

An aerial photograph of a rural landscape during autumn. In the center, a small stone church with a square tower stands on a grassy field. To the left, a large stone house with a chimney is visible. To the right, a calm lake reflects the surrounding trees. The landscape is filled with trees showing vibrant autumn colors of orange, yellow, and red. The sky is not visible, as the trees fill the upper portion of the frame.

Church Land and the Climate Crisis

A Call to Action



Foreword

Foreword by Hannah Malcolm – Church of England ordinand, theologian and Operation Noah trustee

'It is our duty and our joy at all times and in all places to give you thanks and praise.'¹

How are we called to praise God on farmland, on wetland, on a new-build estate? Offering thanks and praise at all times and in all places is an invitation for our lives to be a testament to the gifts we have received and the ways we have been made as a gift to others. God's abundant goodness is reflected in the land we share with other creatures, both human and non-human. Attentiveness to these gifts invites earnest engagement with the variety of communities and ecologies over which the Church has direct responsibility, whether housing, woodland, marshland, commerce or farmland. Each has its own integrity as a place where the mission of the Church can be realised, and where the distinctive witness of the gospel of Christ can be acted out. Each also represents an opportunity for the Church to collaborate with all people of peace who pursue creaturely flourishing.

In this report, we offer a brief introduction to the scope of the Church of England's current landholdings and propose some opportunities for action. We want to offer a contribution to ongoing conversations about the gift and role of the Church in England, not only for our worshipping communities but for all those whom we are called to serve. As the Church of England begins its journey to net zero and reimagines its mission amid social, ecological and political breakdown, the land on which we dwell – and for which we are responsible – remains a core meeting place for these concerns. It is our hope that this report provides an entry point for attentiveness to these places of meeting.

This work is challenging. But we do not worship a God whose demands are counter to our good. We believe that every small offering – every sacrifice of praise – will be met and exceeded with an overflow of grace, more than sufficient for the tasks ahead of us.

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Executive Summary

The science is unequivocal: we are in a climate and ecological emergency – both of which are driven by human activity – and must find ways to collectively cut global greenhouse gas emissions while simultaneously working to restore the rich biodiversity of our world, which is too frequently being destroyed.

The Church of England's 'Routemap to Net Zero Carbon'² takes some important steps towards addressing these challenges. It begins by recognising the climate emergency and the necessity of a 'strong, visible Christian response to what is happening to our world'. However, the routemap focuses primarily on changes to church energy use, and identifies retrofitting large church buildings and secondary schools as the best opportunities for reducing carbon emissions.

Church land use is mentioned only in passing, under the heading 'Complex Areas'.³ Land owned by the Church's National Investing Bodies (primarily the Church of England's Church Commissioners) is considered outside the scope of the report, which is unfortunate given that the agricultural land owned by the Church of England is likely to create more greenhouse gas emissions than all Church of England church buildings combined (see footnote page 6).

This report presents the urgency of reducing greenhouse gas emissions across all sectors, focusing in on emissions from land use and the ways in which land can be better used to store carbon. Woodlands, peatlands, grasslands and farmland can all be managed in ways that will mitigate the impacts of human activity that is dangerously heating the planet. Taking the biblical mandate that the land belongs to God and should be used justly, this report proposes ways in which the Church could use its land to protect creation, mitigate global heating and enhance biodiversity.

We have responsibilities to our siblings already suffering severe impacts of the climate emergency around the world, with record temperatures and drought in the UK bringing a glimpse of these impacts much closer to home. It is also important to acknowledge

the vital contribution that land and agriculture make to human needs for food and water, respecting the expertise of farmers, scientists and conservationists in finding the best ways forward. We are grateful for contributions from all these groups during the writing of this report and in the development of key priorities for the Church to take forward.

The three key priorities identified are:

Tree growing

The Church Commissioners and dioceses should increase tree coverage in line with comparable landowners. We need the right trees in the right places, planted at the right time and cared for to maturity.

Peat protection and restoration

The Church needs to restore and protect peatlands, so that they act as a carbon sink, rather than a source of emissions.

Supporting farmers to reduce emissions

Church landowners should bring about positive change by promoting farm carbon audits and supporting farmers to make identified changes that will reduce emissions.

All of these areas require working with partners, including sharing knowledge and resources, to promote land use that is good for people, nature and the climate. This report includes some useful resources where readers can find out more, as well as providing the basis for Operation Noah's campaigning on Church land use. We hope readers of this report will use the influence they have for positive Church land use at a local, diocesan or national level, so that Church land can be managed prophetically for the benefit of climate, nature and people.



The Increasing Urgency of the Climate Crisis

We are in a climate and ecological emergency, as many Churches and the UK Parliament have recognised, and the climate science is now unequivocal. The UK Government Chief Scientific Adviser Sir Patrick Vallance and his team gave a stark briefing to MPs: the global surface temperature is warmer than it has ever been in human history.⁴ Global average temperature rises are currently around 1.2°C above pre-industrial levels, and scientists are certain that these changes are caused by humans. The global average carbon dioxide level in the atmosphere is at its highest level in human history. Global sea levels are the highest they have been since satellite records began and Arctic sea ice is rapidly reducing by 12% every ten years.⁵

