www.green-alliance.org.uk/resources/Smart\\_building.pdf](https://www.green-alliance.org.uk/resources/Smart_building.pdf)

**Question 5: In relation to increasing forestry coverage in England, what should the Government be trying to achieve? For example, how should the following policy objectives be prioritised?**

- **Mitigating or adapting to climate change;**
- **Promoting biodiversity and nature recovery;**
- **Increasing biosecurity and plant health;**
- **Improving human well-being and health;**
- **Protecting natural and cultural heritage;**
- **Food security;**
- **Creating commercial opportunities from forestry, tourism and recreation; and**
- **Any other priorities?**

The main benefits of increasing tree cover in England are mitigating or adapting to climate change, promoting biodiversity and nature recovery, and improving human well-being and health. These are all rightly top priorities for the government and the public. Creating commercial opportunities is an important enabler of increasing tree cover, creating the right market incentives for woodland and other trees to be a viable choice for land owners and managers. Increasing biosecurity and plant health, and protecting natural and cultural heritage are important considerations in the way new woodland is created, but are not priorities in and of themselves. For the most part new woodland is not created with the purpose of protecting biosecurity, or natural and cultural heritage (though it could in some circumstances), but should be done in a way that does not harm these aims. As outlined in our report *Cutting the climate impact of land use*, food security concerns can be addressed through reductions in food waste and changing diets so that more human food can be produced on less land.

Planting should be in appropriate locations to avoid damage to existing habitats, such as peatlands, and to maximise the emissions mitigation potential, as rates of carbon sequestration vary with soil type and the nature of previous land use. Different locations will also have different levels of susceptibility to climate change impacts.

The preferred tree mix should also be considered, taking into account sequestration rates, biodiversity and landscape impact, potential commercial goals, plot area and resilience to climate change impacts. For example, conifers grow faster than broadleaf trees, so can sequester carbon sooner, yet broadleaf trees sequester a greater amount of carbon in the long term.<sup>13</sup> Diversity of age and species improves resilience and there is evidence that, with increased species richness and the accumulation of larger, older trees, more carbon can be stored above and below ground. This is especially apparent in smaller plots of land.<sup>14</sup> Carbon uptake was also found to be greater in the regrowth of formally disturbed forests in the mid to high latitudes.<sup>15</sup>

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<sup>13</sup> *eftec*, March 2015, *Final report annexes: Developing UK natural capital accounts: woodland ecosystem accounts*; Natural England, May 2012, *Carbon storage by habitat: review of the evidence of the impacts of management decisions and condition of carbon stores and sources*

<sup>14</sup> H Pretsch and G Schutze, October 2015, 'Effect of tree species mixing on the size structure, density and yield of forest stands', *European journal of forest research*, 135, pp1-22; X Liu, et al, August 2018, 'Tree species richness increases ecosystem carbon storage in subtropical forests', *Proceedings of the Royal Society*, B285: 20181240. The relationship between mixed tree species and carbon sequestration proves the greatest results in disturbed forests, rather than in intact, naturally-formed forests, and in small areas of land. A diverse mix of trees make better use of resources in smaller areas, but in larger areas this effect weakens; N L Stephenson, et al, 2014, 'Rate of carbon accumulation increases continuously with tree size', *Nature*, 507, pages 90–93

<sup>15</sup> T Pugh, et al, March 2019, 'Role of forest regrowth in global carbon sink dynamics', *PNAS*, 116, pp4,382-4,387

Policies must ensure that new forestry delivers multiple benefits and that the damage that resulted from previous, narrowly focused forestry policy in the 1980s is not repeated. Sustainably managed woodland is associated with greater soil protection, better water and soil quality, biodiversity and recreational benefits. It can also help to support a low carbon construction industry, providing timber as an alternative to more carbon intensive building materials.

Woodland is not the only way to increase the number of trees. Agroforestry is the integration of trees and shrubs on cropland and grassland. Similar to woodland, agroforestry contributes to carbon sequestration by storing it in biomass above and below ground, and in the soil. In their HBP scenario, the CCC estimates that more hedgerows and agroforestry could sequester 2.4MtCO<sub>2e</sub> per year by 2030.<sup>16</sup> In addition to sequestering carbon, agroforestry also increases biodiversity on farmland and improves soil quality and water retention. Planting fruit or nut trees can provide another source of profit for farmers.

Despite these benefits, agroforestry in the UK has received limited support because it falls in the policy gap between forestry and agriculture, and as a result there is a lack of clear funding options. Linked to this, limited knowledge and a lack of practical guidance to farmers has prevented it from expanding. This should be addressed through the new Environmental Land Management scheme.

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<sup>16</sup> A Thomson, et al, 2018, op cit, p46