

Forest Research

Annual Report and Accounts 2019–20

Presented to the House of Commons pursuant to Section 7 of The Government Resources and Accounts Act 2000

Ordered by the House of Commons to be printed 16 June 2020



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ISBN 978-1-5286-1948-6

CCS0520573028 06/20

Printed on paper containing 75% recycled fibre content minimum

Printed in the UK by the APS Group on behalf of the Controller of Her Majesty's Stationery Office

Forest Research will consider all requests to make the content of publications available in alternative formats. Please send any such requests to:

publications@forestresearch.gov.uk

FR(MN-JP)/APS/JUN20/003

Contents

Performance Report	4
Overview	4
Chief Executive's Statement	4
Purpose and activities	8
Performance summary	10
Performance Analysis	14
Key Actions	15
Research highlights from the past year	16
Sustainability Report	23
Accountability Report	26
Corporate Governance	26
Directors' Report	26
Statement of Accounting Officer's Responsibilities	27
Governance Statement	28
Remuneration and Staff Reports	34
Remuneration Report	34
Staff Report	40
Parliamentary Accountability Disclosures	45
Financial review	45
Fees and charges	46
Remote contingent liabilities	46
Long-term expenditure trends	46
Certificate and Report of the Comptroller and Auditor General to the House of Commons	47
Financial Statements	50
Statement of Comprehensive Income for the year ended 31 March 2020	50
Statement of Financial Position as at 31 March 2020	51
Statement of Cash Flows for the year ended 31 March 2020	52
Statement of Changes in Taxpayers' Equity for the year ended 31 March 2020	53
Notes to the Accounts	54

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

It is important to recognise this annual report formally reflects Forest Research's activities up until 31 March and thus largely before coronavirus (COVID-19) changed all our lives.

However it would seem inappropriate not to acknowledge this global crisis in our report and note that at time of writing how well our staff have responded to it and government advice to protect the NHS and lives through successfully shifting to work from home to continue to deliver for our clients. That said it should be reiterated that this report is a formal record of our activities up until 31 March 2020 and should be read as such.

Forest Research is the foremost provider of forest science and data in the UK and at the heart of the forest sector's plans for helping to deal with the climate-change emergency. Our research on creating resilient rural and urban forest landscapes, species selection and silviculture, climate change, carbon storage, inventory and production forecast information is pivotal in supporting the sector's response to the challenges ahead.

We have delivered 18 out of 20 Key Actions planned for 2019–20 and have secured £7.9 million of non-core income. This achievement is the direct result of the dedication, hard work, reputation and collaborative approach of our staff. More details on some specific projects are detailed in our research highlights section below.

As part of our role in supplying key sector data, Forest Research released *Forestry Facts & Figures 2019* in September. This is an annual summary of forestry statistics compiled by Forest Research on behalf of forestry authorities in England, Wales, Scotland and Northern Ireland. National Statistics status means that our statistics meet the highest standards of trustworthiness, quality and public value, and it is our responsibility to maintain compliance with these standards.

It is worth highlighting the inclusion of infographics in *Forestry Facts & Figures* for the first time in the 2019 edition. We have also drafted a 10-year vision for Forestry Statistics which

has been discussed with our stakeholders and shows potential growth of statistics on plant health and carbon.

Forest Research has also increased its role in providing evidence and advice to the Department for Business, Energy & Industrial Strategy (BEIS) in co-operation with partners Ricardo and the National Non-Food Crops Centre. The mainstay is the long-term Land use, land-use change, and forestry (LULUCF) contract in which the Climate Change Research Group provides the estimates of greenhouse-gas fluxes for UK forests that underpin the Government's reporting under the Kyoto Protocol. This includes responding to comments and queries arising from regular international scrutiny by the United Nations Framework Convention on Climate Change (UNFCCC) and addressing evolving refinements requested by BEIS. Recently we developed the National Forestry Accounting Plan including a Forest Reference Level for the period 2021 to 2025.

Our Inventory, Forecasting and Operational Support (IFOS) team successfully delivered a contract for Scottish Forestry to deliver a 2018 clear-fell and wind-blow assessment of Scotland. The contract was met using information derived from synthetic-aperture radar (SAR) and machine learning, and the approach developed can be used by Scottish Forestry in the future.

We were also delighted that Forest Research successfully completed a significant project for Forestry and Land Scotland (FLS) to register its land holding. This was to ensure FLS complied with the Land Registration (Scotland) Act of 2012 to produce The Land Register, a digital, map based public record of land ownership in Scotland which replaces the 400-year-old deeds based General Register of Sasines. This project was delivered over a number of years, on time and under budget and consequently FLS is the first public body in Scotland (and the largest by some way) to complete the registration of its land and to the timescale set by the Scottish Government. There is a deep sense of pride within the team in delivering and completing this piece of work on time, involving teamwork and positive collaboration with colleagues in FLS.

Forest Research continues to be active in Wales through participation in the Royal Welsh Show and a range of knowledge-exchange events, from supporting the delivery of the Welsh Government's Timber Passporting and Plant Health Workshops to delivery of Institute of Chartered Foresters/Focus on Forestry First/Observatree tree-health workshops. More specifically, we undertook research on the Welsh Government's Environment & Rural Affairs Monitoring and Modelling Programme (ERAMMP), leading a piece of work to produce a 'National Forest Evidence Pack' to help overcome the key challenges in meeting the Welsh Government's objective of establishing a National Forest for Wales.

It is also pleasing that we are continuing to build our international networks, and a number of our early career scientists secured sponsorship from the Scottish Forestry Trust to attend the International Union of Forest Research Organizations (IUFRO) World Congress 2019 in Curitiba, Brazil. Other senior staff were invited to events sponsored by the Chinese Government to improve the use of Earth observation in government and to expand the use of big data. An invitation from the Chinese Academy of Forestry allowed staff to attend discussions on projects related to the giant panda monitoring programme and to initiate a research programme to monitor the health and sustainability of the ancient tea trees in Yunnan using a combination of Earth-observation methods. Other staff gave presentations on climate change and urban forestry at international events in South Korea and Hong Kong respectively.

Although it is widely accepted that a woodland's resilience can be improved by using a mixture of species, anecdotes and real examples of failures of mixed plantings can dissuade managers and owners from moving away from single-species stands. With encouragement, practical advice and funding from stakeholders, we have developed a framework (Forest Development Types) to assess the likely long-term success of species mixture on the basis of each species' shade tolerance and growth rate at the intended site. Having chosen a suitable species combination, the framework can also be used to decide on the most appropriate pattern and scale of the mixture.

We have also developed a new set of relationships to describe the growth of all common British tree species. The new equations utilise all the results of the sample plot programme which now inform us about the longer-term growth under plantation conditions. Among the attributes covered are top height, diameter, basal area, volume, product out-turn and mortality. The new equations are being applied to typical management scenarios and will be incorporated in the next national production forecast.

Forest Research recently co-authored a key review of the interaction between wind and trees. The review highlights scientific advances in our understanding of the airflow and turbulence within and above forest canopies and wind flow and wind loading around and on individual trees. This knowledge is influencing the approach to temperate and boreal forest management and the development of systems to mitigate the risk of wind damage. The review also emphasises the need to improve our understanding of wind acclimation in full-size trees so that management can be tailored for different species and take account of different wind climates.

Hosting visits from key stakeholders and scientists from other organisations continues to provide important opportunities to hone our thinking and showcase our work. In October, we were pleased to host a visit from Mairi Gougeon, Scottish Minister for Rural Affairs and the

Natural Environment, to our Northern Research Station (NRS), where the Minister was given a brief demonstration of Forester GIS, and information on our molecular genetic, landscape ecology and tree-health research.

In responding to the devolution of forestry, Forest Research has been through a very large transition over the last two years from specifying, building and installing our own Information Technology (IT) infrastructure across the UK to designing and implementing an entirely new Enterprise Resource Planning (ERP) system as our financial management platform. This has all been delivered on time and on budget and will ultimately transform our business once we harness all the capabilities now at our disposal.

It is always gratifying when the quality of our staff is recognised by others. This year Dr Helen McKay was awarded an OBE in the New Year Honours List for services to forestry and forest science (www.gov.scot/news/recipient-of-the-queens-new-year-honours-in-scotland).

In a world where our response to climate change is critical, our staff, through their hard work, commitment and expertise, continue to deliver great science, innovation and data services to the sector and to government. As well as thanking them, 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. FR 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://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf which sets out a shared vision and set of objectives for the Defra group up to 2020. 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 2020 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 FR 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 is also 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.

Activities

Research and development are essential components in delivery of the benefits of sustainable forestry in a multifunctional landscape. FR's research, surveys and related forestry data and scientific services address the social, economic and environmental components of sustainability. 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, tree health, adaptation to climate change, timber quality, genetic conservation, tree improvement, seed testing, crop inventory, forest statistics, surveys and monitoring.