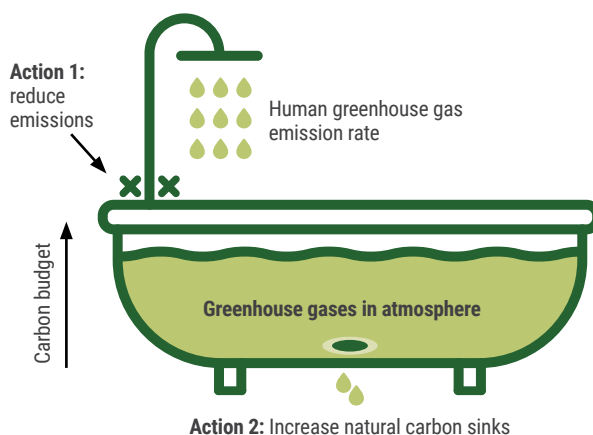
These changes are demonstrably linked to rises in greenhouse gases, caused primarily by the burning of fossil fuels but also by the destruction of carbon sinks such as forests, and by other emissions, including methane being released by melting permafrost and from farming. Rising temperatures and sea levels are having devastating effects around the world, as extreme heatwaves, droughts and flooding are becoming significantly more likely due to climate change. The climate crisis is being caused by humans and is harming humans, as well as wider ecosystems, and those who are suffering most have done the least to cause it.

The enduring presence of greenhouse gases in the atmosphere means some further temperature rise is unavoidable, but world leaders have made commitments to seek to limit the global average temperature rise to 1.5°C. The recent report by Working Group III of the Intergovernmental Panel on Climate Change (IPCC) highlights the need for 'rapid and deep and in most cases immediate [greenhouse gas] emission reductions in all sectors'⁶ to have a chance of limiting the global average temperature rise to 1.5°C. Even if all the pledges made so far at UN climate conferences up to COP26 in Glasgow in 2021 were followed through, we would still be looking at a 1.8°C rise⁴ in global heating. Continuing the 'business as usual' pathway is expected to lead to a 2.5°C rise by 2050 – a level linked to even more frequent

and severe heatwaves, droughts and flooding, as well as triggering feedback loops such as melting permafrost leading to further, potentially unstoppable, warming.

The ways in which we use land can make a significant contribution to reducing emissions. This report will explain the role that forests, peatland and other soil carbon storage can play. However, it is also important to keep the big picture in mind. In reducing the greenhouse gas levels in the atmosphere, we need to reach global net zero emissions, the point at which emissions are reduced so far that they are balanced by the more limited means we have to absorb greenhouse gases within carbon sinks on land, such as woodland and healthy peatland, as well as in coastal and ocean sinks.

We can take steps to enhance these sinks, but these can be no substitute for the far-reaching changes needed to cut emissions in all sectors. Using the bathtub metaphor, to stop the bath overflowing we urgently need to turn off the taps which are pouring new greenhouse gases into the atmosphere, as well as clearing the drains to allow natural carbon sinks to remove carbon dioxide from the atmosphere.



The Church and the Climate Emergency

Care for creation

Throughout history, people of faith have recognised the splendour of the natural world and what it reveals to us about the one who created it. In the thirteenth century, St Francis of Assisi saw God reflected in nature and gave God thanks for the sun and moon, animals and birds, all of which he described as sisters and brothers. Pope Francis cites his namesake early in his 2015 encyclical *Laudato Si'*,⁷ a significant document on the environment which he addresses not only to Catholics but to every person on the planet. The Church of England recognised care of creation as the Fifth Mark of Mission in 1990: 'To strive to safeguard the integrity of creation and sustain and renew the life of the earth'.⁸

As we have seen, the climate crisis is threatening the integrity of creation, and urgent action is needed to sustain and renew the life of the earth. The Church must demonstrate leadership in supporting a fair and fast transition away from investment in and use of fossil fuels, reducing emissions in all sectors of Church life and promoting sustainable choices and low-consumption lifestyles consistent with reaching net zero as soon as possible.

- **We are called to responsible care for the planet and our fellow creatures.**
- **We need to recognise the suffering of the earth, caused and intensified by the climate crisis.**
- **As humanity, especially those in the wealthiest countries, we must acknowledge the impact of our greed and selfishness on our common home.**

Justice for people living in poverty

We are also called to act on the climate crisis because of its devastating impacts on our siblings, especially those living in poverty who are facing ever more severe droughts, floods, storms, famine and rising sea levels. As well as offering humanitarian assistance, we need to tackle the root causes of problems and take responsibility for the harm already done by decades of overconsumption and unrestrained fossil fuel use. As Barack Obama said: 'We are the first generation to feel the impact of climate change and the last generation that can do something about it'.⁹

- **People living in poverty in the majority world are the worst affected by the climate crisis.**
- **Both personal and institutional actions harm our neighbours.**
- **The climate crisis is a justice issue as well as an environmental one.**

What should the Church do?

Among UK Churches, there have been some encouraging steps taken in response to the climate emergency, including the 'Routemap to Net Zero Carbon by 2030'¹² which was endorsed by the Church of England General Synod in July 2022. While ambitious in scope, it is not legislative, meaning there is no obligation for any part of the Church to take any action.

There is still a need for positive commitments and action taken to bring about change on at least three levels:

Get our own house in order

Starting where we are, churches, dioceses and national bodies need to take responsibility for carbon budgets as well as financial ones. Changes based on A Rocha's Eco Church¹⁰ and Eco Diocese schemes can encompass worship, buildings, land, community engagement and lifestyle.

