

Forest Research

Annual Report and Accounts 2021–22

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Performance Report

Overview

This Performance Report overview provides:

- the Chief Executive's views on our performance over the past year;
- information on our background, vision, strategic objectives, activities and resources;
- a performance summary.

Chief Executive's Statement

A year ago, I reported how Forest Research had coped during the unprecedented challenges brought about by the global pandemic. Twelve months on, the landscape has improved, yet it is still far from business as usual and we have continued to adapt, both as an organisation and individually. Alongside our research work, we have continued to support our staff wherever they may be – whether in socially distanced laboratories and offices, or homeworking from dining tables and spare rooms – to ensure that wellbeing is a priority and that our teams remain connected. Indeed, we are in the process of rolling out a Forestry Commission-wide 'Changing the Way We Work' programme, which will facilitate blended working, for example, and ensure we remain an adaptable, innovative and flexible employer. All that said, my thoughts are with all those touched by the coronavirus crisis, and I am hugely proud of how Forest Research staff have continued to be so resilient and professional while continuing to support and look out for their colleagues.

Our Covid-19 Response Management Team (RMT), which I chair, involving staff from Human Resources (HR), Communications, and Health and Safety teams, has continued to meet regularly and review the latest guidance to ensure we are compliant and operating in a Covid-safe manner. Following the ongoing easing of restrictions, we have updated our guidance for staff, which continues to apply regardless of whether they work in England, Scotland or Wales. This is to ensure we can continue to provide a Covid-secure workplace and retain oversight of who is going onto our sites or into the field to ensure that they have the necessary risk-assessment approvals and that we continue to comply with national or local guidance.

Wellbeing has been an important focus across the board for society as well as for our staff. In December, our report *Valuing the Mental-health Benefits of Woodlands* was published, showing that visits to the UK's woodlands boost mental health and are estimated to save £185 million in treatment costs annually. This landmark report, which was well received and covered in the media, is particularly relevant given the effects the pandemic has had on mental health for many people.

Despite the ongoing challenges we all face, our researchers have continued to work on pressing issues, such as climate change adaptation and mitigation, tree pests and diseases and the UK's resilience to them, while valuing the contributions that trees and woodlands provide. It is as a result of this sustained group effort and the dedication of our staff that we have delivered 15 out of 20 Key Actions for 2021–22, with the remaining 5 due to be finalised in 2022–23, as a result of the ongoing impact of Covid-19. We also secured £10.3 million of non-core income. This is another significant year of growth in Forest Research's income and capability and reflects the skills of our staff, the relevance of our science, as well as the increased interest in trees and forests across the UK.

Forests and forestry have also been prominent in the global policy dialogue in the past year, culminating in the Glasgow Leaders' Declaration on Forests and Land Use at COP26. We have continued to support Defra's international forest policy work through the provision of technical advice and representation at international meetings and events, such as the United Nations Forum on Forests (UNFF), the Food and Agriculture Organization's Committee on Forestry (COFO) and the Committee on Forests and the Forest Industry (COFFI). We regularly share knowledge and updates in a forum that brings together forestry policy leads from the devolved administrations, Forest Research, the Forestry Commission and Defra to discuss changes in the international forestry policy landscape and how these relate to forestry in the UK. A stocktake of our international collaborations is being undertaken to inform future partnerships.

With the welcome support of Defra, we are continuing to invest in our capacity to carry out forest science, both at Alice Holt and our Northern Research Station (NRS). Most importantly this year, our new £5.8 million Holt Laboratory, located within the Alice Holt Forest in Surrey, became fully operational and was formally opened by the Rt Hon Lord Benyon, Parliamentary Under Secretary of State (Minister for Rural Affairs, access to nature and Biosecurity) on Monday 28 February 2022.

The Holt Laboratory represents a significant expansion of the UK's capacity and capability to study known and emerging threats from tree pests and diseases and to inform our response to outbreaks. It provides state-of-the-art quarantine facilities for the safe and controlled research into pests and diseases using cutting-edge technology and equipment. It builds on Forest Research's long-term programme of tree health research and will ensure we remain world-leading in our research into the growing threats posed by tree pests and diseases due to climate change and the increasingly globalised plant trade. It will support tree health work in Scotland, England and Wales and our international trade, while protecting the UK forest sector.

Some of the key research areas that the laboratory will be studying include:

- current regulated/quarantine tree pests and pathogens including *Xylella*, *Cryphonectria*, oak processionary moth and Asian longhorn beetle;
- possible future pests, such as emerald ash borer and citrus longhorn beetle;
- and assessing established and emerging sawfly pests on Sitka spruce and improving detection of new conifer bark pests.

During his visit, Lord Benyon also announced the launch of the virtual [Centre for Forest Protection](#) (CFP) , jointly led by Forest Research and Kew – delivering on a commitment in the England Trees Action Plan. This collaborative hub will bring together tree health expertise from around the world to conduct horizon-scanning and risk analysis in order to identify the new and unforeseen threats to our treescapes. This includes research into understanding the genetic basis for resistance to high-impact pests like ash dieback, which will inform future breeding programmes or reintroduction strategies for vulnerable species like ash and elm.

Last summer, we were successful in securing funding for three UK Research and Innovation (UKRI) projects as part of the Future of UK Treescapes programme. These include:

- **Connected Treescapes, which will** evaluate how treescape form and function affects public benefits;
- **Branching Out, which focuses on creating** urban treescapes to respond to the increased tree-planting targets of local authorities;
- **and newLEAF**, an interdisciplinary approach to answering how quickly tree species can genetically adapt to change in the wild.

As we have all seen, Storm Arwen caused much devastation. Working with the Confederation of Forest Industries (UK) Limited (Confor), the Forestry Commission and Scottish Forestry, we used Earth-observation data and machine learning to help identify potential areas of windblown conifer trees and help assess the impact the storm has had on the nation's forests and woodlands to inform a managed response. This was coupled with the development of a windblow assessment mapping tool to enable citizen science to 'ground-truth' and add to the satellite data. This innovative approach involved partners from across the public and private forest sectors.

These are busy and extraordinary times, but the need for quality science has never been more pressing. Our staff continue to deliver great science, innovation and data services to the sector and to Government, and I would like to thank them for their diligence, expertise and commitment. I would also like to thank our diverse range of stakeholders, partners and customers for their ongoing support and collaboration, which we really appreciate and hope will continue in the future.

Professor James Pendlebury
Chief Executive and Agency Accounting Officer

Purpose and activities

Who we are

Forest Research (FR) is the research agency of the Forestry Commission (FC) and Great Britain's principal organisation for forestry and tree-related research. Forest Research is internationally renowned for the provision of science, research, evidence, data and services in support of sustainable forestry.

Our vision

To be a world leader in applied forest science and a trusted and recognised provider of expertise, data, products and services for government and the tree, wood, forest and natural resources sectors.

Our key strategic themes

1. Engaging with customers

Our customers are our primary focus. We will conduct timely, rigorous and independent research to give our customers the quality science, evidence, data, products and services they need to make informed decisions, support policy development, or develop and grow their businesses.

2. Developing our science and data offer

Using and adapting new technology, techniques and approaches are fundamental to our provision of quality research and data services. Our interdisciplinary science and data provision will offer trusted and quality-assured insight and innovation.

3. Increasing our value

Through well-established connections across the forestry sector, we understand the issues facing our trees, woods and forests and those involved with them. We will continue to give the best research advice, information and data to our customers and to grow our business.

4. Working together

Forest Research's staff are fundamental to our success. Their expertise, pride and passion have made us the UK's leading provider of applied forest research. We recognise that our future reputation depends on the work we will do, not just on the work we have done.

As part of the wider Department for Environment, Food and Rural Affairs (Defra) family, FR will help to deliver Defra's strategy, A Green Future: Our 25 Year Plan to Improve the Environment (<https://www.gov.uk/government/publications/25-year-environment-plan>), which sets out a shared vision and a set of objectives to improve the environment within a generation. At the heart of the strategy is a shared vision for the Defra group: creating a great place for living. Defra goals are focused on four impact objectives: to make a positive difference to the UK by delivering a cleaner and healthier environment; supporting a world-class food and farming industry; supporting a thriving rural economy; and protecting the UK against environmental damage. More information on the Strategy is available in Defra's Annual Report and Accounts.

Research funding

From 1 April 2019, a new Cross-Border Memorandum of Understanding between Forest Research and the UK, Welsh and Scottish governments funded core research and other services. This arrangement supports the Ministerially-endorsed Science and Innovation Strategy for Forestry in Great Britain and forestry policies of the UK, Scottish, Welsh and Northern Irish governments. In addition, Forestry England, Forestry and Land Scotland and Natural Resources Wales purchase research, data services and surveys specifically related to their respective forest estates. Forest Research is also increasingly successful in securing funding from other government departments, the European Commission, UKRI, commercial organisations, private individuals and charities. Collaborative bids with other research providers and consortium funding have become increasingly important, placing emphasis on effective partnership working.

Activities

Research and development are essential components in delivery of the benefits of sustainable forestry in a multifunctional landscape and in the wise management of trees in urban and rural settings. FR's research, surveys and related forestry data and scientific services address the social, economic and environmental components of sustainability and help respond to the climate and biodiversity crises. We focus on providing knowledge and practical solutions based on high-quality science, data provision and analysis.

Our projects provide understanding, policy advice and guidelines on the implementation of best practice on issues such as forest hydrology, silviculture and forest management, tree health, mitigation of and adaptation to climate change, carbon sequestration, well-being benefits of nature, public attitudes and behaviours, biodiversity and genetic conservation, timber quality, tree improvement, seed testing, remote sensing, crop inventory, yield modelling, production forecasting, forest statistics, surveys and monitoring.

Resources

Forest Research employed 277 (full-time equivalent) staff during the year 2021–22 at sites across England, Scotland and Wales. Contact information for our main offices is provided on the back cover.

Issues and risks

The important issues and risks that could affect FR in delivering its objectives are reported within the Governance Statement on page 32, including the impact of Covid-19 and how the Agency is addressing the risks and issues.

Performance summary

Operating review

The Agency continued to successfully operate and deliver its important work despite the ongoing impact of Covid-19 on the business. Site access continued to be rigorously controlled by the Covid-19 RMT to ensure the protection of colleagues while delivering business activity continuity in line with UK and Devolved Government requirements.

Our embedded IT infrastructure and business systems were fundamental in supporting the remote/blended working requirements of the majority of the workforce throughout the year.

The Agency demonstrated significant resilience and agility through its delivery of key actions and significant increase in external income generation and turnover.

In particular, Forest Research has:

- successfully achieved revenue financial balance for the year, the Statement of Comprehensive Net Expenditure on page 59 reports an expenditure position of £1,595k inclusive of the impairment charge following professional valuations of completed asset construction projects at both the Holt Laboratory and the Northern Research Station of £2,334k, see note 4.1 page 72. Prior to the impairment charge, from its usual operating activities, FR successfully achieved revenue balance for the year with a net operating surplus of c£739k. ;
- delivered year one of the core programme work relating to the Cross-Border Ministerially-endorsed Science and Innovation Strategy, which commenced from April 2021 and is in-place for a period of five years;
- continued to develop and support IT capabilities of the Agency, to ensure ongoing remote working for the workforce;

- achieved or exceeded targets for 15 out of the 20 Key Actions for the Agency, with the remaining Key Actions due to be finalised in 2022–23, as a result of the ongoing impact of Covid-19;
- secured c£10.3 million of non-core income;
- continued to implement its new Strategy for FR, *A Strategy for Growth*, and increased total operating income to c£25.1 million;
- continued to support Defra colleagues in dealing with biosecurity outbreaks in particular by responding to new outbreaks of pests and pathogens such as the recent *Ips typographus* outbreak in Kent and East Sussex and the discovery of the pathogen *Phytophthora pluvialis* in Cornwall;
- published our report *Valuing the Mental-health Benefits of Woodlands* showing that visits to the UK’s woodlands boost mental health and are estimated to save £185 million in treatment costs annually;
- continued to support Defra’s international forest policy work through the provision of technical advice and representation at international meetings and events, such as the United Nations Forum on Forests (UNFF), the Food and Agriculture Organization’s Committee on Forestry (COFO) and the Committee on Forests and the Forest Industry (COFFI);
- produced a briefing summary and data dashboard on the public perceptions of urban tree research in partnership with Network Rail, Forestry Commission, Woodland Trust, The Mersey Forest and AJ Moffatt and Associates;
- opened our new £5.8 million Holt Laboratory, a state-of-the-art quarantine facilities for the safe and controlled research into pests and diseases;
- launched the virtual Centre for Forest Protection (CFP), jointly with Kew – delivering on a commitment in the England Trees Action Plan; and
- published a large range of UK National Statistics and Official Statistics on subjects including woodland carbon code statistics, timber price indices, Forestry Statistics 2021 and analyses from the National Forest Inventory.

Financial review

Forest Research successfully ensured that its business plan and associated revenue position were delivered in 2021–22. In addition, the financial position was further enhanced through securing additional funding during the year, particularly in relation to the Defra-funded CFP, the Future Proofing Plant Health (FPPH) Programme, and projects for the Nature for Climate funded England Tree Planting Programme. This investment enables Forest Research to provide better support for the UK Government’s Woodland Creation programme and contribute to better tree health and plant biosecurity through enhancement of the equipment and facilities, and preparatory studies to develop a robust science and evidence base.

Despite the continued impact of Covid-19 and restricted access to the main research station sites during the year, Forest Research ensured total income increased to c£25.1 million during 2021–22.

FR also benefitted from significant capital funding of £4.3 million from Defra to enable critical investment in its main sites together with £1.6m of capital investment towards scientific equipment to help develop and improve the Agency’s research capability.

In particular, completion of the new state-of-the-art tree health Holt Laboratory at the Alice Holt site, which was officially opened in February 2022 will enhance the future biosecurity capability of both Defra and the devolved administrations.

The continued growth in revenue, and additionally secured capital investment were key factors in the success of the organisation and ensured that financial balance for the year was achieved with a net operating income reported of £739,000 (2020–21: £469,000), prior to impairment costs of £2,334k, see note 4.1 page 72.

A comparison of income and expenditure with the previous year’s results shows that:

- income from external sources (non-core income) during the year amounted to £10.3 million, which is an increase c 28.8% on the level achieved in 2020–21 (£8.0 million).
- other management costs (excluding impairment) increased by £1,862,000 (33.8%), mainly as a result of an increase in building maintenance costs, computer supply costs and depreciation charges. This increase in costs is related to growth in capacity, in particular the significance increase in the capital spend over the last two financial years increasing the annual depreciation charge for scientific equipment and buildings, as well as repairs needed at the Alice Holt and Northern Research Station sites linked to, but not part of, the capital spend at both sites;
- materials and services costs increased by £242,000 (8.4%), mainly as a result of additional commissioned research work contracted out to other providers by the Agency in accordance with contractual arrangements associated with successful bids for new work.

In 2021–22, Forest Research recognised total operating income of £25.1 million, significantly exceeding the level achieved during 2020–21 (£21.4 million) and reported net operating income of £739,000 (2020–21: £469,000), prior to impairment costs, see note 4.1 page 72. The increase in the level of income was mainly related to an increase in Research Contracts, CFP, FPPH and the continuation of the Natural Capital Ecosystems Assessment work.

Additions to Property, Plant and Equipment (PPE) and intangible assets during the year amounted to £5,925,000 (2020–21: £7,631,000) and included the construction of the new world class tree health Holt Laboratory at the Alice Holt site, laboratory enhancements at the Alice Holt and Northern Research Station sites (NRS) (Phase 1 and Phase 2) and investment in scientific equipment.

Financial objective – Key Actions

Forest Research’s primary financial objective set out in the Framework Document is to recover the full economic costs of its operations from the sale of services to customers. In 2021–22 the recovery rate was 103.0%, which reflects an increase on the 102.2% recovery rate achieved in 2020–21. This is due to the surplus, before impairment achieved in 2021–22 of £739,000.

Performance against other operational and scientific Key Actions is reported in the Performance Analysis section on pages 13 and 14.