Resources

FR employed 241 (full-time equivalent) staff during the year 2019–20 at sites across England, Scotland and Wales. Contact information for our main offices is given 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 28, including the potential impact of COVID-19 and how the Agency is addressing the risks.

On 23 June 2016, the European Union (EU) referendum took place and the people of the United Kingdom voted to leave the EU. Until the UK leaves the EU, all the rights and obligations of EU membership remain in force. During this period the Government will continue to negotiate, implement and apply EU legislation. The Government has negotiated with the EU on the terms of its withdrawal, and future relationship with, the Union. The terms on which the UK leaves the EU will determine what arrangements apply in relation to EU legislation in future once the UK has left the EU.

Performance summary

Operating review

The Agency established its own corporate services provision in readiness for 1 April 2019 following the closure of the former FC Central Services provision based in Edinburgh. New corporate services teams were established in advance of the service transition and the 2019–20 financial year was very much a year of learning and establishing new systems and processes across the Agency. While all of the corporate services transition targets were successfully achieved, the primary focus during the year from a corporate perspective was to ensure colleagues across the business were able to operate the new systems and understand new business processes. This approach ensured the maintenance of important and critical scientific and research activities throughout the year, which resulted in achieving financial balance for the Agency. Like many businesses, the challenges related to the COVID-19 pandemic affected the business as usual activities across the Agency, although the newly established corporate systems ensured that towards the end of the year, the vast majority of the workforce could effectively operate from the safety of their homes.

In particular, Forest Research has:

- successfully achieved a financial balance for the year and a net operating surplus of £22,000;

- successfully completed the implementation of the new IT infrastructure;
- achieved or exceeded targets for 18 out of the 20 Key Actions for the Agency, with the remaining Key Actions due to be finalised in 2020-21, due to the impact of COVID-19 (pages 15 and 16);
- secured £7.9 million of non-core income;
- continue to implement its new Strategy for FR: *A Strategy for Growth*;
- surveyed 1,482 hectares of forested land as required by the National Forest Inventory;
- continued to support Defra colleagues in dealing with *Ips typographus* outbreaks;
- expanded the volunteer network for the Observatree project;
- examined the risk of *Phytophthora* spread through nursery practices;
- explored natural solutions to reduce traffic incidents caused by flooding;
- completed the EU COST Action programme on Payments for Ecosystem Services involving 175 participants from 32 countries;
- delivered new and updated growth and yield models to underpin the 2020 Production Forecast;
- capitalised on long-term experiments to capture additional provenance information on timber stiffness of Sitka spruce;
- published a large range of UK National Statistics and Official Statistics on subjects including woodland carbon code statistics, timber price indices, Forestry Statistics 2019 and analyses from the National Forest Inventory.

Financial review

Forest Research successfully completed all aspects of its significant corporate services transition programme in the early stages of 2019–20, ensuring that the IT infrastructure and systems were autonomous. Disaster recovery and business continuity testing was undertaken on the new systems in final quarter of the year, ahead of the COVID-19 pandemic, providing robust assurance that the new systems were resilient despite being newly established. Despite introducing and establishing the new systems and corporate services teams into the Agency, we successfully achieved financial balance for the year and reported net operating income of £22,000 (2018–19: £27,000).

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

- other management costs increased by £633,000 (12%), mainly as a result of additional expenditure associated with accommodation occupancy and non-recurrent additional depreciation expenditure associated with services to the Alice Holt site;
- materials and services costs decreased by £1,490,000 (42%), mainly as a result of cessation of the service costs associated with the former FC Shared Services

provision and a reduction in the requirement for materials and supplies during the year;

- income from external sources (non-core income) during the year amounted to £7.9 million, which is comparable with the level achieved in 2018–19 (£8.0 million).

In 2019–20, Forest Research recognised total operating income of £19.5 million, maintaining the level achieved during 2018-19 (£19.5 million), and reported net operating income of £22,000 (2018–19: £27,000).

Additions to Property, Plant and Equipment (PPE) during the year amounted to £1,651,000 (2018–19: £1,827,000) and included expenditure on the construction of the new Entomology and Pathology Quarantine Laboratory (EPQL) at the Alice Holt site and 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 2019–20 the recovery rate was 100.1%, which was consistent with the 100.1% rate achieved in 2018–19.

Performance against other operational and scientific Key Actions is reported in the Performance Analysis on pages 15 and 16.

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. Undoubtedly, we will need to adapt and ensure the Agency is resilient throughout the COVID-19 pandemic and in the post COVID-19 world. The Agency’s executive team is currently assessing 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 will help to shape our future priorities and develop our existing focus in providing the science and evidence to:

- protect our trees and forests;
- ensure the Westminster Government’s and Devolved Administrations’ woodland creation and management agenda is underpinned by relevant scientific research
- 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 2020-2021, are as follows:

- undertake international forestry technical support for Defra, to include biodiversity, climate change, timber trade and sustainable forest management policy areas in an international forestry context;
- contribute to the revision of the Science and Innovation Strategy;
- participate in a range of events for International Year of Plant Health and raise awareness of biosecurity risks;
- 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;
- progress the construction and completion of the EPQL;
- 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;
- 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 10 days from the receipt of goods and services or the presentation of a valid invoice, whichever is the later. An analysis for 2019-20 indicates that 99.3% were paid within the due date. 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 £39,000 (2018-19: £38,000). No further non-audit services were provided in 2019-20 or 2018-19.

Performance Analysis

The performance of Forest Research is closely monitored throughout the year by the Board and a new corporate dashboard was introduced during the year to assist with performance monitoring. Performance is measured through the identification of desired outcomes and Key Actions against each of our science and business priorities, which are to provide the science and evidence to:

- protect our trees and forests, ensure that the Westminster Government's new planting and woodland creation agenda is underpinned by relevant scientific research;
- enhance forest ecosystem resilience and service provision;
- ensure sustainable management and adaptation of our forests to climate change;
- effect knowledge exchange;
- grow our business.

The Board ensures that progress against Key Actions 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 45. Operating and financial reviews describing our key financial results for the year have been included on pages 10 - 12.

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 page 23.

The Board has concluded that our achievements against our Corporate Key Actions for 2019–20 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 an organisation wide succession plan.	Achieved.
Complete the transition, i.e. the delivery of the new and enhanced capability - outside the core infrastructure requirements i.e. HPC, VDI (Sandbox) including development of all associated policies and procedures.	Achieved.
Develop our Environment Management System (EMS) by establishing a clear baseline for resource use (including, energy, travel, and waste) and so enable informed targets for future action.	Achieved.
Work with the Welsh Government and representatives of the Westminster and Scottish governments to progress revision of the Science and Innovation Strategy and embed new arrangements for cross-border research commissioning.	Achieved.
Ensure that financial balance is achieved for the Agency by meeting the revenue break-even targets.	Achieved.
Deliver a refocused reactivated communications team.	Ongoing.
Develop new and separate Service Level Agreements with the Welsh Government and Natural Resources Wales.	Achieved.
Run targeted knowledge exchange events for policymakers, advisers and the forestry sector within Wales.	Achieved.
Social: - Support sectoral interest in the resilience of forest landscapes.	Achieved.
Genes, species and habitat conservation: - Contribute to establish the Defra DNA Centre of Excellence	Achieved.
Tree Health - response to <i>Ips typographus</i> outbreak: Support and research evidence, particularly by the Alice Holt entomologists, provided to FC and Defra Plant Health to respond to the outbreak, first discovered in December 2018.	Achieved.
Capitalise on long-term experiments to capture additional provenance information on timber stiffness of Sitka spruce.	Achieved.
Advance selection and breeding of sycamore.	Achieved.
Deliver- growth and yield models to underpin the 2020 Production Forecast.	Achieved.
Deliver the 2020 Production Forecast.	Substantially achieved, with publication in early 2020/21, due to the impact of COVID-19.
Secure external clients for our Forester software system.	Achieved.
Produce key forestry National Statistics.	Achieved.
Progress obtaining UK Research and Innovation Independent Research Organisation status.	Achieved.

Secure significant new business for the Agency.	Achieved.
Explore establishment of Agency trading arm	Achieved.

Research highlights from the past year

During the past year our researchers have been involved in studies across a broad range of subjects, including investigating natural ways to reduce the flooding of main roads, assessing woodland creation options and their contribution to climate change mitigation, and helping to eradicate the eight-toothed spruce bark beetle. These, and some of our other activities from the year, are summarised below. Further information on our work is available at www.forestresearch.gov.uk

Exploring natural solutions to reduce traffic incidents caused by flooding

In the past few years there has been an increase in the number and intensity of rainfall events, leading to significant flooding of highways across the country, possibly linked to climate change. This led Forest Research to conduct a feasibility study for Highways England (HE) on the scope for using natural flood management (NFM) to reduce future flooding incidents on the strategic road network. We worked with partners Treeconomics, Evans Associates and Kier to assess three flooding 'hotspots' on the A30 and A38 in south-west England.