Use our assets wisely: investments and land

Looking more widely, churches have a climate impact beyond their own carbon footprint, and changes can be made to ensure investments and regionally and nationally owned land are managed in line with the Church's values and priorities.

Use our voice: influence church members and wider society

As the Church takes positive steps and publicises them, it can raise a prophetic voice influencing parishioners, local communities and other faith groups. It also has the potential to influence wider society, government and other institutions towards vital large-scale changes.

Theology: A just response to the climate crisis

'The LORD God took the man and put him in the Garden of Eden to work it and take care of it.' (Gen. 2:15 NIV)

'What is mankind that you are mindful of them, human beings that you care for them? ... You made them rulers over the works of your hands; you put everything under their feet: all flocks and herds, and the animals of the wild, the birds in the sky, and the fish in the sea.' (Psalm 8:4, 6-8 NIV)

Stewardship in a biblical sense does not mean that we are separate from creation or that it was made merely to serve our needs. Rather, as stewards of God's creation, we have a responsibility to care for the earth, respecting and cherishing it.

'The earth is the LORD's, and everything in it, the world, and all who live in it' (Psalm 24:1 NIV)

'For the creation waits in eager expectation for the children of God to be revealed ... We know that the whole creation has been groaning as in the pains of childbirth right up to the present time.' (Rom. 8:19, 22 NIV)

If we understand how valuable creation is to God, who made it, the suffering of creation should grieve us. Although humanity has plundered the earth and caused so much damage, we can also participate in God's restoration if we learn to walk humbly, loving God and our neighbours. (Micah 6:8)



Church Land in the UK: The Church of England

The land owned or managed by Churches and Christians in the UK covers an area of around 500,000 acres.¹¹ This is 1.5 times the area of Greater London or around 1% of total land in the UK. Along with other investment assets, how the Church uses this land contributes significantly to its climate impact, to a greater extent than the energy footprint of all Church of England church buildings combined (see footnote).

Around half of this 500,000 acres of land belongs to the Church of England:

- 98,000 acres of rural and strategic land owned by Church Commissioners (the group who manage centrally held Church of England investments)¹²
- 70,000 acres owned by dioceses (known as glebe land)¹³
- 31,000 acres in Church Commissioners' UK forestry investments¹⁴
- Smaller areas of land owned by individual churches

The Church Commissioners' land is considered part of their investment portfolio, which is managed according to their ethical principles to provide ongoing finances to support the Church's work and mission. Historically, small plots of land known as glebe land were held by local ministers to supplement their income. This glebe land now comprises agricultural, commercial and residential land and property, which is managed to raise income for the Diocesan Stipend Fund. Full details of diocesan land are not known, but public data suggests that eight dioceses, between them, own at least 26,100 acres of agricultural land.

Land owned by the Church Commissioners includes:

- 35,000 acres of high-quality farmland (Grade 1 and 2)
- Approximately 50,000 acres of mid-quality farmland (Grade 3)
- 4,000 acres of woodland
- 6,000 acres identified as strategic for housing
- 10,000 acres of land designated for nature¹⁵

The Church Commissioners state in their vision statement for Strategic Land: 'We are committed to the long-term stewardship of our land. We strive to manage the natural resources of our estates and support the building of new developments in our communities in accordance with best practice. We will facilitate positive change to meet the global challenges of combatting climate change and reversing the loss of biodiversity. We seek to collaborate with others to achieve this.'¹⁶

These are bold statements, but arguably they do not capture the urgency of the challenges facing us. As this report will demonstrate, the land resources of the Church are currently contributing significantly to the climate and biodiversity emergencies in terms of greenhouse gas emissions and limiting biodiversity within monoculture tree plantations and non-regenerative agriculture. However, there is also scope for considerable improvement if rapid and radical action is taken.

Theology: A just use of land

'The land must not be sold permanently, because the land is mine and you reside in my land as foreigners and strangers.'
(Lev. 25:23 NIV)

'With great power the apostles continued to testify to the resurrection of the Lord Jesus. And God's grace was so powerfully at work in them all that there was no needy person among them. For from time to time those who owned land or houses sold them, brought the money from the sales and put it at the apostles' feet, and it was distributed to anyone who had need.' (Acts 4:33-35 NIV)

Contrary to the almost universal assumption of Western and modern societies, the Bible asserts that land belongs to God, not to humans. This principle was established in the Old Testament and was clearly practised by the early Church in Acts (although imperfectly, as Acts 5 demonstrates).

'But in the seventh year the land is to have a year of sabbath rest, a sabbath to the LORD. Do not sow your fields or prune your vineyards. Do not reap what grows of itself or harvest the grapes of your untended vines. The land is to have a year of rest.' (Lev. 25:4-5 NIV)

'When you reap the harvest of your land, do not reap to the very edges of your field or gather the gleanings of your harvest. Do not go over your vineyard a second time or pick up the grapes that have fallen. Leave them for the poor and the foreigner. I am the LORD your God.' (Lev. 19:9 NIV)

Principles of leaving margins of land and leaving land fallow are both presented as part of Jewish law in Leviticus. Even when farming was far less intensive than today, these principles provided for the recovery of the land as well as for those in need.