The future

Our work is founded on the principle that applied research and reliable evidence are at the heart of informed policy-making and sustainable land management practices. We have continued to demonstrated our resilience and agility during another challenging year and will continue our agile approach in order to adapt and remain resilient in the future, particularly in a Covid-19 affected world. While our approach is constantly reviewed, the current focus has enabled us to shape our future priorities and develop our existing focus in providing the science and evidence to:

- protect our trees and forests;
- ensure that the Westminster Government’s and Devolved Administrations’ woodland creation and management agenda is underpinned by relevant scientific research, building on the initial platform developed in 2021–22;
- enhance forest ecosystem resilience and service provision;
- ensure sustainable management and adaptation of our forests to climate change;
- effect knowledge exchange;
- grow our business.

Some of the activities that Forest Research will be undertaking to support the delivery of the Science and Innovation Strategy for Forestry in Great Britain, and to fulfil our own corporate objectives for 2021–22, are as follows:

- continue to participate in and support the Nature for Climate Fund (NCF) Programme through provision of relevant science and evidence;

- carry out surveys and monitoring across the country as required under the EU Plant Health Directive to ensure that the UK retains protected zone status against regulated tree pests and diseases, and provide a report on these activities to the UK and EU statutory bodies;
- ensure that our new state of the art Holt Laboratory is fully utilised in supporting our world-leading research into the known and emerging threats from tree pests and diseases and our response to outbreaks;
- survey 1,500 hectares of forested land as required by the National Forest Inventory (NFI) and publish reports on woodland ownership and woodland habitat condition;
- continue to evolve and develop our Environmental Management System and other associated quality management systems;
- publish UK National Statistics and Official Statistics releases on subjects including forestry statistics, timber price indices, UK wood production and analyses from the NFI.

Supplier payment policy

Forest Research complies with the Government’s Better Payment Practice Code. Unless otherwise stated in the contract, we aim to pay within five days from the receipt of goods and services or the presentation of a valid invoice, whichever is the later. An analysis for 2021–22 indicates that 98.9% were paid within the due date, which is an improvement on the previous year (96.1%). Arrangements for handling complaints on payment performance are notified to suppliers on contracts.

Auditors

These accounts are prepared in accordance with a direction given by HM Treasury in pursuance of Section 7 of the Government Resources and Accounts Act 2000. They are audited by the Comptroller and Auditor General, who is the statutory appointed auditor. The notional fee for statutory audit services in respect of these accounts was £42,000 (2020–21: £41,000). No further non-audit services were provided in 2021–22 or 2020–21.

Performance Analysis

The performance of Forest Research is closely monitored throughout the year by the Board and is measured through the identification of desired outcomes and Key Actions against each of our science and business priorities.

The Board ensures that progress is appropriately measured and reported, including consideration of risks and uncertainties that potentially have an impact on performance,

through our risk management procedures. In addition, regular monitoring of the financial position in comparison to the approved budgetary targets is undertaken. This financial monitoring is critical to the success of our primary financial objective of recovering the full economic costs of our operations from the sale of services to customers.

A financial review and analysis of long-term expenditure trends have been included within the Parliamentary Accountability Disclosures section on page 52. Operating and financial reviews describing our key financial results for the year have been included on pages 9 to 13.

We also recognise the importance of non-financial performance information and a Fraud Policy Statement is available for staff to access across the organisation. We continue to work closely with the Forestry Commission and Defra in line with the Defra Counter Fraud Policy and Strategy, publicised on our intranet for all staff to access.

The environment is at the heart of our activities and the impact of our business on the environment is measured and reported within the Sustainability Report on pages 23 to 28.

The Board has concluded that our achievements against our corporate Key Actions for 2021–22 are a strong indicator of performance and are listed below. A full commentary with details of our work on each Key Action is available at www.forestresearch.gov.uk/keyactions

Key Actions

Key Action	Progress
Develop and implement procedures to enable the safe, efficient and quality-assured operation of the Holt laboratory as a tree and plant health facility.	Achieved
Initiate the Centre for Forest Protection as a collaborative hub that brings together expertise in the UK and internationally to protect and enhance the health of our trees and forests.	Achieved
Publish the Joint Agencies' (Forest Research, Natural England, Environment Agency, Natural Resources Wales, NatureScot) report on "Why society needs nature: lessons from research during Covid-19" and an academic paper on physical activity supporting connections to nature and wellbeing during the Covid restrictions.	Achieved
Publish the Forestry Commission Practice Guide on designing and managing forests to reduce flood risk.	Substantial progress *
Produce a briefing summary and data dashboard on the public perceptions of urban tree research in partnership with Network Rail, Forestry Commission, Woodland Trust, The Mersey Forest and AJ Moffatt and Associates.	Achieved
Deliver a drought-sensitive process-based growth model for future climate impacts.	Achieved

Deliver an update of the woodland carbon sequestration estimates for inclusion in the Woodland Carbon Code 'Woodland Carbon Calculation Spreadsheet', incorporating revisions based on new forest yield models.	Substantial progress
Produce a report for the Forestry Commission on wood properties and uses of larch in Britain.	Substantial progress *
Produce a briefing summary and report on the value of the nation's non-woodland trees, in partnership with Defra.	Achieved
Publish the Forest Development Types (FDT) Management Guide and flashcards, incorporate FDTs into Esc and ForesterWeb, and develop a series of webinars and a process of knowledge exchange to inform and educate forestry professionals about the FDT concept.	Achieved
Publish the action plan and report on progress on the National Forest Inventory Independent Review Group recommendations.	Achieved
Produce key national forestry statistics.	Achieved
Review and implement the Forest Research Data Strategy.	Ongoing
Ensure successful delivery of Forest Research component of Defra's Natural Capital Ecosystems Assessment Programme.	Achieved
Continue to support, develop and upgrade ForesterWeb for our client base.	Achieved
Provide technical support for Defra on international forestry policy, facilitate discussions on international forestry matters between the devolved administrations and increase the awareness and research activity of FR in the international arena.	Achieved
Support the England Tree Action Plan through provision of advice and development of evidence gathering.	Achieved
Develop our Environment Management System and produce a De-carbonisation Plan in line with government Net Zero emissions legislation so that it guides future investments in our built estate.	Achieved
Implement the Changing the Way We Work change programme.	Ongoing
Ensure financial balance is achieved for the agency by meeting the revenue break even target and strengthen the Business Development and Bidding capabilities of all FR staff by providing resources, increasing their awareness of potential funds and supporting the successful submission of bids.	Achieved

*Both documents that are substantially progressed are at the final draft stage, once approved the reports will be published in 2022-23

Research highlights from the past year

During the past year, we have continued our research across a wide breadth of topics. Our research ranges from urgent responses to outbreaks of pests and diseases, including the new findings of *Ips typographus* and *Phytophthora pluvialis*, to longer-term climate change modelling and determining the carbon balances for different types of woodland creation and management. We've also been increasing our use of satellite imagery to map changes to our forests, whether from storm damage or to establish the location of larch trees, which are susceptible to *Phytophthora ramorum*, to help monitor tree health. These projects are summarised below, along with a selection of other work. Further information on our work is available at www.forestresearch.gov.uk

New evidence to inform woodland creation for climate change mitigation

Forest Research has completed a new study, 'Quantifying the Sustainable Carbon Cycle', which assesses the latest evidence about the carbon balance of woodlands in the UK. The focus is on the potential for the creation of new woodlands and their management to contribute towards mitigation of greenhouse gases (GHGs). The assessment is comprehensive and considers carbon sequestration in woodlands and in wood products, as well as the potential to avoid emissions through increased use of wood products and wood fuel in place of alternative materials and fuels.

As part of this study, we modelled the carbon balances of a large number of options for woodland creation and management, covering many tree species, yield classes, soil types and a range of management prescriptions. These have been included in a software tool that enables us to access and display the results and compare different woodland options. Further model results are presented for a smaller set of more-complex woodland types, consistent with current sustainability criteria such as for tree species composition, habitat conservation and multi-objective woodland management.

A full report on the study describes the modelling methods and shows how the results can be used to evaluate the GHG emissions mitigation potentials of woodland options in different UK localities. The report also explores the sensitivity of woodland GHG balances to a range of site and management factors. In addition, we have reviewed other recent studies and published statements about woodland creation and management to contribute to GHG emissions mitigation in policy-relevant timescales.

We have also prepared a summary report, which concentrates on the key policy-relevant findings of the study. Both reports will be published later this year.

Review of the natural colonisation of woodlands

Woodland creation and expansion is an important policy goal and can be achieved in a variety of ways, including by natural colonisation. This is the process by which trees and woodlands establish from seeds (or other propagules) dispersed naturally from local sources. It can be distinguished from natural regeneration by the absence of recent woodland cover at a site.

Use of natural colonisation in recent years has been limited and so may be unfamiliar to many land managers, prompting the need for a review of evidence. We conducted a literature review, on behalf of Natural England, which concluded that where existing mature woodland and hedgerows or isolated trees provide suitable seed sources and the site conditions are favourable, then natural colonisation provides the potential to expand tree cover relatively quickly (within five years). In other circumstances, there is a risk of little apparent colonisation progress in the short to medium term and the result can be a scrubland rather than woodland habitat. Therefore natural colonisation depends primarily on choice of site, ground conditions and suitable seed source.

Natural colonisation by trees and scrub is progressive and, as well as contributing towards increased woodland cover, it can potentially provide complex habitat mosaics of high biodiversity value. The projected biodiversity gains from natural colonisation processes (after first excluding grazers) include highly diverse transitional habitat that could be expected to last for 20 years or more and contribute to the government's biodiversity targets and ambitions for nature recovery.

There may also be benefits to long-term carbon sequestration or storage. However, these are yet to be quantified so it is difficult to state with confidence what contribution can be made to the government's 2050 net zero commitments. The unpredictability of natural colonisation may result in it being judged by policy makers and land managers as being less reliable in achieving rapid carbon storage when compared to tree planting or direct seeding systems.

As well as summarising existing knowledge, the review highlighted some important gaps in evidence. We are currently conducting field-based research in partnership with Natural England and the Forestry Commission, funded by Defra, to unpick natural colonisation processes, ecological benefits and carbon balance both above and below ground. Complementary research is examining land-manager attitudes to natural colonisation as a woodland expansion strategy. These investigations will refine understanding and the guidance available to land managers in the near future.

Exploring the biodiversity monitoring potential of environmental DNA

A pivotal technological breakthrough for species detection from DNA has been the advent of next-generation sequencing. This allows multiple species to be rapidly identified from a single sample at relatively low cost with the proviso that DNA sequences can be extracted, sequenced and matched to reference databases. This is 'metabarcoding' and, using environmental DNA (eDNA), this method holds particular promise as a non-destructive detection method since it relies on DNA shed by species into the environment. DNA is extracted from an environmental sample (e.g. collected from water, soil, air) with no need for the isolation of target species or species groups.

In 2021, Forest Research was co-funded by Forestry England and Defra's Natural Capital and Ecosystem Assessment programme to undertake pilot studies of an eDNA approach as a potential means of facilitating forest biodiversity monitoring and increasing the information acquired. Forest Research and Forestry England share a common ambition to increase direct measures of forest species diversity and to move beyond the current reliance on surrogate measures of biodiversity (e.g. indicator species).

One study explored the potential to detect forest mammals from surface soil samples. We set up camera traps in the same area to verify the metabarcoding results. Preliminary results revealed that from a 20-minute soil-sampling effort, eDNA methods detected many mammals frequently observed by the camera traps (e.g. deer, rabbit, hare) as well as some that could not be surveyed using this method (e.g. mole, shrew).

A second study focused on the potential for eDNA to characterise fungal and invertebrate communities in surface organic soil layers across a wide range of forest types and biogeoclimatic zones in England, and explored community associations with forest management intensity. In this study, soil surface layer fungal and invertebrate species identified by eDNA reflected expected community collections for the range of forest types sampled. For example, stands of only Sitka spruce did not contain invertebrate species that are sensitive to the low soil pH (e.g. earthworms, woodlice) that typically develops under a bed of spruce needles. Nematode community composition also reflected the frequent disturbances to soils that occur in this intensively managed forest type.

The pilot studies, now being written up for publication, confirm the potential of soil eDNA to provide affordable, accurate biodiversity assessments for use in establishing baselines, conducting surveillance, and monitoring recovery and responses.

Responding to outbreaks of pests and pathogens

Forest Research has been responding to new outbreaks of pests and pathogens discovered in 2021-22. In June 2021, the eight-toothed spruce bark beetle (*Ips typographus*) was detected in Kent and East Sussex, while in September the pathogen *Phytophthora pluvialis* was found for the first time in England, subsequently being identified in Wales and Scotland.

Work on *Ips typographus* has focused on understanding how these new introductions of the beetle have occurred following a previous finding (which prompted an eradication programme) in 2018. In collaboration with Aberystwyth University, we have carried out pheromone trap studies and molecular research that have provided robust evidence that the new incursions have come from dispersal across the English Channel. Research is under way to investigate the susceptibility of Sitka spruce as a host; Sitka spruce is not a native host for *Ips* but as our primary forestry species, it is being tested to inform eradication plans in case the pest were to become more widely established. The eradication methods in the Forestry Commission's *Ips* Contingency Plan are also being evaluated to confirm that the tools and approaches needed to respond to future incursions are in place and effective. Forest Research is in a unique position to test whether the protocols in our contingency plans are fit for purpose while ensuring that the goals of the eradication programme are met. Research into *Ips typographus* will better prepare the government and forestry sector to deal with any further incursions of this species, as well as inform plans for dealing with our most serious forestry pest threats.

A diseased stand of western hemlock was detected by the Forestry Commission on a site in Cornwall in September 2021. Decline symptoms were found on mature trees and the naturally regenerated understorey, and Forest Research was sent samples for diagnosis. We found *Phytophthora pluvialis* from resinous cankers in the branches of diseased trees. This is the first report of the pathogen in the UK and in Europe. It is also the first report of these symptoms on western hemlock. *P. pluvialis* was originally reported in Oregon, USA, in 2013 and in New Zealand in 2014. In these countries, Douglas fir, tanoak and several pine species (in particular radiata pine) are susceptible to the pathogen and it causes needle cast, shoot dieback, and occasionally lesions on the stem, branches and roots. It is mainly considered a foliar pathogen. Western hemlock had not been identified previously as a host and the symptoms observed have not been seen before. Pathogenicity tests are ongoing to prove that *P. pluvialis* is responsible for the symptoms observed in western hemlock.

To investigate the biology and life cycle of the pathogen, we are undertaking monitoring of infected trees, rainwater traps and stream baiting. We have introduced two new real-time molecular diagnostic methods to ensure that *P. pluvialis* is detected reliably. Following the discovery of *P. pluvialis* in Cornwall, official surveillance in the UK has identified the pathogen

in Scotland, Wales and on a number of sites in England. The pathogen has also been detected on Douglas fir growing among infected western hemlock. We are continuing to test samples from the outbreak and over 600 samples were processed in 2021. A research programme has been developed and collaborations with colleagues in the UK, USA and New Zealand have been initiated to investigate the origin of *P. pluvialis* in the UK, and to understand the potential impact of this pathogen for UK forestry.

Using satellite imagery to help monitor larch ill-health

Phytophthora ramorum has the potential to cause significant damage to the natural environment. Larch trees, which are widely grown in the UK for timber, are particularly susceptible to infection. Intervention and control of the disease focuses on minimising its spread by felling infected trees. For this to be most effective, it is imperative that action is taken swiftly and regular surveillance of high-risk larch sites is carried out. Therefore, having up-to-date and complete information of larch locations is highly valuable to enable effective surveys.

Between April and September 2021, Forest Research partnered with tree health practitioners across Natural Resources Wales, the Welsh Government, Scottish Forestry and the Forestry Commission to explore the potential of identifying larch using satellite imagery. This method can be difficult, as variation between species is often masked by environmental conditions, such as meteorological and atmospheric effects. As a deciduous conifer, larch changes colour seasonally, flushing a lime green in spring and a burnt orange in autumn. Our species mapping approach focused on this seasonal variation. A series of satellite images were captured in spring and autumn to enable us to develop a mapping approach that uses this seasonal change to identify likely larch stand locations. We also used control sites identified by forestry experts. We hosted a workshop for tree health teams working across England, Scotland and Wales to identify larch surveying needs and then developed a series of larch likelihood or 'heat' map products, with product type and presentation informed by the workshop.