For this study, we undertook a detailed site survey to pinpoint areas of land contributing run-off to each hotspot and then applied a 'time of flow concentration' function to identify fast-response zones and pathways. We modelled a range of potential NFM measures to assess and rank options for reducing run-off volumes across individual catchment areas.

The target flow reduction for removing hotspot status in some catchments was found to be delivered by a combination of agriculture based NFM measures, such as soil aeration treatments on grassland, improved tillage practices on arable land and targeted tree planting on the highest run-off-producing areas. We identified a preferred option-mix for each site, which was then explored by the other partners and HE working with local landowners and managers.

It is hoped that the NFM measures can be implemented and tested at the three sites. If successful, the approach could be rolled out to reduce flooding incidents across the wider highways network. The study is a prime example of how green infrastructure (such as woodland creation) and improved land-management practices can help to deliver a more sustainable approach to tackling flood risk.

The effects of forest clearance for peatland restoration on water quality

Peatlands play an important role in the hydrological cycle and in mitigating global warming by regulating water flows, storing large quantities of carbon and influencing water quality. These and other functions can be negatively affected by forestry leading to an ongoing drive for forest clearance on many sites.

While the conservation benefits of peatland restoration are well recognised, there are concerns about the effects of the wholesale and often rapid removal of forest cover on water quality and freshwater ecology. Priority species such as the freshwater pearl mussel and Atlantic salmon are especially vulnerable to site disturbance, while the release of dissolved organic carbon (DOC) is a serious issue for drinking-water supplies.

Since 2008, Forest Research has been investigating the effects of peatland restoration on water quality at Flanders Moss, a raised bog in Central Scotland. The findings were published last summer in the journal *Science of the Total Environment* (see www.forestresearch.gov.uk/research/forest-clearance-peatland-restoration for more details) and revealed that large-scale forest clearance can lead to a marked rise in phosphate, DOC, colour and suspended sediment levels in local waters. The mechanisms involved require further investigation but are thought to be driven by nutrients leaching from forest residues, soil disturbance by machinery and site rewetting. Seasonal weather events also affected the water quality, especially periods of extended drought. Phased felling and less intensive forest-harvesting techniques were found to greatly reduce water-quality impacts.

In what is now the longest-running study of its kind, we are monitoring the impact of the next phase of restoration work, involving drain blocking and ground smoothing. The study has greatly improved understanding of the effects of peatland restoration on water quality and carbon dynamics. Lessons learnt are informing the IUCN (International Union for Conservation of Nature) UK Peatland Programme, country peatland action plans, peat pilots and restoration practice on the ground to ensure protection of the freshwater environment.

Taking action to help eradicate the eight-toothed spruce bark beetle

An outbreak of the eight-toothed spruce bark beetle (*Ips typographus*) was discovered in an area of woodland in Kent in November 2018. The presence of the beetle was confirmed by scientists at Forest Research, and intensive surveys to 1km from the infested trees, and aerial and follow-up ground surveys up to 100km, showed that the outbreak was confined to a relatively small area and that it might be possible to eradicate the pest before it spread more widely.

Forest Research has played a key role in developing and implementing the management plan to contain the outbreak, and has worked closely with Forestry Commission England, Defra and other organisations to carry out surveys, remove and destroy the infested trees, and set up a monitoring programme. Key to providing a swift and coordinated response to the outbreak was the ability to use the Forester mobile and web platform to efficiently and seamlessly record the survey data. More information on Forester can be found at www.forestresearch.gov.uk/tools-and-resources/forester

Following on from the removal of the infested trees, Forest Research set up a grid of pheromone traps across the outbreak site to catch and record any remaining beetles. These traps were operated from April to October 2019 and were highly successful in catching adult *Ips typographus*, and they will be replaced and operated again next year to monitor the progress of the eradication programme. Forest Research is additionally conducting new research to better understand the risk that the beetle poses to British spruce forests.

The dedication, expertise and swift action of the response by all parties to the *Ips typographus* outbreak was recognised by Lord Gardiner, Parliamentary Under Secretary of State for Rural Affairs and Biosecurity, in December, and he confirmed his continuing support to eradicate this serious forestry pest.

Understanding and mitigating global threats from *Phytophthora* species

The PHYTO-THREATS project is an interdisciplinary collaboration of seven institutions, led by Forest Research, aimed at addressing the increasing risks to UK forest and woodland ecosystems from *Phytophthora* and the dissemination of these pathogens in diseased propagation material.

A major component of this Living With Environmental Change project, for the Tree Health and Plant Biosecurity Initiative (THAPBI), was to examine the risk of *Phytophthora* spread through nursery practices. Over the last three years, the project team, together with plant health inspectors, collected over 4,000 water and root samples from plant nurseries across Britain. These included 15 partner nurseries intensively sampled in a 'fine-scale' survey and a further 118 nurseries sampled as part of a 'broad-scale' survey. Samples were tested for the presence of *Phytophthora* DNA using a metabarcoding approach. Approximately 50% of all samples were found to contain *Phytophthora* DNA, with the DNA signatures of 51 *Phytophthora* species identified so far, including quarantine-regulated pathogens and other species not previously reported in the UK. Data on *Phytophthora* diversity are being related to nursery management practice and this evidence will inform the Plant Health Management Standard being developed as part of the new voluntary 'Plant Healthy' accreditation scheme

(<https://planthealthy.org.uk>), which targets producers and consumers across the UK plant-supply chain.

Forest Research social and economic scientists have also generated information on the feasibility of accreditation and what it should look like, based on a survey of 1,500 plant-buying members of the general public, and have collated perspectives from nurseries, retailers (including garden centres), landscape architects and designers following 153 survey responses and 37 interviews.

One of the key findings was the need for engagement on plant-health risks to secure collaboration from all sectors. In addition to shaping accreditation, our data are improving plant-health awareness and biosecurity in the nursery industry and will ultimately help to reduce the spread of potentially devastating *Phytophthora* diseases. Project partners and funders for this work include the James Hutton Institute, the UK Centre for Ecology & Hydrology, the Animal & Plant Health Agency, the University of Edinburgh, the University of Worcester, and Science & Advice for Scottish Agriculture. More details on this project are available at www.forestresearch.gov.uk/research/global-threats-from-phytophthora-spp

Building an urban canopy-cover map through citizen science

Trees provide a wide range of benefits to those who live and work in towns and cities, from adding beauty and character to supporting wildlife, from providing summertime cooling to capturing carbon. Knowing how the amount of tree cover varies across an area is an important first step for urban tree managers to strategically plan future planting so that the benefits are equitably shared. To date, few urban authorities have quantified variability in their tree cover.

In 2019, Forest Research designed, built and launched a new citizen-science project to create an online map of tree-canopy cover at the electoral ward spatial scale (www.forestresearch.gov.uk/research/i-tree-eco/urbancover). Our project partners Trees for Cities and Brillianto helped by test-driving the User Guide for citizen scientists willing to undertake the canopy-cover assessments, and by promoting and participating in the project. Assessment is entirely desk-based, simple and typically requires less than an hour per electoral ward. Subsequently, many of our volunteers have kindly engaged in the assessment of multiple wards.

Throughout 2019, citizen scientists completed over a quarter of the 5,824 urban wards on the map to reveal that canopy cover ranges from 0% to 80%, and averages 16.3%. They have also completed over 1,700 rural electoral wards. In the coming year, we will work with our

partners to continue to bring more engagement with the project and aim to complete at least another 25% of the map.

With many cities declaring a climate emergency and dedicating themselves to carbon neutrality, our map will be a valuable tool for them to target their tree planting to those areas with lowest canopy coverage.

National Forest Inventory helps ESA and NASA estimate carbon stocks

In 2019, as part of the Living Wales Earth Observation programme, the National Forest Inventory (NFI) worked in partnership with the Department of Geography and Earth Sciences (DGES) team at Aberystwyth University to improve current Earth-observation techniques. The Living Wales programme, led by Professor Richard Lucas, received £2 million from the Welsh Government to pump-prime the use of Earth observation in the Welsh economy.

Through this programme NFI and Aberystwyth University worked together on several remote-sensing and forest-inventory projects, including testing the accuracy of the European Space Agency's (ESA) and NASA's remote-sensing-derived forest biomass and carbon estimates, as part of ESA's Climate Change Initiative (CCI) Biomass project.

The work involved NFI testing two separate Earth-observation-based woodland biomass and carbon estimates for Wales; one derived by ESA and the other by NASA, both considered best of their class. The NFI compared the ESA and NASA estimates against NFI calculations for biomass and carbon stocks based on over 200 field samples taken across Wales. The comparison proves that overall the remote-sensing techniques under-reported biomass and carbon stocks as compared to the NFI samples. This finding was fed back to Aberystwyth researchers who were able to devise a recommendation for improving the ESA and NASA analysis techniques. ESA and NASA agreed to implement the recommendation, altering the way they will estimate woodland biomass and woodland carbon stocks around Europe and the world. The net result should be that European and world carbon stocks will be estimated to be higher than in previous estimates.