Footnote: Compared to the 137,000 tonnes of CO₂ equivalent (tCO₂e) footprint from the energy use of all Church of England church buildings in 2020,¹⁷ 118,100 acres of farmland (0.25% of UK total) might be expected to have emitted 138,000 tCO₂e in 2019, assuming an average share of all UK agricultural emissions (55Mt in 2019).¹⁸ This uses the available data from eight dioceses plus the Church Commissioners-owned agricultural land, so it is an underestimate.



Land Use: Part of the problem and part of the solution



Owning land brings responsibilities for the emissions related to its use, but also offers a potential way of contributing to the reduction of overall greenhouse gas emissions in the atmosphere. If landowners protect the natural carbon sinks on their land, or extend them, some land has the potential to produce net negative emissions.

Emissions caused by land use

Globally, food, agriculture and land use account for 24% of emissions, with deforestation and associated land-use change responsible for 9%.¹⁹ The most extreme deforestation is happening in tropical areas, but we contribute to this in the UK by buying products grown on deforested land, including food we throw away. UK livestock may even be fed soy grown on deforested tropical land.

In the UK, agriculture accounts for 11% of all emissions, mainly from livestock, soil and farm machinery.¹⁸ Emissions include methane from animals and nitrous oxide from fertilisers and manure, though often this data is simplified by reporting tonnes of CO₂ equivalent (tCO₂e).

Degraded peatlands were the source of 4% of all UK net emissions in 2019¹⁸ and without action to address this issue, they could become a rapidly growing area of emissions.

Emissions captured by carbon sinks

Woodland captured 4% of all UK emissions in 2019,¹⁸ although recent studies report that this is likely to drop in the coming years, as many mature trees have been felled and not replaced.²⁰ Increasing tree coverage is vital, with due attention being paid to the added risk of increased forest fires.

Peatland, grassland and saltmarsh can all be valuable carbon sinks if they are protected or restored. They are often also important havens for wildlife.

Sustainable agriculture can capture emissions

More trees can be grown within agroforestry projects (which grow suitable trees alongside crops) and also within hedges and margins, providing shelter belts, screening and wildlife habitats.

If grassland and meadows are managed to leave root systems undisturbed this allows carbon to be stored underground. This requires choosing less disruptive farming techniques and the use of cover crops, such as nitrogen fixing clover and vetch, to reduce soil run-off and the amount of fertiliser needed.

Transparency

It is likely that the Natural Capital Assessment that was recently carried out for the Church Commissioners included an analysis of the current greenhouse gas emissions and carbon sink potential of Church land.¹² However, the results of this Natural Capital Assessment have not been made available publicly. By sharing more of this information, the Church Commissioners would increase transparency and allow stated targets to be monitored, as well as facilitating partnerships between local groups engaged on specific issues, such as peat restoration. In addition, supporting farmers to complete farm carbon audits would allow a much more comprehensive and accurate assessment of emissions from Church land (see page 13).



Concern for Biodiversity and Human Flourishing

As well as the climate crisis, the world is facing a global biodiversity crisis, with around a million species facing extinction²¹ and only six of the 20 Aichi Biodiversity Targets being even partially met by 2020.²² These targets, which were set by the UN Convention on Biological Diversity in 2010, aimed to slow and reverse global biodiversity loss. Scientists and policymakers are increasingly recognising that the climate crisis and biodiversity crisis are interconnected and it is important to recognise synergies and trade-offs. Big pledges need to be matched by widescale action.



The synopsis of a recent workshop co-sponsored by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC) begins: 'Limiting global warming to ensure a habitable climate and protecting biodiversity are mutually supporting goals, and their achievement is essential for sustainably and equitably providing benefits to people.'²³

Many measures to reduce emissions and promote carbon sinks will have benefits for biodiversity, as pollution is reduced and key habitats are protected and extended. However, some climate measures have significant negative impacts on biodiversity, such as the impact from monoculture tree plantations destroying ecosystems which become 'green deserts', or the large-scale growing of bioenergy crops which also causes a homogenous landscape. Globally, time is running out as many areas are already uninhabitable, increasing the urgency for better management of land on the margins of habitability.

In their synopsis, IPBES and the IPCC state: 'The area of intact and effectively protected land and ocean required to meet the three objectives of a habitable climate, self-sustaining biodiversity, and a good quality of life is as yet not well established. This area likely varies spatially, among biomes and with local contexts, but is substantially larger than at present, with global estimates ranging from 30% to 50% of both land and ocean surface areas.'²⁴

This assessment forms part of the supporting evidence for the Campaign For Nature's 30 x 30 commitment,²⁵ which is asking world leaders to protect 30% of the planet for nature by 2030. The Church Commissioners have not signed up to support the 30 x 30 commitment, although they state ambitions to support nature recovery and biodiversity enhancement.²⁶

It is also vital to consider human needs including food, water, shelter, livelihood and the peaceful enjoyment of nature. Significant overhaul of agricultural land use could have a big impact on UK food production and many associated livelihoods, including those of tenant farmers. Some conservation projects around the world have historically ignored the rights of indigenous people. These populations have often coexisted with nature peacefully for many years and hold vital knowledge about the land, which should be valued and respected. As well as impacts on biodiversity, it is important to be aware of stakeholders who may be under-represented or marginalised. There are systems which are sustainable and economically viable (see page 13), but more investment is needed in these solutions which benefit people, nature and the climate.