The larch maps produced this year will be field-tested by tree health teams in spring 2022 for practices such as targeting surveying paths. We continue to develop and improve the larch map products, working with our partners to 'package' the larch likelihood data in distinct ways for different uses and landscapes. During development, we recognised the potential to identify changes in tree health and further target surveying. We plan to explore this further with partners in a 'phase 2' of this work.

Assessing pathogen impacts on alternative forestry species trials

Invasive pathogens present a significant threat to the UK forestry industry, most notably the killing of larches by *Phytophthora ramorum* and severe damage to pines caused by the needle cast pathogen *Dothistroma septosporum*. These epidemics highlight the risks of over-reliance on a narrow range of plantation forestry tree species.

In the past 10 years, research trials have been established to assess alternative forestry species that have an overseas origin, but which might be suitable for production forestry in the UK. Key to their suitability will be the extent to which these species remain resilient when exposed to endemic pathogens present in the UK. One study investigated pathogen impacts at two replicated trial sites: one in the Scottish Borders and one in Gloucestershire. Health surveys were conducted and analysed by an MSc student from Harper Adams University together with a Forest Research pathologist. Both sites contained between one and three provenances of 14 alternative conifer and broadleaved species, replicated three times in plots of 49 trees. Thirteen trees per plot were scored for a range of health variables. Samples were collected and the causal agents of damage identified using morphological and molecular methods.

All tree species had some form of pathogen damage, with significant impacts of *D. septosporum* and the shoot pathogen *Gremmeniella abietina* on exotic radiata pine and maritime pine. In contrast, Weymouth pine, which is native to eastern North America, appeared relatively unaffected. However, this species is highly susceptible to a serious disease known as white pine blister rust. Other pathogens of note included Swiss needle cast of Douglas fir, *Sirococcus* on Atlas cedar and *Pestalotiopsis sp.* on Japanese red cedar. We will continue health surveys of other UK trial sites in 2022 to allow a better understanding of the future commercial potential of these alternative forestry species.

Ensuring knowledge exchange and impact

As an applied research agency, Forest Research has a unique bridging role between the research community, policy-makers and land managers. Effective knowledge exchange and research impact are critical to our purpose, ensuring our work makes a difference and providing a rationale for our work and the basis of our contracts with key customers. We have developed a new Knowledge Exchange and Impact Strategy covering three broad themes.

The first is stakeholder engagement – to ensure our stakeholders can interact effectively with us and improve the quality, relevance, uptake and impact of our research. We have prepared Knowledge Exchange and Impact Plans for all core-funded projects and programmes, launched a successful new Forest Science Seminar series, and run regular thematic

workshops where research findings can be interpreted and their implications discussed with policy colleagues.

The second theme is research capability – to ensure research disciplines and teams work together and have the capacity to deliver high-quality, relevant outputs. We are also collaborating with land managers and the public in our research, through citizen science, reporting pests and diseases, forest monitoring, testing decision-support tools and facilitating networks of practitioners to share insights from innovation.

Finally, evaluation and learning – to elicit feedback from our customers and other stakeholders to monitor, evaluate and communicate our impact, but also to ensure that together we identify and respond to new opportunities to support innovation, resilience and delivery across the sector. We have prepared case studies to highlight our impacts, understand their causes and identify lessons for the future.

Through these actions, we aim to further improve our user experience. Our ambition is to establish and maintain Forest Research's position at the heart of the forestry and environmental sectors – informing, advising, training, facilitating and collaborating with partners to address the climate and biodiversity crises and other challenges we face together.

Sustainability Report

This report is subject to an audit review for consistency purposes.

Sustainability is an essential characteristic within the strategic objectives, operations and policy making of Forest Research. We maintain a formal environmental management system (EMS) which is certified to ISO14001:2015 by Lloyd's Register. To support the Defra *Climate Change Adaptation Strategy*, our EMS represents the mechanism by which we measure and improve our environmental performance in terms of energy use, business travel, waste arising, water consumption and management of hazardous materials.

We report our environmental performance against the Greening Government Commitments (GGC) Framework for 2021-25, with 2017-18 being the baseline year against which we will target further, quantified improvements. We continue to make good progress in terms of reducing our net carbon emissions in line with the GGC and the UK Carbon Budget Orders.

As an organisation we monitor environmental performance as part of our day-to-day activities – for example, by reducing travel and choosing the most cost-effective travel options wherever possible. As a result of the ongoing Covid-19 pandemic situation, our business travel requirements continue to be significantly reduced compared to pre-Covid-19 and we continue to assess smarter ways of working, in conjunction with the Forestry Commission, to ensure that we adopt new practices and achieve longer-term environmental benefits from the way we operate. Our IT capability continues to provide the organisation with a suitable platform to conduct business remotely for many areas of our work, and this approach is being embraced by senior management and colleagues throughout the business. Our staff also support recycling initiatives, turn off unused lighting and are energy aware. We are trialling more energy-efficient vehicles and continue to explore the suitability of electric and hybrid (fuel/battery) vehicles.

Since 2020, we have transferred almost all of our electricity supplies to '100% Clean Renewable' tariffs via EDF Energy, resulting in a 98% reduction in the carbon emissions associated with the generation of bought electricity.

Additionally, since 2019 we have mostly phased-out consumer single-use plastics (CSUP) in accordance with the Crown Commercial Services instruction *Removing Consumer Single Use Plastics* (July 2018). However, the use of milk sachets continues in the staff kitchen areas having been introduced in 2020 due to Covid-19 hygiene requirements.

Sustainability remains embedded into our procurement practices, through observance of the Government Buying Standards and our own *Environmental Procurement Procedures*. As FR

does not hold or manage any significant natural capital or areas of undeveloped land, we do not publish Nature Recovery or Biodiversity Action plans.

While FR does not currently actively monitor the environmental impacts from our Information and Communications Technology (ICT) and digital estate, this is an ambition of ours moving forward. FR operates a hybrid-Cloud infrastructure, which has led to a significant reduction in our hardware footprint since devolution. Where possible, our services are virtualised or delivered from the Cloud, reducing our dependency on hardware as much as possible and all that entails (such as a reduction in electricity usage, carbon footprint etc.). Over the next twelve months, we are also undertaking significant changes to our data centre, which will reduce our demand for air conditioning and lighting. All of our end-user devices have variable power plans, which can be selected or tweaked based on user need. All IT equipment is procured through existing government frameworks, which ensures compliance with all ethical and environmental standards.

All of our Information Technology (IT) equipment is disposed of responsibly through Waste Electrical and Electronic Equipment Directive (WEEE) compliant organisations. We have tried to donate old equipment to charity in the past; however, we found this difficult as local groups were unable to supply WEEE certificates which are a requirement of government equipment disposal.

During 2021-22 FR did not recycle or dispose of any ICT waste: we have prioritised the refurbishment and re-use of equipment wherever feasible.

Total *net* greenhouse gas (GHG) emissions associated with our built estate and business travel activities for 2021-22 were 400 tonnes CO₂e. See the chart below for a segmental breakdown of the various sources of these emissions. (Gross emissions, i.e. without the deduction for renewable electricity tariffs, were 658 tonnes CO₂e.)

The consumption figures included in the table on pages 26 to 28 must be viewed in the context of operating under conditions that continue to be impacted by the Covid-19 pandemic. As travel restrictions have eased compared to that of the previous year this has seen an increase in Year-on-Year general consumption trends across all categories. While our water usage is lower than the previous year, we continue to explore investment in sub-metering other operational efficiencies to maximise our impact and further improve our consumption efficiency. For 2021-22 additional disclosures on sustainability reporting were required, and there are no prior year comparatives for these additional items.

Staff travel on official business remains significantly lower than pre Covid-19 years. Although, as restrictions have eased during 2021-22 this has enabled further essential business travel,

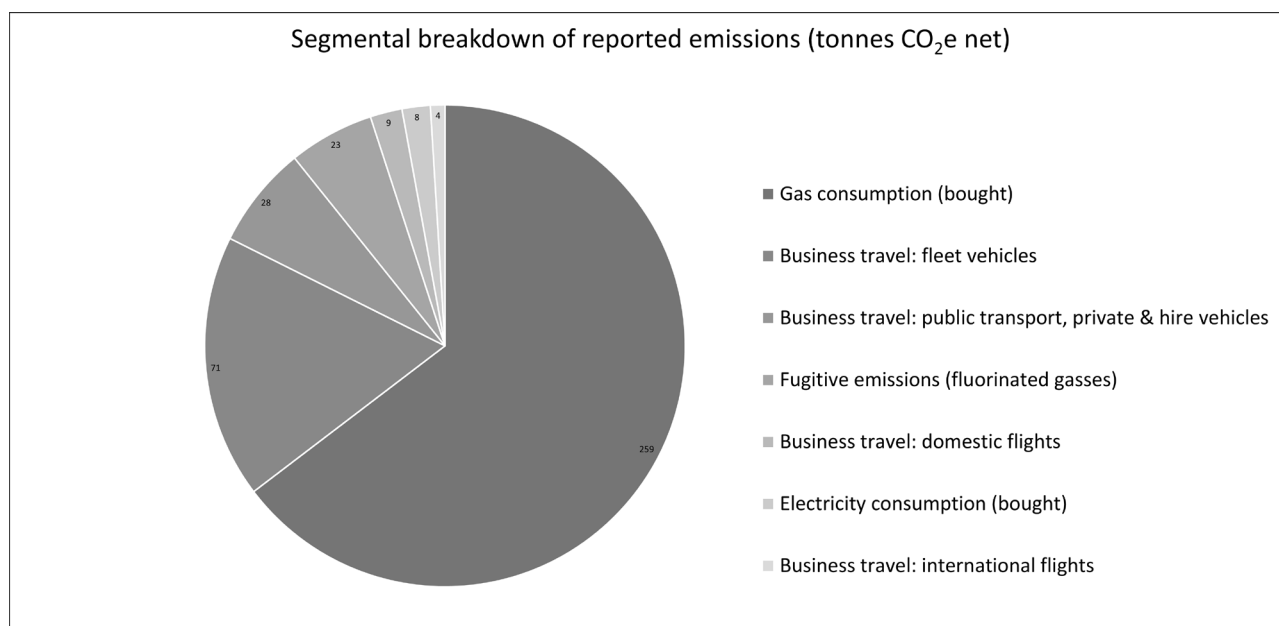
compared to that of 2020-21. Business travel continued to be closely monitored by our Covid-19 RMT to ensure that any travel was deemed necessary in the context of emerging government guidance throughout the year. Road mileage was up on the previous year, a factor being an easing of travel restrictions during 2021-22 (compared to 2020-21) which enabled more essential business travel. Forest Research has continued to make use of online meeting and networking technologies throughout the year, the benefits of which are expected to continue going forwards.

As part of our estates improvement programme we have make the switch from gas heating to renewable electricity as part of the construction of the new Glasshouse at NRS, which now also includes low energy growth lights. Both of which will help to further reduce our carbon footprint.

In terms of our waste consumption, the total waste arising has reduced compared to the previous year. Tankered sewage waste has remained high during the year due to high maintenance required for a minor sewage treatment facility at Alice Holt. This is approaching the end of its expected service-life and is now scheduled for enhancement. We continue to work closely with the Forestry Commission and Defra to identify funding for this enhancement.

Total *net* greenhouse gas (GHG) emissions associated with our built estate and business travel activities for FY21-22 were 400 tonnes CO₂e.

See the chart below for a segmental breakdown of the various sources of these emissions. (Gross emissions, i.e. without the deduction for renewable electricity tariffs, were 658 tonnes CO₂e.)



Performance Measurement					
Area	Units	2021-22	2020-21	2019-20	2018-19
Travel on official business					
Owned fleet/leased vehicles	Miles	357,706	336,621	408,566	436,719
Fleet vehicles (standard fuels)	Miles	305,530	-	-	-
Fleet vehicles (ultra low emis)	Miles	52,176	-	-	-
Fleet vehicles (zero emission)	Miles	0	-	-	-
Air travel (domestic)	Miles	21,904	-	-	-
Air travel (international)	Miles	13,788	-	-	-
All other travel	Miles	163,785	41,420	799,043	895,862
Owned fleet/leased vehicles	£	152,919	143,905	174,662	186,697
All other travel (inc air travel)	£	59,864	10,825	164,882	186,968
Owned fleet/leased vehicles	GHG emissions in tonnes CO ₂ e scope 1	70.8	79	85	95
Fleet vehicles (standard fuels)	Scope 1 GHG emissions	67.3	-	-	-
Fleet vehicles (ultra low emis)	Scope 1 GHG emissions	3.5	-	-	-
Fleet vehicles (zero emission)	Scope 1 GHG emissions	0	-	-	-
Air travel (domestic)	Scope 3 GHG emissions	8.6	-	-	-
Air travel (international)	Scope 3 GHG emissions	3.9	-	-	-
All other travel	GHG emissions in tonnes CO ₂ e scope 3	30	10	161	293
Energy bought and consumed (after deducting supplies to tenants)					
Electricity	kWh (includes home-working)	1,180,249	981,523	1,051,150	1,211,392
	£	197,396	147,613	170,388	181,618
	Gross GHG emissions in tonnes CO ₂ e scope 2 and 3 (includes home-working) – total emissions	272	253	352	370
	Net GHG emissions in tonnes CO ₂ e scope 2 and 3 (includes home-working) – deducting green tariffs	5	94	-	-
Gas	kWh (includes home-working)	1,414,920	1,665,175	1,405,452	1,605,248
	£	46,736	46,507	50,010	53,744
	GHG emissions in tonnes CO ₂ e scope 1 and 3 (includes home-working)	258.7	306	243	294

Oil bought	kWh	0	0	0	6,445
	£	0	0	0	375
	GHG emissions in tonnes CO ₂ e scope 2 and 3	0	0	0	2
Energy generated from renewables					
Total generated from solar PV	kWh	43,674	42,156	22,865	25,830
GHG emission avoided	GHG emissions in tonnes CO ₂ e scope 2 and 3	11.5	10	6	7
F-gas fugitive emissions					
Refrigeration and air conditioning topped up	Carbon dioxide equivalent (CO ₂ e) in tonnes	23	0	0	0
Waste minimisation and management (non-sewage)					
Total waste arising	Tonnes	76	84	67	97
Waste to landfill	Tonnes	1.29	1	2	6
Waste re-used or recycled	Tonnes	68.50	81	61	84
Waste incinerated with energy recovery	Tonnes	0.06	2	4	7
Waste incinerated without energy recovery	Tonnes	0	0	0	0
Total hazardous waste	Tonnes	6.5	-	-	-
Total waste arising	£	33,011	32,447	33,559	37,424
Waste to landfill	£	1,209	3,983	4,108	6,732
Waste re-used or recycled	£	23,446	26,616	26,810	21,902
Waste incinerated with energy recovery	£ (2021-22 figure includes other wash services under contract)	4,861	1,848	2,641	8,734
Waste incinerated without energy recovery	£	0	0	0	0
Total hazardous waste	£	3,496	-	-	-
Waste minimisation and management (sewage)					
Waste re-used or recycled	Tonnes	451	548	712	321
Waste re-used or recycled	£	14,426	12,782	16,255	6,613
Waste minimisation and management (ICT)					
Waste re-used or recycled	Tonnes	0	-	-	-
Waste re-used or recycled	£	0	-	-	-
Waste minimisation and management (food waste)					
Waste re-used or recycled	Tonnes	0	0	0	0
Waste re-used or recycled	£	0	0	0	0
Paper use					
Printing and photocopying paper purchased	A4 reams (equivalent)	200	280	625	794
Water consumption					
Scope 2, water purchased from a third-party supplier	m ³	7,737	11,626	14,693	7,350
Scope 2, water purchased from a third-party supplier	£	11,249	16,946	22,558	9,272
Scope 1 - water from sources owned or controlled by FR	m ³	0	0	0	0

Scope 1 - water from sources owned or controlled by FR	£	0	0	0	0
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Professor James Pendlebury
Chief Executive and Accounting Officer
27 June 2022

Accountability Report

Corporate Governance

The Corporate Governance Report describes Forest Research's governance structures. It comprises the Directors' Report, the Statement of Accounting Officer's Responsibilities and the Governance Statement. This meets accountability requirements to Parliament as set out in Chapter 5 of Part 15 of the Companies Act 2006 and Schedule 7 of SI 2008 No 410 and amended by the *Government Financial Reporting Manual*.