Assessing different land-use options and their contribution to climate change mitigation

Forest Research has been assessing the potential impacts of different options for woodland creation in the UK, including contributions to climate change mitigation, biodiversity, recreation and wood supply, as well as economic evaluation.

Results, presented at the European Forest Institute Annual Conference in Aberdeen in September 2019, showed how different woodland types would deliver variable but important

benefits in terms of climate change mitigation. On the one hand, a 'fast-growing coniferous plantation' tends to sequester carbon for a few decades but provides longer-term benefits through providing biomass and timber to displace fossil fuels and greenhouse-gas-intensive materials. On the other hand, creating an area of 'birch wild wood' takes time to sequester carbon but is one of the few options for sequestering carbon in the longer term. Both options are relevant to achieving an ultimate goal of 'net-zero emissions'.

These results were produced as part of the Environment & Rural Affairs Monitoring and Modelling Programme (ERAMMP), a challenging research initiative providing evidence to inform Welsh Government land-use policy. The programme, which is coordinated by the UK Centre for Ecology & Hydrology, involves close collaboration between a large consortium of more than 20 research institutes, at least a dozen modelling groups working on aspects of land use, including at Forest Research.

The outputs generated within ERAMMP by Forest Research have wider relevance to land use across the UK and to understanding the opportunities and risks presented by different options for woodland expansion. Potentially, the modelling methodology developed by Forest Research also has wider applications for evaluating the role of forest restoration and expansion from a global perspective.

Local authority responses to the risk of tree pests and diseases

Protecting plant health is a top priority and Defra's research programme Future Proofing Plant Health includes targeted research into current and potential future risks. Our social scientists have partnered with Fera and The Tree Council on a number of projects within this research programme to investigate local authority responses to the risks posed by different tree pests and diseases.

As part of this work, our researchers have led an evaluation of the process by which local authorities have created Local Action Plans for ash dieback (*Hymenoscyphus fraxineus*). Research using case studies and surveys showed that local authorities assess risk and the proportionality of response to ash dieback through processes of deliberative social learning – that is, they use a mix of opinion, scientific and practice-based knowledge to reach a consensus about the scale of their response and the appropriate operational methods.

Placing ash dieback on corporate risk registers was found to be critical to leveraging action across the multiple departments affected by ash dieback risks, since this facilitated political approval, action planning and the allocation of significant multi-million-pound budgets.

We investigated local authority strategic approaches to managing the caterpillars of oak processionary moth (OPM, *Thaumetopoea processionea*), and found that local authorities employ a very nuanced risk-based approach, which in the main responds to concerns about public health and reputational risks. Local authority perceptions of the risks presented by OPM vary dramatically depending on how long and to what degree they have had to engage with the pest, suggesting that risk-based management of OPM eventually becomes 'business as usual'.

This research is contributing to the development of a toolkit of materials and other guidance designed to support risk managers and help them make informed and risk-based decisions on tree health. It is also feeding into a review of government policy and the development of other support options.

Sustainability Report

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

Forest Research seeks to reduce its environmental impact wherever possible. Our commitment to the environment through our internal Environmental Management System was formally recognised in 2019–20, as we successfully maintained our independent ISO 14001 certification following a rigorous audit process that included a review of our sustainability performance.

Business sustainability remains a standing item at the Site and Environment Management Committee meetings at Alice Holt and at our Northern Research Station. 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. Our staff also support recycling initiatives, turn off unused lighting and are energy aware. We continue to trial more energy-efficient vehicles and have commenced testing the suitability of hybrid (fuel/battery) vehicles. Our new IT infrastructure allows us to use Skype for business more frequently and the major benefits of this have started to be realised in this financial year, ahead of the COVID-19 pandemic, and will develop in future years as the new systems embed within the organisation.

In 2019–20 we received the full year benefits of the enhanced mains water ring at the Alice Holt site. The new water ring was fully operational all year and significantly reduced the frequency of water leaks at the site, improving working conditions for all site staff and enabling enhanced water usage control. Despite this significant enhancement, our water usage increased significantly on the previous year, as particularly high summer temperatures and the full implementation of new growth rooms at our Northern Research Station site required additional water usage linked to critical scientific research project work.

Information on our travel, energy usage, waste and water for 2019–20 is detailed in the following table, along with comparison data for the previous three years. We rigorously monitored our electricity, gas and water consumption throughout the year and our executive team committed to a pledge to reduce usage as far as practically possible. The pledge was widened across the organisation, with all staff invited to commit, and this has resulted in significant usage reductions in our travel, energy and waste categories. It should also be noted that the restrictions imposed by the COVID-19 pandemic will also have had a positive effect on the usage results towards the very end of the financial year.

Our combined greenhouse gas emissions were lower than the 2018–19 levels, although the winter months were milder during 2019–20 and we were not affected by the significant

prolonged spells of cold weather experienced in 2018-19. The Photovoltaic (PV) energy generation capacity was enhanced at the Alice Holt site in the final quarter of the year. These facilities continue to provide important benefits, producing 22,865 kWh of electricity in 2019–20, which is expected to rise further in 2020-21 following the investment to enhance the generation capacity.

Enabling works in preparation for the construction of the new EPQL building included hazardous waste removal at our Alice Holt site, although the overall volume of waste significantly reduced from the 2018-19 level. The value of re-used or recycled waste also increased in 2019-20. Only 9% of our waste in 2019–20 related to landfill and incinerated waste, which is a particularly satisfying outturn and demonstrates our commitment to re-use or recycle waste wherever possible. In addition, during our selection of waste contractors we require demonstration of strong performance in respect of general waste re-sorting and diversion from landfill.

As a public sector body, we adhere to the Public Contracts Regulations 2015 for our procurement. We are also mindful of sustainable procurement. Where significant quantities of goods and services are required, including the procurement of electricity, gas and water, these are obtained through a system of national framework contracts. Other purchases are made within the requirements of our Environmental Management System, which is certified to ISO 14001. In terms of the construction of our new EPQL building, the key sustainable design elements include external timber cladding, Scotlarch, which is an FSC certified product sourced from sustainable forests in Scotland and all internal timber is to be locally sourced from FSC certified forests, with Chain of Custody (CoC) certification.

Forest Research does not have business-specific biodiversity action plans or climate change adaptation policies. However, we do undertake, contribute to, and publish expert research and evidence with regard to these matters as they relate to trees, woods and forests. Our research informs the policies and practices that relate to biodiversity and climate change action plans in our sector.

This report and data reflects the energy purchased and consumed by FR and has been prepared with reference to *Public sector annual reports: sustainability reporting guidance 2019 to 2020*.

Performance Measurement					
Area	Units	2019-20	2018-19	2017-18	2016-17
Travel on official business					
Owned fleet/leased vehicles	Miles	408,566	436,719	540,558	780,336
All other travel	Miles	799,043	895,862	915,570	780,336
Owned fleet/leased vehicles	£	174,662	186,697	288,150	249,012
All other travel	£	164,882	186,968	199,078	179,295
Owned fleet/leased vehicles	GHG emissions in tonnes CO ₂ e scope 1	85	95	116	116
All other travel	GHG emissions in tonnes CO ₂ e scope 3	161	293	295	213
Energy bought and consumed (after deducting PV panels and supplies to tenants)					
Electricity	kWh	1,051,150	1,211,392	1,101,095	1,106,231
	£	170,388	181,618	151,061	150,823
	GHG emissions in tonnes CO ₂ e scope 2 and 3	352	370	528	498
Gas	kWh	1,405,452	1,605,248	1,355,120	1,431,117
	£	50,010	53,744	39,818	28,983
	GHG emissions in tonnes CO ₂ e scope 2 and 3	243	294	246	263
Oil burned	kWh	-	6,445	6,426	16,095
	£	-	375	328	737
	GHG emissions in tonnes CO ₂ e scope 2 and 3	-	2	2	4
Energy generated from renewables					
Total generated from solar PV	kWh	22,865	25,830	24,115	24,987
GHG emission avoided	GHG emissions in tonnes CO ₂ e scope 2 and 3	6	7	8	7
F-gas fugitive emissions					
Air conditioning topped up	Kg carbon dioxide equivalent (CO ₂ e).	NA	NA	NA	NA
Waste minimisation and management (non-sewage)					
Total waste arising	Tonnes	67	97	72	109
Waste to landfill	Tonnes	2	6	12	11
Waste re-used or recycled	Tonnes	61	84	60	97
Waste incinerated	Tonnes	4	7	-	1
Total waste arising	£	33,559	37,424	22,750	30,867
Waste to landfill	£	4,108	6,732	5,563	2,039
Waste re-used or recycled	£	26,810	21,902	17,385	26,653
Waste incinerated	£	2,641	8,734	-	2,175
Waste minimisation and management (sewage)					
Waste re-used or recycled	Tonnes	712	321	109	168
Waste re-used or recycled	£	16,255	6,613	2,040	2,700
Water consumption					
Total water consumption	m ³	14,693	7,350	13,725	12,098
Total water consumption	£	22,558	9,272	18,329	15,442