Church of England Land Use: The current picture

This section of the report will explore the current situation regarding Church of England land use in more depth. However, it is important to note that full information about the land that the Church owns is not in the public domain, with the Natural Capital Assessment carried out for the Church Commissioners being a recent example of information that has not been made available publicly. A commitment from the Church of England to further transparency about the land it owns would be a positive step that could enable connections with groups seeking to promote community use and climate action.

Some of the publicly available information on Church land has come from answers to official questions in Parliament and at the Church of England General Synod. There has also been some important research by Guy Shrubsole, which can be read in chapter 3 of his book, *Who Owns England?*,¹³ and on his website;²⁷ and subsequently working with the botanist Tim Harris to map Church woodlands and habitats.

A large proportion of Church land is agricultural land, and there is clearly a need for affordable, locally produced food. Respecting farmers' experience and livelihoods, it is necessary to find ways to encourage more sustainable farming methods which are good for the climate and nature. Key players in this process will be land agents, who manage land and tenancy agreements for landowners, including the Church Commissioners and dioceses.

The Church Commissioners state a commitment to responsible investing, which their annual report says is grounded in 'Respect for Planet' and 'Respect for People'.²⁸ They have pledged that their investment portfolio (including land assets) will be net zero by 2050, compared with 2030 for church buildings. They have also signed up to the National Trust-led 'Nature-Based Solutions Compact',²⁹ which includes commitments to reducing emissions, increasing biodiversity and delivering benefits for people.

As well as rural land, the Church Commissioners hold an international timberland portfolio of 122,000 acres, including 31,000 acres in the UK, as well as forestry investments in Ireland, the USA and Australia.¹² This forestry land is all certified sustainable by local standards, although the annual carbon sequestered is only 8% more than the timber harvested.³⁰

Around 4,000 acres of Church Commissioner-owned rural land is English woodland, alongside the forestry investments in Scotland and Wales. This means that the Church Commissioners' English estate is only around 4% wooded,³¹ lower even than England's overall woodland cover (10%). The Church Commissioners sometimes report the number of trees planted in a way that does not account for the fact that forestry investments routinely fell large numbers of trees as well as planting them. For this reason, the planting of 2 million trees by the Church Commissioners in 2021²⁸ does not tell the whole story, although the land acquired in southern Wales for new woodland is encouraging. Similarly, the announcement that 20% of the Church Commissioners' UK forestry is managed exclusively for biodiversity gain¹⁵ is less impressive when considering that the UK Forestry Standard minimum is 10%.

As Churches manage housing, businesses and places of worship, potential should be explored for increasing green spaces, wildlife havens, community allotments and urban trees. Eco Church¹⁰ guidelines for churches and dioceses encourage assessment of the use of land where the church has influence, as well as the creation of a land management plan. All Church of England dioceses have now registered with the A Rocha Eco Diocese programme and 16 dioceses have so far achieved the Bronze award.



Priority Areas for Action on Church Land

Following research and consultation with our expert partners, Operation Noah has identified three key priorities for the Church of England (Church Commissioners and dioceses) on land use: tree growing, peat protection and restoration, and supporting farmers to reduce emissions. While there are many other areas for potential improvement, we believe these are the most impactful in terms of climate mitigation.

In this section we will briefly outline the importance of each of these three areas, with more detailed actions to follow on subsequent pages.

Tree growing

Trees are great allies for absorbing carbon dioxide emissions

George Monbiot explains: 'There is a magic machine that sucks carbon out of the air, costs very little and builds itself! It's called ... a tree!'³² Monbiot is making the contrast with carbon capture technologies, which are unproven to work at scale and are very expensive.

We need to protect mature trees and biodiversity

The biggest climate gains linked to trees involve reversing global deforestation. Mature trees absorb far more greenhouse gases than new saplings – it takes time for new trees to grow. When new trees are planted, it is crucial to make sure that they are suitable for the area, supporting local biodiversity. This means planting a variety of mostly native trees, avoiding monocultures and invasive species.

We need to grow trees, not just plant them but care for them for many years

Planting trees is just the first step – we need them to grow to reach maturity, so that they can make a contribution to climate mitigation and support the local ecosystem. This is a long-term undertaking, requiring good planning and follow-through. The Church needs to take advice to plant the right trees in the right places with the right timing.

Peat protection and restoration

Degraded peat causes 4% of UK emissions

The UK Net Zero Strategy¹⁸ identified that peatlands are the UK's largest terrestrial carbon store, but they are currently so degraded that they released 4% of UK net emissions in 2019.

Healthy peat is an excellent carbon sink

The England Peat Action Plan includes a helpful comparison of the costs and benefits of peatland restoration: 'The Office for National Statistics recently estimated that the cost of restoring all UK peatlands to near natural condition would be between £8.4 [and] £21.3 billion, but restoring all of the UK's peat would deliver carbon benefits alone of £109 billion and would outweigh the costs of doing so by an estimated 5 to 10 times.'³³

The Church needs to assess peat location and condition

We know that the Church Commissioners own peatland within the Cambridgeshire Fens, but (despite being asked by members

of General Synod)²⁶ they appear to be unwilling to disclose other peatland within their landholdings. Identifying peatland and its current condition is an important first step in order to find areas for urgent action and improvement.

Develop partnerships with others to protect and restore peat

With Government and peatland organisations working on protecting and restoring peat as a key priority, it makes sense to join existing schemes to protect peat and benefit from the expertise of others.