Directors' Report

Relationship with Defra and the wider Defra network

The Department for Environment, Food and Rural Affairs (Defra) Ministers who had responsibility for the Forestry Commission, including Forest Research, during the year were:

- George Eustice MP, Secretary of State from 13 February 2020
- Lord Zac Goldsmith, Minister of State from 10 September 2019
- Lord Gardiner, Parliamentary Under Secretary of State until 12 May 2021
- Lord Benyon, Parliamentary Under Secretary of State from 13 May 2021

Composition of the Board

Members of the Board of Forest Research during the year were:

Professor James Pendlebury*	<i>Chief Executive, Forest Research</i>
Professor Chris Quine*	<i>Chief Scientist, Forest Research</i>
Meirion Nelson	<i>Finance Director, Forest Research (until October 2021)</i>
Nick Clinton	<i>Interim Finance Director, Forest Research (from November 2021 to May 2022)</i>
Sir William Worsley	<i>Forestry Commissioner and FC Chair</i>
Dr Matt Perkins*	<i>Chair of Forest Research Board and Non-Executive Director</i>
Dr Ian Gambles*	<i>Forestry Commission Chief Executive (until May 2021)</i>
Richard Stanford	<i>Forestry Commission Chief Executive (from August 2021)</i>
Professor Julian Evans	<i>Forestry Commissioner, Non-Executive Director</i>
Professor Nicola Spence	<i>Defra Chief Plant Health Officer, Non-Executive Director</i>
Ceri Witchard	<i>Welsh Government, Non-Executive Director</i>

* These Board Members have related party interests that are disclosed in Note 15.

The Chief Executive is appointed following public advertising of the post. The term of the appointment and provision for its termination are governed by the Civil Service Commission Recruitment Code.

Further details on remuneration are set out in the Remuneration Report.

Register of interests

In accordance with paragraph 17.4 of HM Treasury Public Expenditure System (PES) Guidance on the Preparation of Annual Reports and Accounts for 2021-22, the declaration of any conflicts of interest is a standing-order at all Forest Research Board meetings. In the period covering 1 April 2021 to 31 March 2022 there were no actual, or potential, conflicts of interest raised. This is recorded in the Minutes of all Board meetings.

A register of interests of all Board Members is maintained by Forest Research and published on its website, www.forestresearch.gov.uk

Fraud and error analysis on Covid-19 government support schemes

As noted at paragraph 10.3 of HM Treasury Public Expenditure System (PES) Guidance on the Preparation of Annual Reports and Accounts for 2021-22, where an entity received government support in respect of Covid-19 it is required to make an evidence-based estimate on the extent of the level of fraud and error in the administration of the Covid-19 support received.

Forest Research did not receive any Covid-19 related government support, during the reporting period 2021-22 (2020-21: nil).

Incidents related to personal data

There were no incidents related to protected personal data reported for Forest Research in 2021-22 nil (2020-21: nil).

Forest Research will continue to monitor and assess its information risks in order to identify and address any weaknesses and ensure continued improvement of its systems. Further information on the handling of information risk is contained in the Governance Statement.

Statement of Accounting Officer's Responsibilities

Under Section 7 of the Government Resources and Accounts Act 2000, HM Treasury has directed Forest Research to prepare for each financial year a statement of accounts in the form and on the basis set out in the Accounts Direction. The accounts are prepared on an accruals basis and must give a true and fair view of the Forest Research state of affairs at the year-end and of its income and expenditure, changes in taxpayers' equity and cash flows for the financial year.

In preparing the accounts the Accounting Officer is required to comply with the requirements of the *Government Financial Reporting Manual* and in particular to:

- observe the Accounts Direction issued by HM Treasury, including the relevant accounting and disclosure requirements, and apply suitable accounting policies on a consistent basis;
- make judgements and estimates on a reasonable basis;
- state whether applicable accounting standards, as set out in the *Government Financial Reporting Manual*, have been followed, and disclose and explain any material departures in the accounts;
- prepare the accounts on the going-concern basis.

The FC Chief Executive Officer, in his role as Accounting Officer for the Forestry Commission, has designated Forest Research's Chief Executive as Accounting Officer for the Agency. The Chief Executive's responsibilities as Forest Research Accounting Officer (including responsibility for the propriety and regularity of the public finances for which an Accounting Officer is answerable, for keeping proper records, and for safeguarding Forest Research's assets) are set out in *Managing Public Money* produced by HM Treasury.

As Accounting Officer, I confirm that as far as I am aware there is no relevant audit information of which our auditors are unaware. I have taken all necessary steps to make myself aware of all such information and to establish that our auditors are equally informed. I take personal responsibility for the Annual Report and Accounts and the judgements required for determining that they are fair, balanced and understandable, which I confirm they are.

Governance Statement

Introduction and scope of responsibility

As Agency Accounting Officer for Forest Research, I have responsibility for ensuring that its business is conducted in accordance with the law and proper standards, and that public money is safeguarded and properly accounted for, and used economically, efficiently and effectively in accordance with *Managing Public Money*.

In discharging this overall responsibility, I am responsible for putting in place appropriate arrangements for the governance of its affairs, facilitating the effective exercise of its functions, which includes ensuring a sound system of control is maintained through the year and that arrangements are in place for the management of risk.

The purpose of the governance framework

The governance framework comprises the systems and processes, and culture and values, by which Forest Research is directed, controlled and led. It enables the Agency to monitor the achievement of its strategic objectives and to consider whether those objectives have led to the delivery of appropriate, cost-effective outcomes that are also compliant with the law and with policy.

The system of internal control is a significant part of that framework and is designed to manage risk to a reasonable level. It cannot eliminate all risk and can therefore only provide reasonable and not absolute assurance of effectiveness. The system of internal control is based on an ongoing process designed to identify and prioritise the risks to the achievement of the Agency's policies, aims and objectives, to evaluate the likelihood of those risks being realised and the impact should they be realised, and to manage them efficiently, effectively and economically.

The governance framework has been in place at Forest Research throughout 2021–22 and up to the date of approval of the Annual Report and Accounts, and complies with HM Treasury guidance.

The governance framework

Forest Research is an Executive Agency of the Forestry Commission. The Agency's Framework Document sets out my responsibilities as Agency Accounting Officer. I am a member of the Forestry Commission's Executive Board and am responsible to the Forestry Commissioners for the management of the Agency. I have a right of direct access to the Forestry Commissioners and to the relevant Ministers, and a right to meet them at least once a year.

Forest Research Board

The Forest Research Board (FRB) was established to manage the day-to-day operations and performance of Forest Research, within the policy framework set by Ministers and the Forestry Commissioners. The Board meets regularly and met six times during 2021–22. The Board discussed a wide range of forest research and related issues, including:

- future science;
- implementing Forest Research’s new Strategy: *A Strategy for Growth*;
- communications;
- business planning;
- corporate Key Actions;
- health and safety;
- business development, including external income;
- new Science and Innovation Strategy;
- risk management and business continuity.

At each of the meetings during 2021–22 the Board routinely discussed reports from the Chief Executive, Chief Scientist and Finance Director. In addition, the Board received various presentations and papers from executive colleagues representing scientific research and corporate service issues.

The Forest Research Board conducted a Board Effectiveness review which was initially considered at the March 2022 Forest Research Board meeting. The further analysis and action points from this are ongoing as at 31 March 2022.

Further information about the FRB, including membership and attendance, is available on our website, www.forestresearch.gov.uk

Audit and Risk Assurance Committee

All Forestry Commission entities are covered by a single Audit and Risk Assurance Committee (ARAC) which advises the Board of Commissioners, the Forestry England, Forest Services and Forest Research Boards, and Accounting Officers for the Forestry Commission, Forestry England and Forest Research.

Forest Research has a risk register that is overseen by the ARAC. Through its work, the ARAC provides independent assurance to the FRB on those key activities that support the achievement of the Agency’s objectives. Assurance is also provided through the findings from work carried out by the Government Internal Audit Agency (GIAA). The ARAC operates in accordance with the principles contained in HM Treasury’s *Audit and Risk Assurance Committee Handbook*.

During the year the Committee discussed a wide range of issues, including:

- Covid-19 pandemic response and strategy;
- risk management;
- Annual Report and Accounts 2021–22;
- Internal and External Audit strategies and reports;
- information security;
- Governance Statement;
- the Committee’s structure and effectiveness.

The Forestry Commission ARAC met six times during 2021–22. Further information on the Forestry Commission ARAC, including membership and attendance, is available on <https://www.gov.uk/government/groups/forestry-commission-england-plus-audit-and-risk-assurance-committee-the-arac> .

Review of effectiveness

As Agency Accounting Officer, I have responsibility for conducting, at least annually, a review of the effectiveness of the governance framework. My review is informed by the work of Internal Audit and the executive managers across Forest Research and the Forestry Commission who have responsibility for the development and maintenance of the governance and control framework, and by comments made by the external auditors in their management letter and other reports.

The Head of Internal Audit has prepared an annual opinion and report to me as Agency Accounting Officer. The report includes an overall assessment of the adequacy and effectiveness of risk management, control and governance within Forest Research. The overall opinion is that internal control within Forest Research continues to provide moderate assurance. Some improvements are required to enhance the adequacy and effectiveness of the framework of governance, risk management and control.

As at 31 March 2022 there were no outstanding high priority internal audit recommendations. There does remain an ‘under action’ matter following an internal audit review regarding contract management/procurement support. While all reasonable endeavours have been taken by Forest Research to address this item, challenging market-conditions and the availability of suitably qualified candidates have hindered Forest Research being able to address this recommendation. Addressing this remain a priority for Forest Research in the year ahead.

There is continuing work to finalise the Key Actions for 2021-22, as detailed on pages 14 and 15, the majority of the 20 key actions were achieved within the year, with 3 actions seeing substantial progress and 2 noted as ongoing.

Forest Research applies the principles of HM Treasury's *Code of Good Practice* for corporate governance in the context of its own circumstances, where relevant and practical.

The Forestry Commission ARAC also reviews its effectiveness in line with the best practice set out in HM Treasury's *Audit and Risk Assurance Committee Handbook*.

Work to date has not identified any significant control weaknesses and has supported findings from financial control visits and the work of internal and external auditors.

Risk management

The FRB recognises that risk must be managed, but management of risk is not the same as risk aversion, i.e. an unwillingness to accept any risk. Resources available for managing risk are finite so the aim is to achieve an optimum response to the risk. Forest Research evaluates the amount of risk that it is prepared to accept before taking action (risk appetite), using a risk-scoring matrix of likelihood and impact for inherent and residual risk. This is subject to ongoing management review.

The Board ensures that the risk management policy is implemented and that it strategically reviews key risks. Each risk identified in the risk register has a corresponding Senior Risk Owner who is a Board-level officer with the authority to take effective action.

Forest Research has no investments, or exposure to any business risks, in Russia.

The Forestry Commission ARAC supports the Accounting Officer and the FRB in their responsibilities for the effective management of risk, control and governance (see section above).

Whistleblowing

Forest Research is committed to ensuring a high standard of conduct in all that it does and has a duty to identify and remedy any area of malpractice. A whistleblowing awareness campaign was carried out, in line with Defra's approach. We also have a dedicated Whistleblowing Officer.

The Whistleblowing policy and procedure has recently been refreshed ensuring it acts as a modern, accessible resource for those requiring it.

One case was carried forward to the investigation stage during 2021-22 which related to the previous financial year. Following this a range of recommendations have been made to the business that have included refreshing training across the organisation and improving our internal systems and processes. An action plan is underway to address the recommendations raised, which will be completed within 2022-23.

Ministerial direction

No ministerial directions affecting Forest Research were given during the year.

Significant governance and risk issues

Key governance and risk issues are as follows.

Covid-19

Forest Research continues to adapt to ensure that it is resilient throughout the Covid-19 pandemic and is appropriately placed in the post-Covid-19 world. The Agency's executive team continues to assess the near-term and longer-term challenges in order to achieve this resilience, working closely with stakeholders, including customers and our supply chain, to identify risks, threats and opportunities to our internal and external strategies. This approach has helped to shape our future priorities and operations to ensure we continue to provide our critical science, data and evidence. Our initial assessments undertaken at the start of the pandemic to understand the impact on income, expenditure, liquidity and the associated budgetary position have continued to be developed and monitored. This has resulted in management determining that the going-concern basis of accounting remains appropriate in the preparation of the financial statements.

Business continuity management

Forest Research has business continuity plans to ensure that there are procedures in place to facilitate the recovery of business activities. This has been enhanced by our new IT platform and infrastructure which ensured minimal disruption to services during the pandemic. While the disaster recovery and business continuity plans were tested in the final quarter of the previous financial year, confirming resilience and providing necessary assurance, further work will be undertaken to enhance the position throughout 2022-23.

Information risk management

Forest Research continues to make steady progress to identify and address information risks. Compared with government departments, we hold comparatively little sensitive information

and our information holdings are relatively small. We continue with regular online training, such as 'Responsible for Information' for all staff and 'Information Asset Owner training' for selected staff identified by the work they carry out. The requirements of the General Data Protection Regulation are embedded into the organisation's practices and we introduced a new Forest Research Information Asset Register (FRIAR) system in the previous financial year. The FRIAR system has continued to be reviewed and updated periodically during 2021–22. We continue to work with the Forestry Commission on policy and guidance as part of the newly established Security Risk Management Forum. A four-year project which was approved by the FC Executive Board in November 2020 to further help our understanding of the value of knowledge and information management in supporting our decision-making, and to identify and introduce necessary improvements including the use of the latest technologies.

Modelling and quality assurance

A sensible and proportionate approach to quality assurance has been adopted across Forest Research in terms of business-critical models, and the associated risks are being managed properly. Business-critical models include yield models and all connected elements of the production forecasting system, and carbon models. These are a suite of models that a) underpin timber production forecasting on the public and private sector forest estate, b) provide the data for UK forestry's contribution to Land Use, Land Use Change and Forestry (LULUCF) carbon figures, and c) aid long-term forest planning on the public forest estate.

Wider circumstances and future challenges

The main challenges for Forest Research during 2021–22 and beyond are:

- ensuring the Agency's continued resilience throughout the Covid-19 pandemic and in the post-Covid-19 world;
- continuing to improve our new corporate IT, HR and Finance capabilities while maintaining business continuity;
- continuing to implement the Forestry Commission wide Changing the Way We Work change programme across FR;
- maintaining Agency relevance to an increasingly devolved governmental client base and changing evidence-commissioning arrangements;
- responding to new and unforeseen tree-health disease outbreaks (for example, *Ips typographus*) or other issues;
- ensuring that the Westminster Government's and Devolved Administrations' woodland creation and management agenda is underpinned by relevant scientific research;
- delivering the interdisciplinary science programmes as per the new Science and Innovation Strategy;
- planning for and securing the Agency's non-core income requirements;

- enhancing our scientific capability and research offer through effective and strategic partnerships;
- growing our international profile, activities and business;
- increasing supplier costs as a result of rising economic pressures (i.e. inflation, supply chain), where possible FR have taken steps to mitigate these as much as possible;
- continuing to develop an appropriate response to the increasing threat of cyber security attacks;
- recruitment has proved to be more challenging in 2021-22, with a buoyant jobs market, as with many sectors and organisations across the country. This is anticipated to continue into 2022-23.

Remuneration and Staff Reports

Remuneration Report

Employment contracts

The Constitutional Reform and Governance Act 2010 requires Civil Service appointments to be made on merit on the basis of fair and open competition. The Recruitment Principles published by the Civil Service Commission specify the circumstances when appointments may be made otherwise. All senior staff covered in this report hold appointments that are open-ended until they decide to retire or leave. Professor James Pendlebury's notice period is 13 weeks, and for other senior staff it is three months. Early termination in situations of redundancy would result in the individual receiving compensation as set out in the Civil Service Compensation Scheme.

Further information about the work of the Civil Service Commissioners can be found at www.civilservicecommission.org.uk

Remuneration policy

Remuneration of Forest Research Board Members who hold senior staff group posts is determined by the Forestry Commission's Senior Pay Committee in accordance with guidelines prescribed by the Cabinet Office. Details of membership of the Pay Committee are provided in the Remuneration Report of the Forestry Commission's Annual Report and Accounts. Other Board Members' remuneration is determined by the standard processes set out in the Forestry Commission's pay and grading system.