Professor James Pendlebury
Chief Executive and Accounting Officer

4 June 2020

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:

- Michael Gove MP, Secretary of State from 11 June 2017 until 24 July 2019
- Theresa Villiers MP, Secretary of State from 24 July 2019 until 13 February 2020
- George Eustace MP, Secretary of State from 13 February 2020
- Thérèse Coffey MP, Parliamentary Under Secretary of State from 17 July 2016 until 25 July 2019, and Minister of State from 25 July 2019 until 8 September 2019
- Zac Goldsmith MP, now Lord Goldsmith, Parliamentary Under Secretary of State from 27 July 2019 until 10 September 2019, and Minister of State from 10 September 2019
- David Rutley MP, Parliamentary Under Secretary of State appointed temporarily 22 May 2018, and then from 3 September 2018 until 27 July 2019
- Lord Gardiner, Parliamentary Under Secretary of State from 9 January 2018

Composition of the Board

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

James Pendlebury*	<i>Chief Executive</i>
Chris Quine*	<i>Chief Scientist</i>
Meirion Nelson	<i>Finance Director</i>
Sir William Worsley ~	<i>Forestry Commissioner and Chair</i>
Sir Harry Studholme #	<i>Forestry Commissioner and Chair</i>
Ian Gambles	<i>Forestry Commission Chief Executive</i>
Mary Barkham	<i>Forestry Commissioner</i>
Nicola Spence*	<i>Defra Chief Plant Health Officer</i>
Ceri Witchard	<i>Welsh Government</i>
Keith Connal	<i>Scottish Government</i>

~ Forestry Commissioner and Chair from 10 February 2020

Forestry Commissioner and Chair until 9 February 2020

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.

* These Board Members have related party interests that are disclosed in Note 16.

Register of interests

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

Incidents related to personal data

There were no incidents related to protected personal data reported for Forest Research in 2019–20 (2018–19: 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 judgments 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 2019–20 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 2019–20. 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;
- Target Operating Model and business planning;
- corporate Key Actions;
- health and safety;
- business development, including external income;
- establishment of new corporate services teams and systems;
- risk management and business continuity.

At each of the meetings during 2019–20 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 services.

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

Audit and Risk Assurance Committee

The FRB established an Audit and Risk Assurance Committee (ARAC) to support it in its responsibilities for the effective management of risk, control and governance. 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 2018–19;
- Internal and External Audit strategies and reports;
- information security;
- Corporate Services Transition Programme and establishment of services post-transition;
- Memorandum of Understanding with Defra and the devolved administrations;
- research commissioning and progress on the development of the revised Science and Innovation Strategy;
- Governance Statement;
- the Committee's structure and effectiveness.

There were three ARAC meetings during 2019–20 (May and November 2019 and March 2020) and attendance was as follows:

Name	No. of meetings
Mary Barkham	3
Shireen Chambers	1
Judith Webb (Chair)	3

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 report and assurance statement 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.

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 ARAC reviews its effectiveness in line with best practice as 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 Forest Research Board (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. A new risk register template was introduced during 2019-20, ensuring a consistent approach to risk management across the wider Forestry Commission and Defra.

The 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.

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 will need to adapt and ensure that it is resilient throughout the COVID-19 pandemic and 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 will help to shape our future priorities and operations to ensure we continue to provide our critical science, data and evidence. Our initial assessments undertaken in 2020-21 to understand the impact on income, expenditure, liquidity and the associated budgetary position have 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. The implementation of a new IT platform and infrastructure was completed during the year, following the transition from the former Forestry Commission infrastructure. The disaster recovery and business continuity plans were tested in the final quarter of the financial year, confirming resilience and providing necessary assurance in advance of the COVID-19 pandemic.

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 are introducing a new Forest Research Information Asset Register (FRIAR) system early in the 2020-21 financial year. We continue to work with the Forestry Commission on policy and guidance as part of the newly established Security Risk Management Forum. Our new FRIAR platform will enable regular periodic updates to information asset recording and reinforce our information security culture.

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 2020–21 and beyond are:

- ensuring the Agency is resilient throughout the COVID-19 pandemic and in the post COVID-19 world.
- continuing to establish and embed our new corporate IT, HR and Finance capabilities while maintaining business continuity;
- adapt to new post COVID-19 working arrangements through support for more home-working for example;
- 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 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;

- continuing to develop an appropriate response to the increasing threat of cyber security attacks.

In 2020–21 Forest Research will remain focused on managing these challenges either directly or in partnership with other bodies across the Defra network, wider government and devolved administrations, while continuing to maintain business continuity across the broad range of its operations and meeting stakeholder expectations.

Remuneration and Staff Reports

This information is audited by the Comptroller and Auditor General.

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 **<http://civilservicecommission.independent.gov.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 26.

		Salary	Benefits in kind (to the nearest £100)	Pension benefits	Total
		£000	£	£000	£000
James Pendlebury	2019-20	75-80	1,100	18	95-100
Chief Executive	2018-19	75-80	9,800	16	105-110
Chris Quine	2019-20	75-80	-	56	135-140
Chief Scientist	2018-19	70-75	-	37	105-110
Meirion Nelson	2019-20	65-70	8,500	27	100-105
Finance Director	2018-19	65-70	5,000	29	100-105

All other Board members are Non-Executive Directors, with the exception of Ian Gambles (Forestry Commission Chief Executive) whose remuneration is disclosed in the Forestry Commission Annual Report and Accounts.

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.

No bonuses were payable in either 2019–20 or 2018–19.

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 2019–20 was £75,000–£80,000 (2018–19: £85,000–£90,000). This was 2.43 times (2018–19: 2.81) the median remuneration of the workforce, which was £31,940 (2018–19: £31,110). In 2019–20 no employees (2018–19: nil) received remuneration in excess of the highest-paid director. Remuneration ranged from £17,000 to £79,000 (2018–19: £18,000 to £87,000).

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 2019–20 – subject to audit

Name	Accrued pension at age 60 at 31/3/20 and related lump sum (LS) £000	Real increase (decrease) in pension and related lump sum (LS) £000	CETV at 31 March 2020 £000	CETV at 31 March 2019* £000	Real increase (decrease) in CETV £000
James Pendlebury	15 – 20 plus a lump sum of 55 - 60	0 – 2.5 plus a lump sum of 2.5 - 5	451	409	19
Chris Quine	35 – 40 plus a lump sum of 105-110	2.5 – 5 plus a lump sum of 7.5 - 10	871	793	58
Meirion Nelson	20 – 25 plus a lump sum of 35 – 40	0 – 2.5 plus a lump sum of 2.5 - 5	305	277	12

* 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 will switch into **alpha** sometime between 1 June 2015 and 1 February 2022. 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 'money purchase' stakeholder 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 a stakeholder pension arrangement. The employer makes a basic contribution of between 8% and 14.75% (depending on the age of the member) into a stakeholder pension product chosen by the employee from the appointed provider - Legal & General. 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 (information subject to audit)

The non-executive members of the Audit and Risk Assurance Committee received the following remuneration for their services:

Name	2019-20 £000	2018-19 £000
Mary Barkham*	0	0
Shireen Chambers~	0	0
Judith Webb	2	2

* Mary Barkham's appointment commenced November 2016; she is a Forestry Commissioner and no fees are payable to her by Forest Research.

~ Shireen Chambers received fees of £409 (2018-19: £250) during the year.

Staff Report

Number of Senior Civil Servants by band

Band	Number of Senior Civil Servants
1/1A	2

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

	2019–20	2018–19
Permanent staff – male (3 Board Members)	133	130
Permanent staff – female	88	80
Total permanent	221	210
Others – male	11	17
Others – female	9	11
Total others	20	28
Total staff	241	238

Staff costs – subject to audit

	Permanent staff	Other staff	2019–20 Total	2018–19 Total
	£000	£000	£000	£000
Wages and salaries	7,974	455	8,429	8,078
Social security costs	814	41	855	832
Employer's superannuation costs	2,090	115	2,205	1,643
Apprenticeship levy	39	–	39	39
Agency staff costs	–	113	113	180
Total	10,917	724	11,641	10,772

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 2012. Details can be found in the resource accounts of the Cabinet Office: Civil Superannuation (www.civilservice.gov.uk/pensions).

For 2019–20, employer contributions of £2,187,000 were payable to the PCSPS (2018–19: £1,625,715) 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 2019–20 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 £16,935 (2018–19: £18,530) 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 £657, 0.5% of pensionable pay (2018–19: £722, 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 (2018–19: £2,986). 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 2019–20 was 5.3 per employee (2018–19: 7.4).

Early departure costs

During 2019–20, one person left under Compulsory or Voluntary Redundancy terms (2018–19: one). They received a compensation payment of £5,000 (2018–19: £66,000).

Expenditure on consultancy

During the year, Forest Research incurred £nil on consultancy services (2018–19: £34,000).

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. There were no off-payroll



engagements, as of 31 March 2020, of more than £245 per day that lasted more than six months.