Support farmers to reduce emissions

Farming causes emissions but can be a carbon sink

The UK Net Zero strategy identified 55 megatonnes (Mt) of CO₂-equivalent emissions from agriculture in 2019,¹⁸ 11% of total UK emissions. However, some land use within agriculture such as areas of trees, perennial crops and grassland can provide carbon sinks.

Varied measures will suit different farms

Moving to lower carbon farming for a dairy farm will look very different to lower carbon farming on arable land. There is no 'one size fits all' approach and farmers need to identify changes that will suit their land or tenancy, expertise and business model.

Promote farm carbon audits and steps to take

Farm carbon audits (such as Farm Carbon Calculator, Cool Farms and AgreCalc) allow farmers to calculate a baseline measure for the emissions produced on their farms, and to identify steps to reduce emissions. Church landowners need to incentivise their use and support tenants to make the positive changes they identify.

Work with farmers, build community

Increased cooperation between landowners, land agents and tenants should enable better use of land which benefits climate, nature and human needs and livelihoods. It may also be that local churches can do more to support local farmers who farm sustainably and promote community.

Tree Growing

We are calling for the Church of England (including the Church Commissioners and dioceses) to extend tree cover on their land in England from the current 3-4% to 10% by 2030. Another improvement would be ensuring that forestry investments are managed sustainably for nature, climate and community engagement. Typically, forestry plantations are mainly fast-growing conifers, often in monocultures, which are not good for biodiversity. Growing a mix of native broadleaf trees is better for wildlife, avoiding disease, resisting wildfires and improving longevity, while adding some non-invasive trees from warmer regions may be suitable as the UK average temperature rises.

Since so much Church land is farmed by tenants, agroforestry (planting trees among crops and pasture land) could be an important part of growing more trees on Church land. Within farms, trees can also be grown within hedges and margins, and to provide screening and shelter belts. Many farm tenancy agreements need to change to allow this to happen, but the Church Commissioners seem to be showing some willingness to promote increased hedge planting, and to consider potential agroforestry schemes on a case-by-case basis.²⁶

Trees can also be an integral part of new housing developments, and the Church could commit to a level of tree cover, allotments and greenspace within new housing developments. This could be part of demonstrating local biodiversity net gain or to be included towards the achievement of a 30 x 30 commitment. One source of inspiration could be the 'agrihood' in North End, Detroit in the USA, where the Michigan Urban Farming Initiative (MUFI) and 10,000 volunteers have grown 300 different types of vegetables, which have been distributed to over 2,000 households, as well as churches and food pantries within a two-mile radius.³⁴

In August 2022, during the Lambeth Conference, the Communion Forest³⁵ initiative was launched in order to encourage churches across the Anglican Communion to grow more trees, protect forests and restore ecosystems. We hope the Church of England will respond to this initiative by scaling up its efforts to increase tree coverage on its land.

Schemes to support tree growing

These vary from supplying trees for small community projects (starting at 15-420 free trees through the Queen's Green Canopy)³⁶ through to funded projects that require a minimum area of one hectare (English Woodland Creation Offer)³⁷ and then more advice and planning support for larger areas (at least 5 hectares) through a Woodland Creation Planning Grant.³⁸ Major landowners with over 50 hectares to plant can consider the Forestry England Woodland Partnership.³⁹ There are other schemes specifically for urban tree planting, such as the Urban Tree Challenge Fund.⁴⁰

In the UK, the tree-planting season runs from October to March, and planning and gaining agreement for growing trees takes some time. Planting trees in Church of England churchyards requires approval from the local Archdeacon. Applications for the English Woodland Creation Offer take 3-5 months to be approved. To plant trees by March, applications need to be in by October at the latest.

Case study: Foxearth Meadows on the Suffolk/Essex border (run by A Rocha UK)⁴¹

Reserve manager Mark Prina has recently reflected on a narrow area of trees planted on the reserve in 2001-4. The trees were planted with DEFRA grants and comprised a nursery-sourced mix of willow, oak, hawthorn, birch, hazel, holly, hornbeam, ash, field maple, guelder rose, dog rose, alder buckthorn and crab apple. He reports how the hornbeam and holly failed, and the ash are being affected by the dieback disease, but thankfully by planting a mix of trees this has not affected the whole plantation. He also makes interesting comparisons between some of the new trees imported from Europe and surrounding trees, and is curious to see how this impacts wildlife, but he does note that woodland birds are thriving.

Mark and his team are also making efforts to support the surviving trees to continue to grow well, selectively coppicing, pollarding and ensuring enough light gets through. They are also allowing people to enjoy the woodland by diverting a path away from wet meadow soils to pass through part of the plantation. They run regular activity days to welcome visitors, as well as hosting school groups and student placements.



Peat Protection and Restoration



Protection and restoration of peatland is a big priority for the UK in reaching net zero emissions, as degraded peat releases emissions, while healthy peat is a key carbon sink. A recent briefing to Parliament identified that less than 13% of English peat is in a near natural state and thus storing rather than emitting carbon.⁴²

According to the England Peat Action Plan published in 2021, 'Peatland habitats contain some of our rarest species including bitterns, swallowtail butterflies, carnivorous sundews, hen harriers and short-eared owls. Nearly a third of our deep peat is protected as Sites of Special Scientific Interest.'³³ The UK population of swallowtail butterflies is now restricted to fen in Norfolk, a region where the local diocese owns some peat fenland.⁴³ Another internationally rare species dependent on peatland is Austin's bog-moss, which only grows in a few countries, including the UK.