Remuneration (salary, benefits in kind and pensions) – subject to audit

The following sections provide details of the remuneration and pension interests of the civil servants who are executive members of the Forest Research Board. The full composition of the Board of Forest Research is included on page 29.

		Salary	Benefits in kind (to the nearest £100)	Pension benefits	Total
		£000	£	£000	£000
James Pendlebury	2021-22	90-95	100	84	175-180
Chief Executive	2020-21	75-80	700	22	100-105
Chris Quine	2021-22	80-85	-	12	90-95
Chief Scientist	2020-21	75-80	-	26	100-105
Meirion Nelson	2021-22	40-45	900	17	60-65
Finance Director	2020-21	70-75	1,600	31	100-105

Meirion Nelson, Finance Director, left Forest Research in October 2021, above values represent 7 months of the full financial year, the full-year equivalent salary banding is 70-75.

Dr Matt Perkins, Chair of FR Board and a Non-Executive Director, remuneration is disclosed on page 45.

Dr Ian Gambles (Forestry Commission Chief Executive – left May 2021) and Richard Stanford (Forestry Commission Chief Executive – from August 2021) whose remuneration is disclosed in the Forestry Commission Annual Report and Accounts.

Nick Clinton is a temporary member of FR staff and board member, he is employed via Search recruitment on a six-month placement, his remuneration is an off-payroll engagement in the payroll banding £55,000 - £60,000 for the period November 2021 – March 2022. All other Board Members are Non-Executive Directors,

The value of pension benefits accrued during the year is calculated as (the real increase in pension multiplied by 20) plus (the real increase in any lump sum) less (the contributions made by the individual). The real increases exclude increases due to inflation or any increase or decrease due to a transfer of pension rights.

Under the terms of the FReM any performance pay or bonuses payable require to be reported separately from salaries, in bands of £5,000. In 2021-22, following a nomination a non pensionable bonus was awarded to the Chief Scientist, which was in the range between £nil to £5,000.

No bonuses were payable in 2020–21.

Salary

'Salary' includes gross salary, overtime and any allowances subject to UK taxation.

Benefits in kind

The monetary value of benefits in kind covers any benefits provided by the employer and treated by HM Revenue and Customs (HMRC) as taxable income. Benefits in kind are given in

the form of the private use of a car, house purchase loans or taxable travel and expenses incurred in the performance of duties.

Fair pay disclosure – subject to audit

Reporting bodies are required to disclose the relationship between the remuneration of the highest-paid director in their organisation and the median remuneration of the organisation's workforce.

The banded remuneration of the highest-paid director of Forest Research in the financial year 2021–22 was £90,000–£95,000 (2020–21: £75,000–£80,000). This was 3.44 times the 25th percentile of the remuneration of the workforce which was £26,920, 3.07 times (2020–21: 2.54) the median remuneration of the workforce, which was £30,167 (2020–21: £30,533) and 2.21 times the 75th percentile of the remuneration of the workforce which was £41,834. In 2021–22 no employees (2020–21: nil) received remuneration in excess of the highest-paid director. The remuneration of the lowest paid employees is £18,000 (2020–21: 19,000).

The percentage change in respect of the highest paid director between 2020–21 and 2021–22 is an increase of 17.4%, following an evaluation by Defra and regrading of the post from SCS1 to SCS2. The average salary decrease in respect of the employees of the entity taken as a whole of -0.19%.

Total remuneration includes salary and benefits in kind. It does not include severance payments, employer pension contributions and the Cash Equivalent Transfer Value (CETV) of pensions.

Pension benefits 2021–22 – subject to audit

Name	Accrued pension at pension age as at 31/3/22 and related lump sum (LS) £000	Real increase (decrease) in pension and related lump sum (LS) £000	CETV at 31 March 2022 £000	CETV at 31 March 2021* £000	Real increase (decrease) in CETV £000
James Pendlebury	20 - 25 plus lump sum of 70 - 75	2.5 -5 plus a lump sum of 10 - 12.5	579	482	85
Chris Quine	35 - 40 plus lump sum of 115 - 120	0-2.5 plus a lump sum of 0-2.5	915	889	12
Meirion Nelson	20 - 25 plus a lump sum of 40 - 45	0 - 2.5 plus a lump sum of 0 - 2.5	349	336	8

* The figure may be different from the closing balance in last year's accounts. This is due to the Cash Equivalent Transfer Value (CETV) factors being updated to comply with the Occupational Pension Scheme (Transfer Values) (Amendment) Regulations 2008.

Civil Service pensions

Pension benefits are provided through the Civil Service pension arrangements. From 1 April 2015 a new pension scheme for civil servants was introduced – the Civil Servants and Others Pension Scheme or alpha, which provides benefits on a career average basis with a normal pension age equal to the member's State Pension Age (or 65 if higher). From that date all newly appointed civil servants and the majority of those already in service joined alpha. Prior to that date, civil servants participated in the Principal Civil Service Pension Scheme (PCSPS). The PCSPS has four sections: 3 providing benefits on a final salary basis (classic, premium or classic plus) with a normal pension age of 60; and one providing benefits on a whole career basis (nuvos) with a normal pension age of 65.

These statutory arrangements are unfunded with the cost of benefits met by monies voted by Parliament each year. Pensions payable under classic, premium, classic plus, nuvos and alpha are increased annually in line with Pensions Increase legislation. Existing members of the PCSPS who were within 10 years of their normal pension age on 1 April 2012 remained in

the PCSPS after 1 April 2015. Those who were between 10 years and 13 years and 5 months from their normal pension age on 1 April 2012 switch into alpha sometime between 1 June 2015 and 1 February 2022. Because the Government plans to remove discrimination identified by the courts in the way that the 2015 pension reforms were introduced for some members, it is expected that, in due course, eligible members with relevant service between 1 April 2015 and 31 March 2022 may be entitled to different pension benefits in relation to that period (and this may affect the Cash Equivalent Transfer Values shown in this report – see below). All members who switch to alpha have their PCSPS benefits ‘banked’, with those with earlier benefits in one of the final salary sections of the PCSPS having those benefits based on their final salary when they leave alpha. (The pension figures quoted for officials show pension earned in PCSPS or alpha – as appropriate. Where the official has benefits in both the PCSPS and alpha the figure quoted is the combined value of their benefits in the two schemes.) Members joining from October 2002 may opt for either the appropriate defined benefit arrangement or a defined contribution (money purchase) pension with an employer contribution (partnership pension account).

Employee contributions are salary-related and range between 4.6% and 8.05% for members of classic, premium, classic plus, nuvos and alpha. Benefits in classic accrue at the rate of 1/80th of final pensionable earnings for each year of service. In addition, a lump sum equivalent to three years initial pension is payable on retirement. For premium, benefits accrue at the rate of 1/60th of final pensionable earnings for each year of service. Unlike classic, there is no automatic lump sum. classic plus is essentially a hybrid with benefits for service before 1 October 2002 calculated broadly as per classic and benefits for service from October 2002 worked out as in premium. In nuvos a member builds up a pension based on his pensionable earnings during their period of scheme membership. At the end of the scheme year (31 March) the member’s earned pension account is credited with 2.3% of their pensionable earnings in that scheme year and the accrued pension is uprated in line with Pensions Increase legislation. Benefits in alpha build up in a similar way to nuvos, except that the accrual rate is 2.32%. In all cases members may opt to give up (commute) pension for a lump sum up to the limits set by the Finance Act 2004.

The partnership pension account is an occupational defined contribution pension arrangement which is part of the Legal & General Mastertrust. The employer makes a basic contribution of between 8% and 14.75% (depending on the age of the member). The employee does not have to contribute, but where they do make contributions, the employer will match these up to a limit of 3% of pensionable salary (in addition to the employer’s basic contribution). Employers also contribute a further 0.5% of pensionable salary to cover the cost of centrally-provided risk benefit cover (death in service and ill health retirement).

The accrued pension quoted is the pension the member is entitled to receive when they reach pension age, or immediately on ceasing to be an active member of the scheme if they are already at or over pension age. Pension age is 60 for members of classic, premium and classic plus, 65 for members of nuvos, and the higher of 65 or State Pension Age for members of alpha. (The pension figures quoted for officials show pension earned in PCSPS or alpha – as appropriate. Where the official has benefits in both the PCSPS and alpha the figure quoted is the combined value of their benefits in the two schemes, but note that part of that pension may be payable from different ages.)

Further details about the Civil Service pension arrangements can be found at the website www.civilservicepensionscheme.org.uk

Cash Equivalent Transfer Values

A Cash Equivalent Transfer Value (CETV) is the actuarially assessed capitalised value of the pension scheme benefits accrued by a member at a particular point in time. The benefits valued are the member's accrued benefits and any contingent spouse's pension payable from the scheme. A CETV is a payment made by a pension scheme or arrangement to secure pension benefits in another pension scheme or arrangement when the member leaves a scheme and chooses to transfer the benefits accrued in their former scheme. The pension figures shown relate to the benefits that the individual has accrued as a consequence of their total membership of the pension scheme, not just their service in a senior capacity to which disclosure applies.

The figures include the value of any pension benefit in another scheme or arrangement which the member has transferred to the Civil Service pension arrangements. They also include any additional pension benefit accrued to the member as a result of their buying additional pension benefits at their own cost. CETVs are worked out in accordance with The Occupational Pension Schemes (Transfer Values) (Amendment) Regulations 2008 and do not take account of any actual or potential reduction to benefits resulting from Lifetime Allowance Tax which may be due when pension benefits are taken.

Real increase in CETV

This reflects the increase in CETV that is funded by the employer. It does not include the increase in accrued pension due to inflation, contributions paid by the employee (including the value of any benefits transferred from another pension scheme or arrangement) and uses common market valuation factors for the start and end of the period.

Remuneration of non-executives - subject to audit

The only non-exec of FR Board to receive remuneration during 2021-22 was the Chair of the FR Board (the Chair). Under the terms of the Government Financial Reporting Manual 21-22 (FReM) such remuneration requires to be disclosed in bands of £5,000. The remuneration received by the Chair during 2021-22 was in the range between £5,000 to £10,000.

Staff Report

Number of Senior Civil Servants by band

Band	Number of Senior Civil Servants
2	1
1	1

Average number of persons employed (full-time equivalents) – subject to audit

	2021–22	2020–21
Permanent staff – male (2 Board Members)	134	130
Permanent staff – female	100	95
Total permanent	234	225
Others – male (1 Board Member)	23	12
Others – female	20	13
Total others	43	25
Total staff	277	250

Staff costs – subject to audit

	Permanent staff	Other staff	2021–22 Total	2020–21 Total
	£000	£000	£000	£000
Wages and salaries	8,470	1,182	9,652	9,047
Seconded Staff	–	20	20	–
Social security costs	881	103	984	948
Employer’s superannuation costs	2,266	297	2,563	2,329
Apprenticeship levy	46	–	46	41
Agency staff costs	–	587	587	175
Total	11,663	2,189	13,852	12,540

The Principal Civil Service Pension Scheme (PCSPS) is an unfunded multi-employer defined benefit pension scheme, but the Forestry Commission is unable to identify its share of the underlying assets and liabilities. The scheme actuary valued the scheme as at 31 March 2016. Details can be found in the resource accounts of the Cabinet Office: Civil Superannuation (www.civilservicepensionscheme.org.uk).

For 2021–22, employer contributions of £2,550,000 were payable to the PCSPS (2020–19: £2,312,000) at one of four rates in the range 26.6% to 30.3% of pensionable pay, based on salary bands. The scheme actuary reviews employer contributions every four years following a full scheme valuation. The contribution rates reflect benefits accruing during 2021–22 to be paid to the member when they retire and not the benefits paid during this period to existing pensioners.

Employees can opt to open a partnership pension account, a stakeholder pension with an employer contribution. Employer contributions of £12,414 (2020–21: £15,099) were paid to one or more of a panel of three appointed stakeholder pension providers. Employer contributions are age-related and range from 8% to 14.75%. Employers also match employee contributions up to 3% of pensionable pay. In addition, employer contributions of £402, 0.5% of pensionable pay (2020–21: £582, 0.5%), were payable to the PCSPS to cover the cost of the future provision of lump sum benefits on death in service or ill-health retirement of these employees.

Contributions due to the partnership pension providers at the Statement of Financial Position date were £nil (2020–21: £nil). Contributions prepaid at that date were £nil.

Sickness absence

The Forestry Commission has one common sickness absence management policy that covers Forest Research and provides a consistent framework approach to management. The policy is underpinned by an externally provided occupational health service and employee support programme that is available 24 hours a day. The average number of working days lost to sickness absence in Forest Research in 2021–22 was 6 per employee (2020–21: 2.8).

Staff turnover

During the year, Forest Research had 18 leavers relevant to the staff turnover calculations with a closing staff turnover ratio of 16.23%.

Early departure costs – subject to audit

During 2021–22, no one left under Compulsory or Voluntary Redundancy terms (2020–21: two). They received a total compensation payment of £nil (2020–21: £14,605).

Expenditure on consultancy

During the year, Forest Research incurred £nil on consultancy services (2020–21: £nil).

Off-payroll engagements

Defra is required to disclose information in its Annual Report and Accounts relating to the review of tax arrangements for public sector employees. Please see tables reported below for consistency with Defra’s annual report and accounts.

Table 1: For all off payroll worker engagements as at 31 March 2022, earning £245 per day or greater.

Number of existing engagements as of 31 March 2022	5
Of which...	
Number that have existed for <u>less than one</u> year at time of reporting	4
Number that have existed for between <u>one and two</u> years at time of reporting	1
Number that have existed for between <u>two and three</u> years at time of reporting	Nil
Number that have existed for between <u>three and four</u> years at time of reporting	Nil
Number that have existed for <u>four or more</u> years at time of reporting	Nil

Table 2: For all new off payroll engagements between 1 April 2021 and 31 March 2022, for more than £245 per day.

Number of off-payroll workers engaged during the year ended 31 March 2022	6
Of which...	
Not subject to off-payroll legislation	6
Subject to off-payroll legislation and determined as in-scope of IR35	Nil
Subject to off-payroll legislation and determined as out-of-scope of IR35	Nil
Number of engagements reassessed for compliance or assurance purposes during the year	Nil
Of which: number of engagements that saw a change to IR35 status following review	Nil

Table 3: For any off payroll engagements of board members, and/or senior officials with significant financial responsibility between 1 April 2021 and 31 March 2022.

Number of off-payroll engagements of board members, and/or, senior officials with significant financial responsibility, during the financial year.	1
Total number of individuals <u>on payroll and off payroll</u> that have been deemed “board members, and/or senior officials with significant financial responsibility”, during the financial year. This figure should include both on-payroll and off-payroll engagements	4

People

In 2021 the Forestry Commission published the FC People strategy 2021 to 2025 outlining the strategic themes and the year 2021 deliverables for each theme. Strategic Themes:

- **Inspiring leadership – what makes us great**
 We will create a collaborative culture of compassion, ambition and trust. Our people will speak up, get involved and challenge the status quo so that both organisation and people thrive. Leaders at all levels will lead with our values and use them to develop and inspire others.
- **Wellbeing and engagement – people really matter**
 We will work tirelessly in supporting our people to be happy and safe. We will create conditions whereby people may balance their home and working lives and we will offer help when inevitable life challenges occur. In return, our people will give their best in pursuit of the Forestry Commission’s priorities.
- **Diversity and inclusion – if not now, when?**
 We will listen attentively to the stories we are told. We will challenge and change in order to improve. Our goal is to create an organisation with diversity of thought, one where everyone belongs and feel comfortable being themselves.
- **Resourcing and developing – discovering what is possible**
 We will attract, deploy and retain the finest, by offering inspiring development and job opportunities to learn and progress which will foster learning and progression, supporting the strategic ambitions of our organisation.
- **Changing the way we work – future thinking now**

We will collaborate with our people to design interesting work content that is meaningful and adds value to the organisation. We will develop the way in which we work, where we work and our patterns of working over the longer-term taking lessons from the pandemic and applying them to contemporary work patterns and culture.

- **Reward and recognition**

We will strive to offer competitive, fair and transparent reward and recognition, using initiatives like 'Your Offer'. People will be valued for their contributions and all will understand their total reward package.

Year one deliverables were agreed by the Forestry Commission Executive Board, progress is detailed in the table below.