People

Forest Research follows the Forestry Commission’s employment policies and values. Our values determine how we behave in fulfilling our objectives. They are:

- **Communicative**
We will be honest, professional, impartial and objective with each other and our customers.
- **Open**
We will act with integrity, take pride in our work and be inclusive and welcoming in our approach, treating everyone with respect.
- **Customer-focused**
We will focus on our customers’ interests and provide them with the best possible service, support, information and advice.
- **Collaborative**
We will work in an interdisciplinary way, and be co-operative and collaborative in our approach to our science, data provision and business development.
- **Creative**
We will champion scientific challenge, debate and innovation.
- **Safe**
We will identify, assess, communicate and appropriately manage risks to the health, safety and well-being of our staff.

Priority	Progress over the last year	Looking forward
 Creating a positive working culture	<p>Our staff engagement survey shows that staff are proud to work in Forest Research and understand how their roles contribute to FR strategic plan.</p> <p>In conjunction with staff we developed new FR values, enhanced line managers knowledge through training on mental health awareness, bullying discrimination and harassment,</p>	<p>Our vision is to create a positive culture which continually improves the working culture in FR. To help us achieve this:</p> <p>We will develop a new plan from the results of the 2019 staff survey to</p>

	introduced support networks and dedicated trained resources to help all staff and managers. The work to create a supportive working environment was recognised by MIND We were awarded a Bronze level for achieving change.	the engagement of our staff and measure improvement through 6 monthly “pulse checks” and delivery of the staff engagement plan.
 <p>Increasing the capability and effectiveness of our people</p>	<p>Recognising the impact of high-quality learning and development this year we have overhauled our technical compliance and “on the job” training, reviewed and applied best practise to our processes and procedures and revised all Environmental, Health and Safety training material. Over 180 staff have been trained on a wide range of Environmental, Health and Safety courses.</p> <p>To enhance capability of our line managers, we ran 17 management workshops on a range of management topics to over 50-line managers.</p> <p>Participated with pan Civil Service project on developing a Researcher Development framework that our staff can use to support progression within FR and Civil Service.</p> <p>Publicised career development pathways for all our Corporate Services functions.</p>	<p>We will continue to embed the new learning and development standards, systems and career frameworks.</p> <p>We will build on this year’s progress and link to further improvements we plan to publicise all the tools and resources available to support staff development.</p> <p>Implement leadership development programme.</p>
 <p>Creating a digitally enabled organisation</p>	<p>In addition to the overhaul of our IT systems which introduced a range of new products and services including the Office 365 productivity platform and a new Windows 10 desktop environment, we implemented a new Enterprise Resource Planning system that enables line managers and employees to have improved access to critical information.</p> <p>We have rolled out upgraded and improved Civil Service digital resourcing and learning and development platforms. Improving our digital presence and branding we have introduced a new FR website and a new FR Intranet site.</p>	<p>We will transform our impact and how we work, simplifying processes, generating efficiencies and reducing time and costs by championing customer centricity through branding and marketing of Forest Research; continue to build a digital culture and integration through various established working groups. Scope phase two of Enterprise</p>

	Digital week in October generated an increase of 3,000 views per week, significantly increased our LinkedIn impressions by 2,234% and increased internal views to the new Intranet site.	Resource Planning configuration, aiming to achieve digital friendly business operating processes.
 Focus on Health and wellbeing	The level of absence related to illness is relatively low at FR, it is 5.3 days per employee. However, recognising pressures of work and life and the requirement to have a healthy work life balance, working with MIND, FR took part in the Workplace Wellbeing Index. 87% of staff responded to the survey and the work FR has undertaken to create a supportive working environment has been recognised by MIND. FR has been awarded a Bronze level for achieving change in March 2020.	We will continue to focus on the health, safety and wellbeing of all our staff focussing through the development and implementation of FR's Mental Health wellbeing action plan. Review our policies FR Health and Safety plan.
 Workforce planning	Workforce planning and organisation development has been a high priority this year, as a significant proportion of our long serving experienced staff are able to access their occupational pension schemes. To understand the short term and long-term risks we conducted a thorough review of our resources, linking to skills, critical roles and potential. Succession / workforce plans have been developed.	We will implement our plans, monitoring progress and link to career development frameworks that are being supported.

Equality and diversity

We continue to strive towards building a diverse and inclusive environment for all our staff and we published our annual Equality Monitoring Report in March 2020.

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 representatives and

through the Forest Research Staff Council. Key issues raised and discussed have included the decentralisation of work from FC Shared Services to Forest Research, introduction of the new Enterprise Resource Planning system, the potential pay and reward project, training, absence, mental health, developing our culture and high levels of compliance on health and safety matters.

Recruitment, succession planning and job evaluation

We have successfully gained a Tier 2 visa to ensure that we have the opportunity to secure staff from overseas with the necessary knowledge, skills and experience to fill business-critical posts. We have also undertaken some initial work in scoping succession planning and identifying the future impacts. Our HR team is now trained to undertake job evaluation assessments, work that was previously undertaken by FC Shared Services.

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's is part funded through a new Cross Border Memorandum of Understanding between FR 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, FC England, FC 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.

Regularity of expenditure

There were two losses during 2019–20 with a total cost of £17,000 (2018–19: £nil) the most substantial loss was for obsolete publications inventory write off.

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

	2019-20 £000	2018-19* £000	2017-18 £000	2016-17~ £000	2015-16 £000
Staff costs	11,641	10,772	10,248	10,114	7,734
Other management costs	5,721	5,088	3,608	3,235	2,527
Materials and services	2,094	3,584	3,811	3,602	2,418
Total expenditure	19,456	19,444	17,667	16,951	12,679

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

~ 2016-17 figures include costs of the transfer of FC staff and associated work to FR on 1 April 2016.



Professor James Pendlebury
Chief Executive and Accounting Officer

4 June 2020

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 2020 under the Government Resources and Accounts Act 2000. The financial statements comprise: the Statements of Comprehensive Income, Financial Position, Cash Flows, Changes in Taxpayers' Equity; and the related notes, including the significant accounting policies. These financial statements have been prepared under the accounting policies set out within them. I have also audited the information in the Accountability Report that is described in that report as having been audited.

In my opinion:

- the financial statements give a true and fair view of the state of Forest Research's affairs as at 31 March 2020 and of the net operating income for the year then ended; and
- the financial statements 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 of opinions

I conducted my audit in accordance with International Standards on Auditing (ISAs) (UK) 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 2016. I am independent of the Forest Research in accordance with the ethical requirements that are relevant to my audit and 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

I am required to conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Forest Research's ability to continue as a going concern for a period of at least twelve months from the date of approval of the financial statements. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the entity to cease to continue as a going concern. I have nothing to report in these respects.

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 the preparation of the financial statements and for being satisfied that they give a true and fair view.

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.

An audit involves obtaining evidence about the amounts and disclosures in the financial statements sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. 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.

As part of an audit in accordance with ISAs (UK), I exercise professional judgment and maintain professional scepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of Forest Research's internal control.
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

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.

I am required to obtain evidence sufficient to give reasonable assurance that the expenditure and income 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.

Other Information

The Chief Executive as Accounting Officer is responsible for the other information. The other information comprises information included in the Performance Report and Accountability Report, but does not include the parts of the Accountability Report described in that report as having been audited, the financial statements and my auditor's report thereon. My opinion on the financial statements does not cover the other information and 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, 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 parts of the Accountability Report to be audited have been properly prepared in accordance with HM Treasury directions made under the Government Resources and Accounts Act 2000;
- in the light of the knowledge and understanding of the entity and its environment obtained in the course of the audit, I have not identified any material misstatements in the Performance Report and Accountability Report; and
- the information given in the Performance Report and Accountability Report for the financial year for which the financial statements are prepared is consistent with the financial statements and have been prepared in accordance with the applicable legal requirements.

Matters on which I report by exception

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

- adequate accounting records have not been kept 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 to be audited are not in agreement with the accounting records and returns; or
- I have not received all of the information and explanations I require for my audit; or
- the Governance Statement does not reflect compliance with HM Treasury's guidance.

Report

I have no observations to make on these financial statements.

Gareth Davies

15 June 2020

Comptroller and Auditor General

National Audit Office

157–197 Buckingham Palace Road

Victoria

London SW1W 9SP

Financial Statements

Statement of Comprehensive Income for the year ended 31 March 2020

	Notes	2019–20 £000	2018–19 £000
Income			
Forestry Commission customers	6.1	(8,534)	(13,615)
Non-Forestry Commission customers			
European Union		(182)	77
Other	6.2	(10,762)	(5,933)
Total operating income		(19,478)	(19,471)
Expenditure			
Staff costs	3	11,641	10,772
Other management costs	4	5,721	5,088
Materials and services	5	2,094	3,584
Total operating expenditure		19,456	19,444
Net operating income		(22)	(27)
Other comprehensive net income			
Net gain on revaluation of property, plant and equipment	7	(26)	(339)
Net gain on financial asset	8	–	(50)
Net gain on foreign currency receivable		(15)	(115)
Total comprehensive net expenditure/(income) for the year		(63)	(531)

All income and expenditure are derived from continuing operations.