The United Nations Environment Programme (UNEP) describes protecting peatland as a triple win for people, the climate and biodiversity, emphasising the other benefits to humans including supporting water cycles, controlling pollution and sediment and flood control.⁴⁴

We are calling on the Church Commissioners and Church of England dioceses to identify all deep peat and protected peat habitats within their land, and to work with land agents, tenants and external partners to protect and restore the peat to a rewetted, healthy state. The response to a July 2022 General Synod question revealing that the Church Commissioners' rural asset managers are working with farm tenants in Ely and Peterborough to improve peaty soils and are engaged with the Fenland SOIL group to improve data around peatland is a positive development. Unfortunately, the question around the full extent of peatland holdings was not answered by the Church Commissioners.²⁶

The Church Commissioners could also make a positive impact on protecting peatland by introducing policies to ban peat extraction and peat burning on its land. Where land has been designated a Site of Special Scientific Interest (SSSI), Church landowners could require a minimum standard of management to be included in tenancy agreements.

Some peatland, such as fenlands, may be argued to be essential agricultural land for crops. However, even where this may be the case, measures need to be taken for better land management to reduce its degradation, as well as run-off, which may threaten water retention during times of stress caused by drought or fire. This preventative work is an important way to serve the local community.

Case study: Wybunbury Moss, Cheshire

Wybunbury Moss is a rare subsistence mire where peat floats to form a raft. It is a National Nature Reserve which includes sphagnum lawn, reed swamp and fen woodland and hosts wildflowers, harmless grass snakes and common lizards, woodcocks and rare leaf beetles. Adjacent land belonging to the Church Commissioners was also designated as a Site of Special Scientific Interest but it was assessed to be in poor condition.

In November 2021, it was reported that the Church Commissioners have granted a ten-year lease of this land to Natural England who manage the nature reserve. They are allowing it to revert from arable farming to species-rich grassland to protect the adjoining floating lowland bog.⁴⁵



Supporting Farmers to Reduce Emissions

Everyone has a part to play in reducing emissions linked to food and agriculture. Reducing food waste and eating more locally sourced and plant-based meals are all important steps. Project Drawdown¹⁹ reports that around a third of all food is never eaten, so cutting global food waste is one of the biggest single solutions for reducing emissions, while switching to plant-based diets is also in the top four largest-impact solutions.

Given that so much Church land is farmed, improving agricultural practices is important, but this needs to be done collaboratively with farmers, who are the main experts on the land they farm. The Church Commissioners have expressed some support for regenerative farming practices²⁶ and it will be interesting to see more information on their Sustainability Strategy. Government farming subsidies in England are in the process of moving towards requiring sustainable farming measures through the Sustainable Farming Incentive (SFI) and the other land-protection measures, Local Nature Recovery and Landscape Recovery.

FABulous Farmers⁴⁶ is an Interreg North-West Europe initiative that promotes Functional Agro-Biodiversity. Key partners in the UK include the Soil Association, Farm Carbon Toolkit, National Trust and the UK Centre for Ecology & Hydrology (UKCEH). They promote a wide range of climate-friendly measures including incorporating trees in hedges and margins, using reduced tillage (less ploughing, more direct drilling) and reducing inputs of fertilisers and pesticides.

We believe that Church landowners should formally encourage the use of farm carbon audit tools with all of their tenant farmers, so that farmers get a baseline of their emissions and can develop strategies for how to reduce them over time. Carbon audit tools also take account of methane and nitrous oxide emissions, which are major greenhouse gas sources on farms. Helpfully, these tools specify the overall footprint in terms of the equivalent of carbon dioxide emitted, which enables easy comparison with other farms or from year to year. Various tools exist, including Farm Carbon Calculator,⁴⁷ Cool Farms⁴⁸ and AgreCalc⁴⁹ and farmers can choose the one that suits them, but it is important to continue using the same tool in order to be able to make comparisons and measure changes. The Scottish Government has been paying farmers to conduct carbon audits, and it may be that such incentives are helpful to account for the time spent on this process.

As farmers identify changes to reduce their footprint, Church landowners need to support them to make these. This could include making changes to tenancy agreements, such as allowing more trees to be planted within a suitable agroforestry scheme or lengthening a lease to facilitate longer-term developments. Other changes may require new farming equipment that would be too expensive for an individual farmer to purchase. Supporting local farmers to work together to purchase shared low-tillage equipment, and perhaps even contributing towards the cost, would be a significant way in which the Church could demonstrate its commitment to regenerative farming. Building closer links between local churches and farmers could encourage parishioners to support local farm businesses, as well as offering pastoral care to farmers facing challenging circumstances.