Theme	Deliverable	Status
Inspiring leadership	Deliver the new Forestry Commission wide Professional Manager Programme equipping our managers to be confident leaders who know themselves and who can support others	Achieved
	Deliver new workforce policies and protocols making it easier for managers to support their people.	On target to be achieved
	Improve the current performance development review cycle, replacing it with a continuous improvement model – Recommend improvements to the current performance review system to Executive Board for implementation in 2022/23.	Date extended for reward policies
Wellbeing and Engagement	Deliver the Forestry Commission staff engagement survey with action planning process reported to the Executive Board	Achieved
	Increase by 10% those attending the 1-day Mental Health Awareness workshop across the Forestry Commission	Achieved
	Implement regular targeted Forest Research pulse surveys, tracked progress against staff engagement action plans.	Achieved
Diversity and Inclusion	Learning - improving our equality, diversity and inclusion capability and confidence. Roll out Equally Yours to 40% of FC teams	Achieved
	Establish a disability and carers network across the Forestry Commission	Achieved

Resourcing and Developing	Reposition Staff Learning and Career Development Offer	Achieved and ongoing
	Introduce a coaching hub from Civil Service Government Campus.	Achieved and ongoing
	Embed Forest Research Apprentice delivery plan	Achieved and ongoing
	Forest Research Reshaping Programme, developed as part ongoing workforce planning activity agreed and implemented	On target to be achieved
Changing the Way We Work	Offer a blended working approach to eligible staff through the Changing the Way We Work project - The Forestry Commission / Forest Research achieved a 'mature organisation' rating and will use this accreditation in recruitment campaigns.	Achieved
Reward and Recognition	Review and implement actions from the FR science promotions lessons learned exercise	On target to be achieved November 22.
	Progress the ambitions of the 'Your Offer' programme -if supported by Defra submit a business case in Spring 22	On target to be achieved

Equality and diversity

We continue to strive towards building a diverse and inclusive environment for all our staff. There are a number of workstreams FR have implemented under the Diversity and Inclusion theme of the Forestry Commission People strategy such as the Rainbow canopy network, Ethnicity and religion group and Women in Forestry network.

Employee relations

We continue to have a strong relationship with the Forestry Commission trade unions (FCTU) and encourage employee consultation and communication with the FCTU and FRTU representatives and through the Forest Research Staff Council. Key issues discussed include the Covid-19 pandemic, Your Offer project (formerly Offer 2020), pay and reward, workforce policies, organisational design, resourcing and health, safety, and wellbeing issues.

Workforce Planning – Recruitment, succession planning and job evaluation

Forest Research has grown significantly in the last year, and we have recruited a number of staff across the corporate, scientific and data science disciplines. The buoyant recruitment market has presented some challenges when recruiting some specialist roles.

Full details of our People Strategy, Equality and Diversity Strategy and Objectives are available on the Forestry Commission's website.

Parliamentary Accountability Disclosures

Financial review

From April 2019, Forest Research is part funded through a Cross-Border Memorandum of Understanding between Forest Research and the UK, Welsh and Scottish governments to provide core research and other services. This new arrangement supports the Ministerially-endorsed Science and Innovation Strategy for Forestry in Great Britain and forestry policies of the UK, Scottish, Welsh and Northern Irish governments.

In addition, Forestry Commission England, Forestry Commission Scotland and Natural Resources Wales purchase research, development and surveys specifically related to their respective forest estates. Forest Research has also been increasingly successful in securing funding from other government departments, the European Commission, UK research councils, commercial organisations, private individuals and charities. Collaborative bids with other research providers and consortium funding have become increasingly important, placing emphasis on effective partnership working. Notable amongst these was our involvement in three successful consortia awarded project funding in the UKRI and Natural Environment Research Council (NERC) Future of UK Treescapes programme (projects Branching Out, Connected Treescapes and NewLEAF), and a successful bid for a Biotechnology and Biological Sciences Research Council (BBSRC) Greenhouse Gas Reduction Demonstrator project (NetZeroPlus: Sustainable Treescapes Demonstrator & Decision Tools).

Regularity of expenditure – subject to audit

There were four losses during 2021-22 with a total cost of £25,000 (2020-21: five with total cost of £567,000).

The losses in 2021-22 were a result of exchange rate movements, a write down of obsolete stock, a road traffic accident together with a small amount of late payment charges.

The level of losses were significantly lower than 2020-21 (of c£567k), the majority of the prior year losses were related to an EU contract on which FR sought prior approval from Defra. The losses for 2021-22 are broadly in-line with that of 2019-20.

No special payments were made during the year (2020-21: £nil).

Fees and charges

Forest Research's primary financial objective is to recover full economic costs of operations from the sale of services to customers. It has complied with the principles of cost allocation and charging requirements in HM Treasury and Office of Public Sector Information guidance.

Remote contingent liabilities

In addition to contingent liabilities reported within the meaning of IAS 37, Forest Research also reports liabilities for which the likelihood of a transfer of economic benefit in settlement is too remote to meet the definition of contingent liability. There are currently no remote contingent liabilities.

Long-term expenditure trends

	2021-22#	2020-21*	2019-20	2018-19~	2017-18
	£000	£000	£000	£000	£000
Staff costs	13,852	12,540	11,641	10,772	10,248
Other management costs	7,363	5,501	5,721	5,088	3,608
Materials and services	3,132	2,890	2,094	3,584	3,811
Total expenditure	24,347	20,931	19,456	19,444	17,667

2021-22 Other management costs excludes the impairment adjustment of the Holt Laboratory and NRS, increasing the costs by £1,604k and £730k respectively.

* The increase in expenditure in 2020-21 primarily relates to the additional funding secured under the NCF and the Natural Capital Ecosystems Assessment Pilot work. Additional staff were required to deliver these programmes, increasing overall staff costs alongside an annual Civil Service pay award.

~ The increase in expenditure in 2018-19 mainly reflects the costs attributed to the Corporate Services Transition Programme.



Professor James Pendlebury
Chief Executive and Accounting Officer

27 June 2022

THE CERTIFICATE AND REPORT OF THE COMPTROLLER AND AUDITOR GENERAL TO THE HOUSE OF COMMONS

Opinion on financial statements

I certify that I have audited the financial statements of Forest Research for the year ended 31 March 2022 under the Government Resources and Accounts Act 2000.

The financial statements comprise: Forest Research's

- Statement of Financial Position as at 31 March 2022;
- Statement of Comprehensive Net Expenditure, Statement of Cash Flows and Statement of Changes in Taxpayers' Equity for the year then ended; and
- the related notes including the significant accounting policies.

The financial reporting framework that has been applied in the preparation of the financial statements is applicable law and UK adopted international accounting standards.

In my opinion, the financial statements:

- give a true and fair view of the state of Forest Research's affairs as at 31 March 2022 and its net operating expenditure for the year then ended; and
- have been properly prepared in accordance with the Government Resources and Accounts Act 2000 and HM Treasury directions issued thereunder.

Opinion on regularity

In my opinion, in all material respects, the income and expenditure recorded in the financial statements have been applied to the purposes intended by Parliament and the financial transactions recorded in the financial statements conform to the authorities which govern them.

Basis for opinions

I conducted my audit in accordance with International Standards on Auditing (UK) (ISAs UK), applicable law and Practice Note 10 *Audit of Financial Statements of Public Sector Entities in the United Kingdom*. My responsibilities under those standards are further described in the *Auditor's responsibilities for the audit of the financial statements* section of my certificate.

Those standards require me and my staff to comply with the Financial Reporting Council's *Revised Ethical Standard 2019*. I have also elected to apply the ethical standards relevant to listed entities. I am independent of Forest Research in accordance with the ethical requirements that are relevant to my audit of the financial statements in the UK. My staff and I have fulfilled our other ethical responsibilities in accordance with these requirements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Conclusions relating to going concern

In auditing the financial statements, I have concluded that Forest Research's use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work I have performed, I have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on Forest Research's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

My responsibilities and the responsibilities of the Accounting Officer with respect to going concern are described in the relevant sections of this certificate.

The going concern basis of accounting for Forest Research is adopted in consideration of the requirements set out in HM Treasury's Government Financial Reporting Manual, which require entities to adopt the going concern basis of accounting in the preparation of the financial statements where it anticipated that the services which they provide will continue into the future.

Other Information

The other information comprises information included in the Annual Report, but does not include the financial statements nor my auditor's certificate and report. The Accounting Officer is responsible for the other information.

My opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in my certificate, I do not express any form of assurance conclusion thereon.

In connection with my audit of the financial statements, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or my knowledge obtained in the audit or otherwise appears to be materially misstated.

If I identify such material inconsistencies or apparent material misstatements, I am required to determine whether this gives rise to a material misstatement in the financial statements themselves. If, based on the work I have performed, I conclude that there is a material misstatement of this other information, I am required to report that fact.

I have nothing to report in this regard.

Opinion on other matters

In my opinion the part of the Remuneration and Staff Report to be audited has been properly prepared in accordance with HM Treasury directions made under the Government Resources and Accounts Act 2000: .

In my opinion, based on the work undertaken in the course of the audit:

- the parts of the Accountability Report subject to audit have been properly prepared in accordance with HM Treasury directions made under the Government Resources and Accounts Act 2000;
- the information given in the Performance and Accountability Reports for the financial year for which the financial statements are prepared is consistent with the financial statements and is in accordance with the applicable legal requirements.

Matters on which I report by exception

In the light of the knowledge and understanding of Forest Research and its environment obtained in the course of the audit, I have not identified material misstatements in the Performance and Accountability Report .

I have nothing to report in respect of the following matters which I report to you if, in my opinion:

- I have not received all of the information and explanations I require for my audit; or
- adequate accounting records have not been kept by Forest Research or returns adequate for my audit have not been received from branches not visited by my staff; or
- the financial statements and the parts of the Accountability Report subject to audit are not in agreement with the accounting records and returns; or

- certain disclosures of remuneration specified by HM Treasury’s Government Financial Reporting Manual have not been made or parts of the Remuneration and Staff Report to be audited is not in agreement with the accounting records and returns; or
- the Governance Statement does not reflect compliance with HM Treasury’s guidance.

Responsibilities of the Accounting Officer for the financial statements

As explained more fully in the Statement of Accounting Officer’s Responsibilities , the Chief Executive as Accounting Officer is responsible for:

- maintaining proper accounting records;
- the preparation of the financial statements and Annual Report in accordance with the applicable financial reporting framework and for being satisfied that they give a true and fair view;
- ensuring that the Annual Report and accounts as a whole is fair, balanced and understandable;
- internal controls as the Chief Executive as Accounting Officer determines is necessary to enable the preparation of financial statement to be free from material misstatement, whether due to fraud or error; and
- assessing Forest Research’s ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Chief Executive as Accounting Officer anticipates that the services provided by Forest Research will not continue to be provided in the future.

Auditor’s responsibilities for the audit of the financial statements

My responsibility is to audit, certify and report on the financial statements in accordance with the Government Resources and Accounts Act 2000.

My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue a certificate that includes my opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Extent to which the audit was considered capable of detecting non-compliance with laws and regulations including fraud

I design procedures in line with my responsibilities, outlined above, to detect material misstatements in respect of non-compliance with laws and regulations, including fraud. The extent to which my procedures are capable of detecting non-compliance with laws and regulations, including fraud is detailed below.

Identifying and assessing potential risks related to non-compliance with laws and regulations, including fraud

In identifying and assessing risks of material misstatement in respect of non-compliance with laws and regulations, including fraud, we considered the following:

- the nature of the sector, control environment and operational performance including the design of Forest Research’s accounting policies, key performance indicators and performance incentives .
- Inquiring of management, Forest Research’s head of internal audit and those charged with governance, including obtaining and reviewing supporting documentation relating to Forest Research’s policies and procedures relating to:

- identifying, evaluating and complying with laws and regulations and whether they were aware of any instances of non-compliance;
 - detecting and responding to the risks of fraud and whether they have knowledge of any actual, suspected or alleged fraud; and
 - the internal controls established to mitigate risks related to fraud or non-compliance with laws and regulations including Forest Research's controls relating to Forest Research's compliance with the Government Resources and Accounts Act 2000 and Managing Public Money;
- discussing among the engagement team and involving relevant internal specialists, including PPE valuations, regarding how and where fraud might occur in the financial statements and any potential indicators of fraud.

As a result of these procedures, I considered the opportunities and incentives that may exist within Forest Research for fraud and identified the greatest potential for fraud in the following areas: revenue recognition, posting of unusual journals, complex transactions and bias in management estimates. In common with all audits under ISAs (UK), I am also required to perform specific procedures to respond to the risk of management override of controls.

I also obtained an understanding of Forest Research framework of authority as well as other legal and regulatory frameworks in which Forest Research operates, focusing on those laws and regulations that had a direct effect on material amounts and disclosures in the financial statements or that had a fundamental effect on the operations of Forest Research. The key laws and regulations I considered in this context included Government Resources and Accounts Act 2000, Managing Public Money, employment law and pensions and tax legislation.

Audit response to identified risk

As a result of performing the above, the procedures I implemented to respond to identified risks included the following:

- reviewing the financial statement disclosures and testing to supporting documentation to assess compliance with provisions of relevant laws and regulations described above as having direct effect on the financial statements;
- enquiring of management, the Audit and Risk Committee and in-house legal counsel concerning actual and potential litigation and claims;
- reading and reviewing minutes of meetings of those charged with governance and the Board and internal audit reports;
- in addressing the risk of fraud through management override of controls, testing the appropriateness of journal entries and other adjustments; assessing whether the judgements made in making accounting estimates are indicative of a potential bias; and evaluating the business rationale of any significant transactions that are unusual or outside the normal course of business

I also communicated relevant identified laws and regulations and potential fraud risks to all engagement team members including internal specialists and remained alert to any indications of fraud or non-compliance with laws and regulations throughout the audit.

A further description of my responsibilities for the audit of the financial statements is located on the Financial Reporting Council's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of my certificate.

Other auditor's responsibilities

I am required to obtain evidence sufficient to give reasonable assurance that the income and expenditure reported in the financial statements have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Report

I have no observations to make on these financial statements.

Gareth Davies

**Gareth Davies
Comptroller and Auditor General
National Audit Office
157-197 Buckingham Palace Road
Victoria
London
SW1W 9SP**

1 July 2022

Financial Statements

Statement of Comprehensive Net Expenditure for the year ended 31 March 2022

	Notes	2021-22 £000	2020-21 £000
Income			
Core Income	6.1	(14,766)	(13,412)
Non-core income	6.2	(10,320)	(7,988)
Total operating income		(25,086)	(21,400)
Expenditure			
Staff costs	3	13,852	12,540
Other management costs	4	7,363	5,501
Materials and services	5	3,132	2,890
Impairment charges	4.1	2,334	-
Total operating expenditure		26,681	20,931
Net operating expenditure/(income)		1,595	(469)
Other comprehensive net expenditure/(income)			
Net loss/(gain) on revaluation of property, plant and equipment	4 & 7	(587)	100
Total comprehensive net expenditure/(income) for the year		1,008	(369)

All income and expenditure are derived from continuing operations.

The notes on pages 63 to 84 form part of these accounts.

Statement of Financial Position as at 31 March 2022

		31 March 2022	31 March 2021
	Notes	£000	£000
Non-current assets			
Property, plant and equipment	7	22,516	19,936
Intangible assets		28	37
Assets classified as held for sales-	8	75	75
Trade and other receivables	9	34	18
Total non-current assets		22,653	20,066
Current assets			
Inventories		32	57
Trade and other receivables	9	5,960	2,143
Cash and cash equivalents	10	3,608	4,536
Total current assets		9,600	6,736
Total assets		32,253	26,802
Current liabilities			
Provisions		(8)	(10)
Trade and other payables	11	(3,552)	(3,552)
Total current liabilities		(3,560)	(3,562)
Total assets less current liabilities		28,693	23,240
Non-current liabilities			
Trade and other payables	11	-	-
Total assets less total liabilities		28,693	23,240
Taxpayers' equity			
General Fund		20,851	15,925
Revaluation Reserve		7,842	7,315
Total equity		28,693	23,240

Professor James Pendlebury
Chief Executive and Accounting Officer

27 June 2022

The notes on pages 63 to 84 form part of these accounts.