The notes on pages 54 to 73 form part of these accounts.

Statement of Financial Position as at 31 March 2020

		31 March 2020	31 March 2019
	Notes	£000	£000
Non-current assets			
Property, plant and equipment	7	13,372	12,957
Intangible assets		–	1
Financial assets	8	75	75
Trade and other receivables	9	13	23
Total non-current assets		13,460	13,056
Current assets			
Inventories		110	129
Trade and other receivables	9	4,971	3,060
Cash and cash equivalents	10	1,894	2,224
Total current assets		6,975	5,413
Total assets		20,435	18,469
Current liabilities			
Provisions	12	–	(16)
Trade and other payables	11	(2,434)	(2,474)
Total liabilities		(2,434)	(2,490)
Total assets less current liabilities		18,001	15,979
Non-current liabilities			
Provisions	12	–	–
Trade and other payables	11	(99)	(99)
Total assets less total liabilities		17,902	15,880
Taxpayers' equity			
General Fund		10,340	8,349
Revaluation Reserve		7,562	7,531
Total equity		17,902	15,880



Professor James Pendlebury
Chief Executive and Accounting Officer

4 June 2020

The notes on pages 54 to 73 form part of these accounts.

Statement of Cash Flows for the year ended 31 March 2020

		2019–20	2018–19
	Notes	£000	£000
Net cash inflow from operating activities			
Net operating income		22	27
Adjustments for non-cash transactions			
Depreciation	4	1,235	830
Amortisation	4	1	16
Loss on disposal of property, plant and equipment	4	27	12
Property, plant and equipment write-off		–	–
Notional audit fee	4	39	38
Movements in provisions	12	–	68
Decrease in inventories		19	1
(Increase) in trade and other receivables	9	(1,901)	(1,454)
Increase/(decrease) in trade and other payables	11	(40)	832
Movements in receivables to items not passing through the SCI		15	115
Use of provisions	12	(16)	(87)
Net cash (outflow)/inflow from operating activities		(599)	398
Cash flows from investing activities			
Purchase of property, plant and equipment	7	(1,651)	(1,827)
Net cash (outflow) from investing activities		(1,651)	(1,827)
Cash flows from financing activities			
Net cash transfer from the Forestry Commission		1,920	2,000
Net financing		1,920	2,000
Net (decrease)/increase in cash and cash equivalents in the period		(330)	571
Cash and cash equivalents at the beginning of the period		2,224	1,653
Cash and cash equivalents at the end of the period		1,894	2,224

The notes on pages 54 to 73 form part of these accounts.

Statement of Changes in Taxpayers' Equity for the year ended 31 March 2020

	Notes	General Fund £000	Revaluation Reserve £000	Total Reserves £000
Balance at 1 April 2019		8,349	7,531	15,880
Changes in taxpayers' equity for 2019–20				
Net gain on revaluation of property, plant and equipment	7	–	26	26
Net gain on foreign currency receivable		–	15	15
Transfer from Revaluation Reserve		10	(10)	–
Notional audit fee	4	39	–	39
Comprehensive net income		22	–	22
Cash transferred from the Forestry Commission		1,920	–	1,920
Balance at 31 March 2020		10,340	7,562	17,902
Balance at 1 April 2018				
		6,277	7,034	13,311
Changes in taxpayers' equity for 2018–19				
Net gain on revaluation of property, plant and equipment		–	339	339
Net gain on revaluation of financial asset		–	50	50
Net gain on foreign currency receivable		–	115	115
Transfer from Revaluation Reserve		7	(7)	–
Notional audit fee		38	–	38
Comprehensive net income		27	–	27
Cash transferred from the Forestry Commission		2,000	–	2,000
Balance at 31 March 2019		8,349	7,531	15,880

The notes on pages 54 to 73 form part of these accounts.

Notes to the Accounts

Note 1. Statement of accounting policies

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 (see note 18) and in accordance with International Financial Reporting Standards (IFRS) as adapted and interpreted by the 2019–20 *Government Financial Reporting Manual* (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 presentational 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.

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 80 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. 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 2020 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 2019-20 Annual Report and Accounts following the postponement of application in the public sector to 1 April 2021.

1.16 Effective for future financial years

IAS 8, Accounting Policies, Changes in Accounting Estimates and Errors, requires disclosures in respect of new IFRSs, amendments and interpretations that are, or will be, applicable after the reporting period. There are a number of IFRSs, amendments and interpretations that have been issued by the International Accounting Standards Board that are effective for future reporting periods. Those with relevance to Forest Research are outlined below. None have been adopted early.

IFRS 16 – Leases. This standard will be applied in the public sector from 1 April 2021. It will supersede all existing IFRS standards on leases. It is likely to result in a uniform accounting treatment for all leases, with the distinction between operating and finance leases removed.

Forest Research will apply the standards upon formal adoption in the FReM. It is not anticipated that material adjustments to the financial statements will be required following the introduction of these standards.

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

	2019-20	2018-19
	£000	£000
Wages and salaries	8,429	8,078
Social security costs	855	832
Employer's superannuation costs	2,205	1,643
Apprenticeship levy	39	39
Agency staff costs	113	180
Total	11,641	10,772

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

Note 4. Other management costs

	Notes	2019-20	2018-19
		£000	£000
Travel and subsistence		612	578
Building maintenance *		1,376	790
Utilities		337	281
Training		78	50
Other expenditure		275	286
Computer supplies		1,741	2,132
Staff transfer expenses		-	6
Non-cash costs:			
Provisions – early departure costs:			
Provided in year	12	-	69
Unwinding of discount	12	-	-
Depreciation of property, plant and equipment	7	1,235	830
Amortisation of intangible assets		1	16
Loss on disposal of property, plant and equipment		27	3
Loss on disposal of intangible assets		-	9
Auditors' remuneration – notional cost		39	38
Total		5,721	5,088

* The increase in building maintenance costs primarily relates to rental charges for IFOS accommodation at the Silvan House offices in Edinburgh. Prior to 2019-20, these costs were included in the Central Services charge reported in Note 5.

Note 5. Materials and services

	2019–20	2018–19
	£000	£000
Materials and supplies	621	908
Central services provided by the Forestry Commission *	–	967
Vehicle charges from the Forestry Commission *	304	317
Contracted research services	1,025	720
Publications	28	20
Protective clothing	12	13
Miscellaneous expenditure	104	639
Total	2,094	3,584

* Prior to 2019-20, charges were made to Forest Research from the Forestry Commission as appropriate, for assistance with field experiments, hire of vehicles, machinery and equipment and for personnel, business management, financial and other support services. From 1 April 2019, Forest Research established its own corporate services teams and, with the exception of vehicles, no longer incurs related charges for these services.

Note 6. Income

6.1 Income from the Forestry Commission

From 1 April 2019, a new 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. The income results have been included in the tables below and differentiated between Forestry Commission and Non-Forestry Commission customers.

Income from Forestry Commission customers consisted of:

	2019–20	2018–19
	£000	£000
Research, development and other services to:		
Forestry Commission	3,162	12,490
Forestry Commission/Defra - MOU	4,079	–
Forestry England	1,293	1,125
	8,534	13,615

6.2 Other income

Other income consisted of:

	2019-20	2018-19
	£000	£000
Scottish Government – MOU	4,079	–
Scottish Government – Other	901	1,246
Forestry and Land Scotland	1,721	1,637
Welsh Government – MOU	907	–
Welsh Government – Other	316	–
Contracts for research and services	2,595	2,931
Ad hoc – sample analysis, supply of seeds, conferences, advisory	243	119
	10,762	5,933

In 2019-20, core funded research consisted of income receivable through the new Cross-Border MOU and other FC income totalling £11,566,000 (2018-19: £11,451,000). Non-core income amounted to £7,912,000 in 2019-20 (2018-19: £8,020,000)

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	1,380	18,360	3,776	1,516	1,170	26,202
2019						
Additions	–	–	529	–	1,122	1,651
Transfers	–	380	13	–	(393)	0
Disposals	–	(115)	(136)	(6)	–	(257)
Write-off	–	–	–	–	–	0
Revaluation to current prices	37	106	(98)	31	–	76
At 31 March	1,417	18,731	4,084	1,541	1,899	27,672
2020						
Depreciation:						
At 1 April	–	10,318	2,100	827	–	13,245
2019						
Provided in year	–	773	311	151	–	1,235
Disposals	–	(25)	(133)	(5)	–	(163)

Revaluation to current prices	-	9	(44)	18	-	(17)
At 31 March 2020	-	11,075	2,234	991	-	14,300
Net book value:						
At 31 March 2020	1,417	7,656	1,850	550	1,899	13,372
At 31 March 2019	1,380	8,042	1,676	689	1,170	12,957
Valuation:						
At 1 April 2018	1,346	17,683	3,486	1,122	232	23,869
Additions	-	24	416	399	988	1,827
Transfers	-	-	50	-	(50)	0
Disposals	-	-	(163)	(10)	-	(173)
Revaluation to current prices	34	653	(13)	5	-	679
At 31 March 2019	1,380	18,360	3,776	1,516	1,170	26,202
Depreciation:						
At 1 April 2018	-	9,560	1,953	732	-	12,245
Provided in year	-	409	318	103	-	830
Disposals	-	-	(160)	(10)	-	(170)
Revaluation to current prices	-	349	(11)	2	-	340
At 31 March 2019	-	10,318	2,100	827	-	13,245
Net book value:						
At 31 March 2019	1,380	8,042	1,676	689	1,170	12,957
At 31 March 2018	1,346	8,123	1,533	390	232	11,624

Fixed assets were revalued as at 31 March 2020 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 £4.0 million and £3.4 million, respectively, at 31 March 2020.