It must be noted that some apparent solutions rely on technology which is unproven at scale and requires infrastructure that does not yet exist, e.g. bioenergy crops and carbon capture (BECCS). While the National Farmers' Union identifies BECCS as a key pillar of their route to net zero emissions,⁵⁰ the latest IPCC report highlights a number of issues with heavy reliance on BECCS, including ecological and social impacts and how 'large-scale BECCS may push planetary boundaries for freshwater use, exacerbate land-system change, significantly alter biosphere integrity and biogeochemical flows'.⁵¹

Given these serious concerns, the Church may choose to limit the use of its land for BECCS. In contrast, other simpler technologies such as precision fertiliser applications and using grass/legume mixes in pasture are identified as 'easy wins' in a study from WWF.⁵²

Case study: Erth Barton Farm, Cornwall⁵³

Tim Williams manages a 300-acre arable farm in Saltash, Cornwall, which is one of Farm Net Zero's demonstration farms on National Trust-owned land. He is transitioning the farm from conventional arable farming to a 'healthy, biodiverse, fully functioning natural input farm with a key focus on soil health and the building of soil organic matter'. This involves using varied cover crops, rotational mob grazing and using 'climate compost' as well as pioneering a quasi-perennial wheat-growing system in conjunction with WildFarmed Grain.

Sections of the farm are being managed to regenerate native woodland and create wildlife friendly 'bio-refuges'. He is aiming for Farm Net Zero within five years and taking part in peer-to-peer support and demonstration events to share knowledge and inspire others.

Next Steps and Campaign Resources

As this report has demonstrated, Church land can play a vital role in tackling the climate and biodiversity crises. The Church Commissioners have already taken some important steps in this area, including their Natural Capital Assessment and partnerships with the National Trust and others.

Operation Noah will be campaigning on Church land use in the months and years ahead, particularly seeking to influence the Church Commissioners and diocesan landowners on the areas of tree growing, peat protection and restoration and supporting farmers to reduce emissions. Progress on these areas would be facilitated by greater transparency around the Church's landholdings.

Readers are invited to use their influence at local, diocesan or national level to promote positive land-use change, and to contact Operation Noah if they are interested in joining our land use campaign. Keep an eye on our website for more information and details of webinars and other events. We also recommend the following resources to inform change makers and campaigners:

On tree growing:

- The Woodland Trust has advice and some funded schemes for growing trees from small gardens to large estates. <https://www.woodlandtrust.org.uk/plant-trees/>
- The Queen's Green Canopy is supplying free trees to celebrate the Queen's 70th Jubilee <https://queensgreencanopy.org/>
- Friends of the Earth has a current campaign to double tree cover <https://friendsoftheearth.uk/trees>
- The Agroforestry Handbook gives a good introduction to this range of techniques <https://www.agricology.co.uk/resources/agroforestry-handbook>
- Church of England official guidance on growing trees within churchyards <https://www.churchofengland.org/resources/churchcare/advice-and-guidance-church-buildings/trees>
- The Communion Forest initiative aims to 'significantly increase Anglican tree growing and landscape protection around the world' <https://www.communionforest.org/>

On peatland protection and restoration:

- The UK Government has a Peat Action Plan <https://www.gov.uk/government/publications/england-peat-action-plan>
- Natural England administers the Nature for Climate Peatland Grant Scheme <https://www.gov.uk/guidance/nature-for-climate-peatland-grant-scheme>
- The International Union for Conservation of Nature (IUCN) also has a UK Peatland Programme <https://www.iucn-uk-peatlandprogramme.org/>
- Forerunners include Yorkshire Peat Partnership <https://www.yppartnership.org.uk/>
- Natural England has collated a thorough map of peatland extent in England <https://www.arcgis.com/home/item.html?id=294240636b094b25808ad3eb417e9b7f>

On reducing farmland emissions:

- Farm Carbon Audit tools include the Farm Carbon Calculator and associated Toolkit, Cool Farm Tool and AgreCalc:
 - <https://calculator.farmcarbontoolkit.org.uk/>
 - <https://coolfarmtool.org/>
 - <https://www.agrecalc.com/>
- Soil Association FABulous Farmers resources <https://www.fabulousfarmers.eu/en> <https://www.soilassociation.org/>
- LEAF Marque is a comprehensive set of standards to assure sustainable farming based on Integrated Farm Management <https://leaf.eco/>
- Wildlife & Countryside Link are promoting sustainable farming policies <https://www.wcl.org.uk/farming.asp>
- WWF and partner researchers have compared many farm-level interventions which reduce emissions https://www.wwf.org.uk/sites/default/files/2022-01/Farm-level%20interventions%20to%20reduce%20GHG%20emissions_Final%20Report_v8.pdf



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‘This is a crucial report on the new frontline in the fight against climate breakdown: how we use our land. The Church, as a major UK landowner, has a great responsibility to steward its landholdings well – and should be leading the way in repairing damaged carbon sinks, expanding habitats and restoring nature. Yet, at present, it is failing to do so. That’s why it’s so uplifting to see Operation Noah’s new campaign on Church land, with its calls on the Church of England to grow more trees, restore peat bogs and support its tenant farmers to transition to net zero.’

Guy Shrubsole, Environmental campaigner and author

‘This report outlines the critical role the Church must play if we are to confront and mitigate the impacts of climate on people and nature. As one of the largest UK landowners, the responsibility of the church to engage with the issues and come up with inspired and creative solutions is immediate and immense.

My hope is that this report will go some way to address the challenges and opportunities that lie ahead and inspire a new generation of church leaders to take action for people, for climate and for nature.’

Andy Lester, Head of Conservation, A Rocha UK

‘In this report, we offer a brief introduction to the scope of the Church of England’s current land holdings and propose some opportunities for action. We want to offer a contribution to ongoing conversations about the gift and role of the Church in England, not only for our worshipping communities but for all those whom we are called to serve.’

Hannah Malcolm, Church of England ordinand, theologian and Operation Noah trustee

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