Statement of Cash Flows for the year ended 31 March 2022

		2021-22	2020-21
	Notes	£000	£000
Net cash inflow from operating activities			
Net operating (cost)/Income		(1,595)	469
Adjustments for non-cash transactions			
Depreciation	4	1,336	917
Amortisation	4	10	-
Loss on disposal of property, plant and equipment	4	157	12
Property, plant and equipment write-off		2,439	-
Notional audit fee	4	42	41
Movement in provisions		-	18
Decrease in inventories		24	54
Decrease/(Increase) in trade and other receivables	9	(3,833)	2,823
(Decrease)/Increase in trade and other payables	11	-	1,019
Movements in receivables to items not passing through the SCI		-	-
Use of provisions		(2)	(8)
Net cash (outflow)/inflow from operating activities		(1,422)	5,345
Cash flows from investing activities			
Purchase of property, plant and equipment	7	(5,925)	(7,593)
Purchase of intangible assets		-	(38)
Net cash (outflow) from investing activities		(5,925)	(7,631)
Cash flows from financing activities			
Net cash funding from the Forestry Commission		6,419	4,928
Net financing		6,419	4,928
Net (decrease)/increase in cash and cash equivalents in the period		(928)	2,642
Cash and cash equivalents at the beginning of the period		4,536	1,894
Cash and cash equivalents at the end of the period		3,608	4,536

The notes on pages 63 to 84 form part of these accounts.

Statement of Changes in Taxpayers' Equity for the year ended 31 March 2022

	Notes	General Fund £000	Revaluation Reserve £000	Total Reserves £000
Balance at 1 April 2021		15,925	7,315	23,240
Changes in taxpayers' equity for 2021–22				
Net gain on revaluation of property, plant and equipment	7	–	587	587
Net gain on foreign currency receivable		–	–	–
Transfer from Revaluation Reserve		60	(60)	–
Notional audit fee	4	42	–	42
Comprehensive net expenditure		(1,595)	–	(1,595)
Funding received from the Forestry Commission		6,419	–	6,419
Balance at 31 March 2022		20,851	7,842	28,693
Balance at 1 April 2020				
		10,340	7,562	17,902
Changes in taxpayers' equity for 2020–21				
Net gain on revaluation of property, plant and equipment		–	(100)	(100)
Net gain on foreign currency receivable		–	–	–
Transfer from Revaluation Reserve		147	(147)	–
Notional audit fee		41	–	41
Comprehensive net income		469	–	469
Funding received from the Forestry Commission		4,928	–	4,928
Balance at 31 March 2021		15,925	7,315	23,240

The notes on pages 63 to 84 form part of these accounts.

Notes to the Accounts

Note 1. Statement of accounting policies

The Covid-19 pandemic has provided Forest Research with many challenges, although going concern of the entity is not at risk in Management's view, which is presented on the assumption that Forest Research will continue to provide existing services in the future. This position is underpinned by the Westminster, Scottish and Welsh Governments with Ministerial endorsement of a five year Science and Innovation Strategy for forestry in Great Britain, covering the period 1 April 2021 to 31 March 2026. This important milestone for Forest Research underpins the financial commitment in the Ministerially endorsed cross border Memorandum of Understanding, amounting annually to c£9m.

The strength of the Agency's Statement of Financial Position as at 31 March 2022, with Taxpayers' equity of £28.7m, coupled with ongoing external research contract and a robust future Business Development pipeline, provides a compelling platform for future delivery of scientific research and data services to stakeholders. The annual budget for 2022-23 was approved at the March 2022 Forest Research Board meeting and will be monitored and reviewed during the 2022-23 financial year to ensure the organisation continues to successfully operate. For the twelve months from the date of Comptroller and Auditor General (C&AG) signing of the 2021-22 accounts, all expected expenditure items are covered through expected income. This position is supported by the preparation of a reasonably plausible downside cashflow forecast which indicates a positive cash balance through the going concern assessment period. This assessment is intended to relate to the twelve months from the date of C&AG signing of this Annual Report and Accounts (ARA). Based on the above information it has therefore been considered appropriate to adopt a going concern basis for the preparation of these financial statements.

These accounts are prepared in accordance with a direction given by HM Treasury in pursuance of Section 7 of the Government Resources and Accounts Act 2000.

These financial statements have been prepared on a going-concern basis and in accordance with International Financial Reporting Standards (IFRS) as adapted and interpreted by the 2021-22 FReM issued by HM Treasury. Where the FReM permits a choice of accounting policy, the accounting policy which is judged to be most appropriate to the particular circumstances of Forest Research for the purpose of giving a true and fair view has been selected. The particular policies selected by Forest Research are described below. They have been applied consistently in dealing with items considered material in relation to the accounts.

The preparation of financial statements in conformity with IFRS requires the use of certain critical accounting estimates. It also requires management to exercise its judgement in the process of applying the accounting policies. There are no estimates, assumptions and judgements that are deemed to have a significant risk of causing a material adjustment to the carrying amounts of Forest Research's assets and liabilities.

1.1 Accounting convention

These accounts have been prepared under the historical cost convention modified to account for the revaluation of property, plant and equipment, and available-for-sale financial assets.

1.2 Value Added Tax (VAT)

Forest Research is covered under the Forestry Commission's registration for VAT. In order to comply with the government accounting regulations and normal commercial practice, income and expenditure shown in the Statement of Comprehensive Income is net of VAT.

Irrecoverable VAT is charged to the Statement of Comprehensive Income in the year in which it is incurred.

1.3 Revenue recognition

Income comprises the fair value of the consideration received or receivable from forestry and related activities. Revenue is shown net of VAT, returns, rebates and discounts.

Income is accounted for in accordance with the five-stage model set out in IFRS 15, Revenue from Contracts with Customers, and is recognised when performance obligations are satisfied.

1.4 Foreign currency translation

Functional and presentation currency

Items included in the financial statements are measured using the currency of the primary economic environment in which Forest Research operates ('the functional currency'). The functional currency and the presentation currency of the financial statements is pounds sterling.

Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and

from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the Statement of Comprehensive Income.

1.5 Employee benefits

Pensions

Past and present employees are covered by the provisions of the Principal Civil Service Pension Scheme (PCSPS). PCSPS is an unfunded, defined benefit, contributory, public service occupational pension scheme. Forest Research accounts for the PCSPS as a defined contribution plan and recognises the expected cost of these elements on a systematic and rational basis over the period during which it benefits from an employee's services by payment to the PCSPS of amounts calculated on an accruing basis. Liability for payment of future benefits is a charge on the PCSPS. In respect of the defined contribution schemes, Forest Research recognises the contributions payable for the year. Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in the future payments is available.

Short-term employee benefits

Liabilities and expenses are recognised for holiday entitlements earned to 31 March but not yet taken.

1.6 Property, plant and equipment

Where Forest Research is the principal beneficial user of assets of the Forestry Commission estate, they are treated as a non-current asset of Forest Research although legal ownership is vested in the Forestry Ministers.

The normal threshold for the capitalisation of assets is £2,000.

Dwellings and other buildings

Dwellings and other buildings are shown at fair value less accumulated depreciation.

Professionally qualified staff employed by the Forestry Commission undertake a full revaluation of dwellings and other buildings at five-yearly intervals coinciding with that for the non-forest land. They follow the principles set out in the RICS Red Book and value on the basis of Open Market Value, Existing Use Value, Depreciated Replacement Cost or Discounted Cash Flow, as appropriate under the RICS Standards for determining fair value. Suitably

qualified external valuers review the work of internal professional valuers. A full valuation took place on 31 March 2018 and Savills, Chartered Surveyors, reviewed this.

In the intervening years between professional revaluations, property is revalued annually as at 31 March using indices provided by Savills and the Valuation Office Agency as required. Forest Research also undertake professional valuations at the discretion of management where it is considered appropriate to arrive at a materially accurate valuation; this will typically take place where a material new constructed asset or extension is brought into use.

Subsequent expenditure

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to Forest Research and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognised. All other repairs and maintenance are charged to the Statement of Comprehensive Income during the financial period in which they are incurred.

Plant and machinery

Forestry vehicles, machinery and equipment are shown at fair value less accumulated depreciation. Plant and machinery values are restated to current value each year using indices provided by the Office for National Statistics.

Assets under construction

Assets under construction are carried at the costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Assets under construction are transferred to the appropriate property, plant and equipment category when completed and ready for use.

Revaluation Reserve

Increases in the carrying amount arising on revaluation of property, plant, equipment and intangible assets are credited to the Revaluation Reserve in taxpayers' equity. Decreases that offset previous increases of the same asset are charged against the Revaluation Reserve directly; all other decreases are charged to the Statement of Comprehensive Income. Each year the difference between depreciation based on the revalued carrying amount of the asset charged to the Statement of Comprehensive Income and depreciation based on the asset's original cost is transferred from the Revaluation Reserve to the General Fund.

1.7 Depreciation

Depreciation is provided on all tangible non-current assets (except land) at rates calculated to write off the valuation, less estimated residual values, of each asset evenly over its expected useful life. Asset lives are as follows:

- freehold buildings: up to 60 years;
- scientific equipment: over 5 to 20 years;
- other machinery and equipment: over 5 to 20 years.

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at each reporting date. An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount. Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognised within the Statement of Comprehensive Income. When revalued assets are sold, the amounts included in the Revaluation Reserve are transferred to the General Fund.

1.8 Intangible assets

Intangible assets are valued initially at cost and subsequently at fair value using the revaluation model.

Where an active market does not exist, income-generating assets are valued at the lower of depreciated replacement cost and value in use. Non-income-generating assets are carried at depreciated replacement cost. These valuation methods are considered to be a proxy for fair value.

Computer software

Acquired computer software licences are initially capitalised on the basis of the costs incurred to acquire and bring to use the specific software and subsequently revalued to depreciated replacement cost. Acquired computer software licences are amortised over the life of their licence.

1.9 Impairment of non-financial assets

Assets subject to depreciation and amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. Where an asset is not held for the purpose of

generating cash flows, value in use is assumed to equal the cost of replacing the service potential provided by the asset, unless there has been a reduction in service potential. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating units). Non-financial assets that suffer impairment are reviewed for possible reversal of the impairment at each reporting date.

1.10 Financial assets

Classification

Forest Research classifies its financial assets in the following categories: Amortised Costs or Fair Value through Other Comprehensive Income (FVOCI). The classification depends on the business model for which the financial assets were acquired. Management determines the classification of its financial assets at initial recognition.

Recognition and measurement

Financial assets are recognised when Forest Research becomes party to the contractual provisions of the financial instrument and derecognised when the rights to receive cash flows from the asset have expired or have been transferred and Forest Research has transferred substantially all risks and rewards of ownership.

(a) Financial assets held to collect contractual cash flow only are measured at Amortised Costs, initially recognised at fair value. Any subsequent gains or losses arising from changes in the fair value are presented in the Statement of Comprehensive Income. Where necessary, receivables have been impaired in accordance with the IFRS 9 lifetime expected credit losses model.

(b) Financial assets held to collect contractual cash flow and to sell are measured at Fair Value through Other Comprehensive Income.

1.11 Financial liabilities

Classification

Forest Research classifies its financial liabilities in the following categories: at fair value through profit or loss, and other financial liabilities. The classification depends on the purpose for which the financial liabilities were issued. Management determines the classification of its financial liabilities at initial recognition.

Recognition and measurement

Financial liabilities are recognised when Forest Research becomes party to the contractual provisions of the financial instrument. A financial liability is removed from the Statement of Financial Position when the obligation is discharged, cancelled or expired.

(a) Financial liabilities at fair value through profit or loss

Financial liabilities carried at fair value through profit or loss are initially recognised at fair value. Any subsequent changes in the fair value are presented in the Statement of Comprehensive Income.

(b) Other financial liabilities

Other financial liabilities are initially recognised at fair value and subsequently measured at amortised cost using the effective interest method.

1.12 Cash and cash equivalents

Cash and cash equivalents includes cash in hand, deposits held at call with banks, cash balances held by the Government Banking Service and other short-term highly liquid investments with original maturities of three months or less, and bank overdrafts. Bank overdrafts are shown within borrowings in current liabilities on the Statement of Financial Position.

1.13 Provisions

Forest Research provides for present legal and constructive obligations which are of uncertain timing or amount at the reporting date on the basis of the best estimate of the expenditure required to settle the obligation. Where the effect of the time value of money is significant, the estimated risk-adjusted cash flows are discounted using the real rate set by HM Treasury. The increase in the provision due to passage of time is recognised in the Statement of Comprehensive Income.

1.14 Contingent liabilities

Where the time value of money is material, contingent liabilities which are required to be disclosed under IAS 37 are stated at discounted amounts.

1.15 Effective in these financial statements

All International Financial Reporting Standards, interpretations and amendments effective at 31 March 2022 have been adopted in these statements, taking account of the specific interpretations and adaptations included within the FReM.

No new standards were adopted in the 2021–22 Annual Report and Accounts following the postponement of application in the public sector to 1 April 2022.

1.16 Effective for future financial years

New standards, amendments and interpretations issued but not effective for the financial year beginning 1 April 2021 and not early adopted

IFRS 16 Leases

IFRS 16 provides a single lessee accounting model, requiring lessees to recognise assets and liabilities for all leases unless the lease term is 12 months or less, or the underlying asset is of low value. The assets, to be described as “right of use” assets, will be presented under Property, Plant and Equipment. Under the FReM, the standard is effective from 1 April 2022. Forest Research has assessed the estimated impact that initial application of IFRS 16 will have on its financial statements, as described below.

IFRS 16 will be implemented using the cumulative catch-up method; as a result, comparatives will not be restated. On the date of transition to IFRS 16, Forest Research will recognise a lease liability and a right-of-use asset.

The lease liability will be measured at the value of the remaining lease payments, discounted either by the interest rate implicit in the lease, or where this is not readily determinable, the incremental rate of borrowing advised by HM Treasury. Where the lease includes extension or termination options, the lease payments will be for the non-cancellable period together with any extension options Forest Research is reasonably certain to exercise and any termination options Forest Research is reasonably certain not to exercise.

The right-of-use asset will initially be measured at the value of the lease liability, adjusted for:

- any lease payments made before the commencement date;
- any lease incentives received; any incremental costs of obtaining the lease;
- and any costs of removing the asset and restoring the site at the end of the lease.

As a practical expedient for existing operating leases recognised on transition, the latter two elements will not be included in the asset value.

Where the lease requires nil or nominal consideration (usually referred to as a ‘peppercorn’ lease), provided all other relevant criteria are met, apart from containing consideration, such

leases are in the scope of IFRS 16. In this situation, the right-of-use asset will be initially measured at its current value in existing use or fair value, depending on whether the right-of-use asset is held for its service potential. A lease liability will be recognised in accordance with IFRS 16 and based on the value of remaining lease payments discounted at the incremental rate of borrowing advised by HM Treasury. The difference between the carrying amount of the right-of-use asset and lease liability will be included as part of the adjustment to the opening balances of taxpayers' equity and other reserves.

For the material arrangements within the scope of IFRS 16, we expect the impact of implementation to be:

- an increase in assets and liabilities of approximately £20,000 and £20,000 respectively;
- an increase in depreciation expense and interest expense replacing the current operating lease expense currently included in Purchase of goods or services;
- a reduction in surplus for the year in the periods immediately following transition to IFRS 16, driven by interest expense charged in respect of the new leases being 'frontloaded' when compared to the previously straight-line operating lease expense;
- within the cash flow statement, depreciation will be presented within cash flows from operating activities and cash flows from financing activities in respect of the payment of lease liabilities and interest expense. The timing of cash flows will remain unchanged.

Note 2. Segmental reporting

Forest Research's aim is to support and enhance the role of trees, woodlands and forests in sustainable development, by providing high-quality research, development and knowledge transfer. Management has determined that Forest Research operates as one operating segment, with results reviewed by the Chief Executive, as the chief operating decision-maker for Forest Research as a whole.

Note 3. Staff costs

	2021-22	2020-21
	£000	£000
Wages and salaries	9,672	9,047
Social security costs	984	948
Employer's superannuation costs	2,563	2,329
Apprenticeship levy	46	41
Agency staff costs	587	175
Total	13,852	12,540

More details on staff costs can be found in the Remuneration and Staff Reports.