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 2019: £75,000) which is classified as FVOCI and is available for sale. The available-for-sale asset is Forest Research's share of C-Cure Solutions Ltd.

All financial liabilities on the Statement of Financial Position are classified as other financial liabilities, except for £355,000 (31 March 2019: £82,000) taxation and social security costs and £459,000 (31 March 2019: £234,000) 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 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

	2019–20	2018–19
	£000	£000
Current		
EU trade receivables	145	61
Other trade receivables	3,970	2,025
Total trade receivables	4,115	2,086
Other receivables	4	10
House purchase loans to employees	11	14
Prepayments and accrued income – EU	478	504
Prepayments and accrued income – non-EU	376	469
Total current receivables	4,984	3,083

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

As of 31 March 2020, £624,000 (2018–19: £731,000) were fully performing and not overdue or impaired and provided for.

As of 31 March 2020, trade receivables of £3,031,000 (2018–19: £1,496,000) 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 determined low risk, as due from public sector customers or the EU. The age analysis of these trade receivables is as follows:

	2019–20	2018–19
	£000	£000
Months overdue		
Less than one month	1,211	1,382
One to two months	510	10
Two to three months	387	70
More than three months	923	34
	3,031	1,496

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:

	2019–20	2018–19
	£000	£000
Current		
Pounds sterling	4,360	2,519
Euros	624	564
Total	4,984	3,083

Note 10. Cash and cash equivalents

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

	2019–20	2018–19
	£000	£000
Opening balance at 1 April	2,224	1,653
Net change in balances	(330)	571
Balance at 31 March	1,894	2,224

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, details reported in note 17 on page 72.

Note 11. Trade and other payables

	2019–20	2018–19
	£000	£000
Current		
Payments received on account	242	390
Trade payables	287	–
Taxation and social security costs	355	82
Other payables	10	410
Current part of finance leases	50	49
Accrued expenses	1,031	1,309
Contract liabilities	459	234
Total	2,434	2,474
Non-current		
Current part of finance leases	99	99
Total	99	99
Total	2,533	2,573

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 2020 and 31 March 2019, with the exception of taxation and social security costs and £230,000 (31 March 2019: £165,000) due to central government bodies. Funds held on behalf of partners in European Commission projects are treated as third-party assets (see Note 17). At 31 March 2020 the amount held in Forest Research bank accounts on behalf of partners was £59,000 (31 March 2019: £44,000).

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

	2019–20	2018–19
	£000	£000
Current		
Pounds sterling	2,417	2,371
Euros	105	193
New Zealand Dollars	11	9
Total	2,533	2,573

Note 12. Provisions for liabilities and charges

	2019–20		2018–19	
	Other	Early departure costs	Other	Early departure costs
	£000	£000	£000	£000
Balance brought forward at 1 April	-	16	-	35
Provided in year	-	-	-	69
Provision not required written back	-	-	-	(1)
Utilised in year	-	(16)	-	(87)
Unwinding of discount	-	-	-	-
Balance carried forward at 31 March	-	-	-	16

Forest Research meets the additional costs of benefits beyond the normal PCSPS benefits in respect of employees who retire by paying the required amounts annually to the PCSPS over the period between early departure and normal retirement date. Forest Research provides for this in full when the early retirement programme becomes binding on Forest Research by establishing a provision for the estimated payments.

Note 13. Capital commitments

There were £3,077,000 contracted capital commitments as at 31 March 2020 (31 March 2019: £nil).

Note 14. 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:

	2019–20	2018–19
	£000	£000
Land and buildings:		
Not later than one year	7	7
Later than one year and not later than five years	26	2
More than five years	4	-
Total	37	9

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

	2019–20	2018–19
	£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	63	68
Total	88	93

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 15. Other financial commitments

There were no other financial commitments at 31 March 2020 (31 March 2019: £nil).

Note 16. 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.

16.1 Transactions with C-Cure Solutions Ltd

	2019–20	2018–19
	£000	£000
Sales	1	7

The above relates to charges to C-Cure in respect of accommodation used at Alice Holt. There was no outstanding balance at 31 March 2020 (31 March 2019: £nil). This is disclosed as, under the Agreement to form the company, James Pendlebury was appointed as the Forest Research Director of the company.

16.2 Transactions with the University of Stirling

	2019–20	2018–19
	£000	£000
Sales	27	10
Purchases	21	4

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 was a £4,999 balance outstanding at 31 March 2020 (31 March 2019: £1,717).

16.3 Forestry Publications Ltd

	2019–20	2018–19
	£000	£000
Sales	11	12

The above transactions, for journal editing, occurred on an arm's length basis. These transactions are disclosed as Shireen Chambers is a Director of Forestry Publications Ltd. There was an outstanding balance of £3,152 at 31 March 2020 (31 March 2019: £nil).

16.4 Transactions with the Scottish Natural Heritage

	2019–20	2018–19
	£000	£000
Sales	13	16

The above transactions, for research contracts, occurred on an arm's length basis. These transactions are disclosed as Chris Quine is a member of an expert panel with Scottish Natural Heritage. There was no outstanding balance at 31 March 2020 (31 March 2019: £nil).

16.5 Transactions with British Society for Plant Pathology

	2019–20	2018–19
	£000	£000
Sales	3	–

The above transactions, for a contribution to an undergraduate bursary, occurred on an arm's length basis. These transactions are disclosed as Nicola Spence is a director of the British Society for Plant Pathology. There was no balance outstanding at 31 March 2020 (31 March 2019: £nil).

16.6 Transactions with the Institute of Chartered Foresters

	2019–20	2018–19
	£000	£000
Sales	1	–
Purchases	2	2

The above transactions, for conference and membership fees, occurred on an arm's length basis. These transactions are disclosed as Shireen Chambers is employed as an executive director for ICF. There was a £nil balance outstanding at 31 March 2020 (31 March 2019: £nil).

16.7 Transactions with the Scottish Forestry Trust

	2019–20	2018–19
	£000	£000
Sales	–	33

The above transactions, for bursary award schemes and a partnership agreement, occurred on an arm's length basis. These transactions are disclosed as Helen McKay is a trustee of the Scottish Forestry Trust, Helen McKay was not a member of Forest Research board in 2019-20 therefore no disclosure made for the current year.

16.8 Transactions with the Cairngorms National Park Authority

	2019–20	2018–19
	£000	£000
Sales	–	7

The above transactions, for a contribution to a research project, occurred on an arm's length basis. These transactions are disclosed as Judith Webb is a CNPA board member. There was no outstanding balance as at 31 March 2020 (31 March 2019: £nil).

Note 17. 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.

	2018–19	Gross inflows	Gross outflows	2019–20
	£000	£000	£000	£000
Monetary third-party assets – Government	46	70	(57)	59
Banking Service balances				

Note 18. Events after the reporting date

There have been no events after the reporting date requiring an adjustment to the accounts.

In accordance with the requirements of IAS 10, events after 31 March 2020 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.

During March 2020, the Agency took urgent action, primarily through the creation of a Response Management Team, to help contain the outbreak of COVID-19. This included instructing and enabling staff to work from home and not attend the main offices and sites for performance of their duties, in line with government guidance. From 31 March 2020, the majority of the Agency’s work has continued to be delivered remotely and through restricted access to sites for work classified as essential.

Management have continually monitored the position since 31 March 2020 and the associated financial impact of COVID-19. In particular:

- undertaking regular exercises to assess the recoverability of receivables existing at 31 March, resulting in the majority of receivables either being settled or determined low risk, as due from public sector customers or the EU;
- assessing the impact on income, expenditure and liquidity in the 2020-21 financial year and the associated budgetary position, particularly in terms of detailed scenario planning and the most likely impact; and
- reporting the worst case scenario to the Board and forecasting the potential impact in the management accounts presented to the Board at the earliest opportunity.

Combined with the Agency’s Central Government status and core funding arrangements, these measures have resulted in management determining that the going concern basis of accounting remains appropriate in the preparation of these financial statements.

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CCS0520573028

ISBN 978-1-5286-1948-6