Note 4. Other management costs

		2021-22	2020-21
	Notes	£000	£000
Travel and subsistence		259	63
Building maintenance		2,086	1,249
Utilities		414	316
Training		99	39
Other expenditure		326	802
Computer supplies		2,529	2,044
Non-cash costs:			
Provisions – provided in year		–	18
Depreciation of property, plant and equipment	7	1,336	917
Amortisation of intangible assets		10	–
Loss on Disposal of property, plant and equipment		262	12
Auditors’ remuneration – notional cost		42	41
Total		7,363	5,501

Note 4.1 Impairment Charge

The impairment charge noted on the Statement of Comprehensive Net Expenditure (SoCNE) for the year ended 31 March 2022 relates to the difference between the costs incurred and the formal valuations in respect of the recently completed Alice Holt lab (AH) and Phase 1 developments at the Northern Research Station (NRS), as in accordance with the FReM the properties/capital improvements require to be valued on a Depreciated Replacement Cost (DRC).

From operating activities, prior to the impairment of £2,334k as reported in the SoCNE on page 59, arising from the transfer of assets under construction at their revalued amount, FR achieved revenue balance for the year with a net operating surplus of £739k. The impairment charge was resourced through additional funding from the Forestry Commission.

Note 5. Materials and services

	2021-22	2020-21
	£000	£000
Materials and supplies	911	792
Vehicle charges from the Forestry Commission	305	361
Contracted research services	1,681	1,516
Publications	36	75

Protective clothing	47	44
Miscellaneous expenditure	152	102
Total	3,132	2,890

Note 6. Income

6.1 Core income

From 1 April 2019, a Cross-Border Memorandum of Understanding (MOU) between Forest Research and the UK, Welsh and Scottish governments funded core research and other services. This new arrangement supports the Ministerially-endorsed Science and Innovation Strategy for Forestry in Great Britain and forestry policies of the UK, Scottish, Welsh and Northern Irish governments. In addition, Forestry England, Forestry and Land Scotland and Natural Resources Wales purchase research, data services and surveys specifically related to their respective forest estates. FR continues to be successful in securing funding from other government departments, the European Commission, UK research councils, commercial organisations, private individuals and charities. Income has been categorised below demonstrating Core income provided under the Cross Border MOU plus additional Defra funding provided via the Forestry Commission and Non-core income from customers.

	2021-22	2020-21
Core income:	£000	£000
Defra	4,079	4,079
Scottish Government	4,079	4,079
Welsh Government	906	906
Forestry Commission	5,702	4,348
	14,766	13,412

6.2 Non-core income

	2021-22	2020-21
Non-core income:	£000	£000
European Union	55	(17)
Forestry Commission	1,034	866
Forestry England	1,526	1,319
Welsh Government	465	597
Scottish Government	1,009	941
Forestry and Land Scotland	1,523	1,563
Contracts for research and services	4,481	2,557
Ad hoc – sample analysis, supply of seeds, conferences, advisory	227	162

Note 7. Tangible non-current assets

	Freehold land	Buildings	Scientific equipment	Other machinery and equipment	Assets under construction	Total
	£000	£000	£000	£000	£000	£000
Valuation:						
At 1 April 2021	1,443	18,400	5,698	1,806	7,412	34,759
Additions	–	–	1,286	–	4,639	5,925
Transfers	–	5,672	493	59	(6,224)	0
Disposals	–	(212)	(388)	–	–	(600)
Impairments	–	–	–	–	(2,334)	(2,334)
Revaluation to current prices	118	866	(23)	123	–	1,084
At 31 March 2022	1,561	24,726	7,066	1,988	3,493	38,834
Depreciation:						
At 1 April 2021	–	11,279	2,382	1,162	–	14,823
Provided in year	–	555	604	177	–	1,336
Disposals	–	(84)	(359)	–	–	(443)
Revaluation to current prices	–	545	(7)	64	–	602
At 31 March 2022	–	12,295	2,620	1,403	–	16,318
Net book value:						
At 31 March 2022	1,561	12,431	4,446	585	3,493	22,516
At 31 March 2021	1,443	7,121	3,316	644	7,412	19,936
Valuation:						
At 1 April 2020	1,417	18,731	4,084	1,541	1,899	27,672
Additions	–	–	1,699	231	5,663	7,593
Transfers	–	4	146	–	(150)	0
Disposals	–	–	(208)	–	–	(208)
Revaluation to current prices	26	(335)	(23)	34	–	(298)

At 31 March	1,443	18,400	5,698	1,806	7,412	34,759
2021						
Depreciation:						
At 1 April	-	11,075	2,234	991	-	14,300
2020						
Provided in year	-	403	364	150	-	917
Disposals	-	-	(206)	-	-	(206)
Revaluation to current prices	-	(199)	(10)	21	-	(188)
At 31 March	-	11,279	2,382	1,162	-	14,823
2020						
Net book value:						
At 31 March	1,443	7,121	3,316	644	7,412	19,936
2021						
At 31 March	1,417	7,656	1,850	550	1,899	13,372
2020						

Fixed assets were revalued, using indexation alongside professional review by RICS valuers on two specific Asset Under Construction (AUC) building projects, as at 31 March 2022 in accordance with accounting policies. The valuation includes the principal research stations at Alice Holt Lodge near Farnham in Surrey and the Northern Research Station, Roslin, near Edinburgh, with net book values (excluding land) of £3.0 million and £3.5 million, respectively, at 31 March 2022.

Capital estates project within Assets under construction classification includes the new Holt quarantine facility at Alice Holt and significant capital enhancement at the Northern Research station. During the year the Alice Holt Laboratory on the Farnham site was completed, with a net book value as at 31 March 2023 of £4.2 million.

Note 8. Financial instruments

8.1 Financial instruments by category

All financial assets on the Statement of Financial Position are assets held at Amortised Costs, except for £75,000 (31 March 2021: £75,000) which is classified as Fair Value through Other Comprehensive Income (FVOCI) and is available for sale. The available-for-sale asset is Forest Research's share of C-Cure Solutions Ltd.

On the 1 April 2022 C-Cure board entered into a sales and purchase agreement, please see Note 17 page 84. The agreement, which will be followed by an orderly winding-up of C-Cure, will continue over the next 18 months, with an anticipated distribution of funds to Forest Research to crystallise over this period. The ultimate distribution of funds to Forest Research, from this event in 2022-23, is still uncertain, but is likely to be in the region of £22,000.

All financial liabilities on the Statement of Financial Position are classified as other financial liabilities, except for £180,000 (31 March 2021: £46,000) taxation and social security costs and £424,000 (31 March 2021: £394,000) deferred income.

8.2 Exposure to risk

Credit risk

Forest Research is exposed to credit risk to the extent of non-payment by its counterparties in respect of financial assets receivable. The majority of assets relate to services provided to other public sector bodies and the risk of non-payment is considered low.

Liquidity risk

As the cash requirements of Forest Research are met primarily through funding from the Forestry Commission and devolved forestry bodies, it is not exposed to significant liquidity risks.

Interest rate risk

Forest Research has no significant interest-bearing assets or liabilities and as such income and expenditure cash flows are substantially independent of changes in market interest rates.

Foreign currency risk

Forest Research's only exposures to foreign exchange rates are through a bank account denominated in Euros and through receipt of EU funding for contracts which are denominated in Euros and New Zealand Dollars.

Contracts denominated in Euros, US Dollars and New Zealand Dollars form less than 1% of Forest Research's total income. Therefore, fluctuations in exchange rates do not have a significant impact on Forest Research.

Note 9. Receivables

9.1 Analysis by type

	2021-22	2020-21
	£000	£000
EU trade receivables	8	1
Other trade receivables	5,258	1,551
Total trade receivables	5,266	1,552
Other receivables	1	4
House purchase loans to employees	7	10
Prepayments and accrued income – EU	–	–
Prepayments and accrued income – non-EU	720	595
Total receivables	5,994	2,161

The carrying amounts of trade and other receivables are a reasonable approximation of their fair value.

As of 31 March 2022, £3,457,000 (2020-21: £1,416,000) were fully performing and not overdue or impaired and provided for.

As of 31 March 2022, trade receivables of £1,809,000 (2020-21: £136,000) were overdue and regular exercises to assess recoverability have been undertaken post 31 March, resulting in the majority of the balance either being settled or where outstanding determined low risk, as due from public sector customers or the EU. The age analysis of these trade receivables is as follows:

	2021-22	2020-21
	£000	£000
Months overdue		
Less than one month	180	–
One to two months	1,516	39
Two to three months	26	8
More than three months	87	89
	1,809	136

The other classes within trade and other receivables do not contain impaired assets.

The maximum exposure to credit risk at the reporting date is the carrying value of each class of receivable mentioned above. Forest Research does not hold any collateral as security.

The carrying amounts of trade and other receivables are denominated in the following currencies:

	2021-22	2020-21
	£000	£000
Current		
Pounds sterling	5,986	2,160
Euros	8	1
Total	5,994	2,161

Note 10. Cash and cash equivalents

The following balances at 31 March are held at Government Banking Service banks and as cash in hand:

	2021-22	2020-21
	£000	£000
Opening balance at 1 April	4,536	1,894
Net change in balances	(928)	2,642
Balance at 31 March	3,608	4,536

Forest Research had neither bank overdraft nor short-term investments as at 31 March for either of the two years.

Forest Research maintains Euro bank accounts for sums held on behalf of partners in European Commission projects, which are treated as third-party assets and not included in the balances shown (see Note 16).

Note 11. Trade and other payables

	2021–22	2020–21
	£000	£000
Current		
Payments received on account	771	404
Trade payables	787	1,036
Taxation and social security costs	180	46
Other payables	10	3
Current part of finance leases		20
Accrued expenses	1,380	1,649
Contract liabilities	424	394
Total	3,552	3,552

The carrying amounts of trade and other payables are a reasonable approximation of their fair value.

All payables are to bodies external to central government and local authorities as at 31 March 2022 and 31 March 2021, with the exception of taxation and social security costs and £92,000 (31 March 2021: £83,000) due to central government bodies. Funds held on behalf of partners in European Commission projects are treated as third-party assets (see Note 16). At 31 March 2022 the amount held in Forest Research bank accounts on behalf of partners was £34,000 (31 March 2021: £34,000).

The carrying amounts of trade and other payables are denominated in the following currencies:

	2021–22	2020–21
	£000	£000
Current		
Pounds sterling	3,049	3,374
Euros	459	134
US Dollars	38	30
New Zealand Dollars	6	14
Total	3,552	3,552

Note 12. Capital commitments

There were £970,000 contracted capital commitments as at 31 March 2022 (31 March 2021: £426,000).

Note 13. Commitments and receivables under operating leases

Total future minimum lease payments under operating leases are given in the tables below for each of the following periods.

Obligations under operating leases comprise:

	2021-22	2020-21
	£000	£000
Land and buildings:		
Not later than one year	7	7
Later than one year and not later than five years	15	22
More than five years	-	-
Total	22	29

Total minimum lease payments under operating leases for land due to Forest Research are:

	2021-22	2020-21
	£000	£000
Not later than one year	5	5
Later than one year and not later than five years	20	20
Later than five years	53	58
Total	78	83

During 2012-13, the Environment Agency had a building constructed at Alice Holt and under the Memorandum of Terms of Occupancy has an obligation to pay Forest Research an annual capital allowance for occupation of the land for the 25-year term.

Note 14. Other financial commitments

There were no other financial commitments at 31 March 2022 (31 March 2021: £nil).

Note 15. Related party transactions

During the year, Forest Research has had a significant number of material transactions with the Forestry Commission and Defra, who are regarded as related parties. In addition, Forest Research has had operational transactions with other government departments and other central government bodies. James Pendlebury is also a Director of C-Cure Ltd, which is held as an investment of £75,000 by Forest Research.

15.1 Transactions with the University of Stirling

	2021-22	2020-21
	£000	£000
Sales	16	14
Purchases	24	22

The above transactions, for student stipend and a collaboration agreement, occurred on an arm's length basis. These transactions are disclosed as Chris Quine holds a visiting professorship at the University of Stirling.

There were balances outstanding of sales £nil (31 March 2021: £9,000) and purchase £nil at 31 March 2022 (31 March 2021: £7,174).

15.2 Forestry Publications Ltd

	2021-22	2020-21
	£000	£000
Sales	-	13

The above transactions, for journal editing, occurred on an arm's length basis. These transactions were previously disclosed as Shireen Chambers was a Director of Forestry Publications Ltd. Forest Commissioners disbanded the Forest Research ARAC November 2020, therefore no influenceable relationship existed between Forest Research and Forestry Publications Ltd in 2021-22.

15.3 Transactions with the Institut Europeen de la Foret Cultivee (IEFC)

	2021-22	2020-21
	£000	£000
Purchases	13	9

The above transactions, for European networking support, occurred on an arm's length basis. These transactions are disclosed as James Pendlebury is a member of the Board of IEFC and received no remuneration for this role. There was a £nil balance outstanding at 31 March 2022 (31 March 2021: £nil).

15.4 Transactions with the Oxford University

	2021-22	2020-21
	£000	£000
Sales	9	83
Purchases	-	-

The above transaction, for a research project, occurred on an arm's length basis. These transactions are disclosed as Matthew Perkins is on the board of three wholly owned subsidiaries of Oxford University, Forest Research had no direct transactions with the subsidiary but for transparency all transactions with Oxford University are disclosed. There was an outstanding balance of £9,048 as at 31 March 2022 (31 March 2021: £15,466).

15.5 Transactions with the James Hutton Institute

	2021-22	2020-21
	£000	£000
Sales	10	78
Purchases	36	17

The transactions above are disclosed as Ian Gambles, Chief Executive during 2020-21, is a director of the James Hutton Institute, a charitable company limited by guarantee, which delivers fundamental and applied science to drive the sustainable use of land and natural resources.

Forest Research made purchases of £36,000 from James Hutton Institute in relation to a project focussing on global threats from Phytophthora (2020-21: £17,000). Sales invoices for £10,000 (2020-21: £78,000) were raised for investigations into the threat of Bronze Birch Borer. As at 31 March 2022 there was an outstanding balance due to Forest Research of £nil (2020-21: £5,000) and a balance due to James Hutton Institute £97 (2020-21: £nil).

15.6 Transactions with the Institute of Chartered Foresters

	2021-22	2020-21
	£000	£000
Sales	-	-
Purchases	-	5

The above transactions, for conference and membership fees, occurred on an arm's length basis. These transactions were disclosed as Shireen Chambers was employed as an executive director for ICF. Forest Commissioners disbanded the Forest Research ARAC November 2020, therefore no influenceable relationship existed between Forest Research and Institute of Chartered Foresters in 2021-22.

15.7 Transactions with the Scottish Forestry Trust

	2021-22	2020-21
	£000	£000
Sales	19	18
Purchases	-	-

The above transactions, for project-based research work, occurred on an arm's length basis. These transactions were disclosed as James Pendlebury was a trustee of the Scottish Forestry Trust from January 2022 and received no remuneration for this role. There was an outstanding balance of £nil as at 31 March 2022 (31 March 2021: £nil).

Note 16. Third-party assets

As a coordinator for a number of projects partially funded by the European Commission in Euros, Forest Research receives funds on behalf of partners for onward transmission once work programmes have been approved. These third-party assets are not recognised in the accounts.

	2020-21	Gross inflows	Gross outflows	2021-22
	£000	£000	£000	£000
Monetary third-party assets – Government	34	-	-	34
Banking Service balances				

Note 17. Events after the reporting date

A sale and purchase agreement was completed in respect of the business assets (and all associated Intellectual Property) of C-Cure Solutions Limited (the Company) on 1 April 2022, a company in which Forest Research (FR) holds a minority shareholding of 24.98%.

The Company while still active, has not traded for some time, and it is anticipated that an orderly winding-up and distribution to all shareholders of the Company will be concluded within the next 18 months.

FR's interest in this is shown on the Statement of Finance Position as at 31 March 2022, and detailed at Note 8 to the Financial Statements.

It is not anticipated that this matter will have a significant (or material) impact to the Financial Statements of FR as at 31 March 2022, and is a non-adjusting post balance sheet event/matter.

In accordance with the requirements of IAS 10, events after 31 March 2022 are considered up to the date on which the accounts are authorised for issue by the Accounting Officer. This is interpreted as the date of the Comptroller and Auditor General's Audit Certificate.