

Forest Research

Annual Report and Accounts 2018–19

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Performance Report

Overview

This Performance Report overview provides:

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

Chief Executive's Statement

Forest Research is a vibrant organisation that continues to work at the forefront of forestry and tree-related science in response to emerging environmental needs and sectoral challenges. The past 12 months have seen our scientists deploy cutting-edge techniques to work on issues ranging from urban tree valuation and pollution-reduction effects to new and emerging diseases and pest threats, such as *Xylella fastidiosa* and the European spruce bark beetle (*Ips typographus*), timber production and supply issues, and peatland restoration impacts on carbon fluxes and water quality.

We have delivered 19 out of 20 Key Actions from our 2018–19 Corporate Plan and have secured £8.1 million of non-core income. This achievement is the direct result of the dedication, hard work, reputation and collaborative approach of our staff.

In a step change to how we sustainably acquire, exchange and leverage data, our Inventory Forecasting and Operational Support (IFOS) group has successfully delivered Forester Web, a highly configurable, cloud-hosted land-management platform, servicing more than 1,000 users on a daily basis across England and Scotland and managing over £5 billion of public forest assets across the UK. This complex product, developed over several years, was delivered on time and on budget and has been very well received by customers. In particular, it enables spatial data and information to be created, accessed and managed in ways that support insight-driven decision-making. It also acts as a technology transfer platform, facilitating the uptake of our decision-support systems, thereby further supporting modern sustainable forest management.

Our wide-scale datasets underpin key national policy and planning decisions. For example, analysis of the National Forest Inventory (NFI) has delivered strategically important results for the Scottish forestry sector, the Confederation of Forest Industries (Confor) and other stakeholders by improving wood-supply-chain efficiencies through better assessment of potential and actual wood availability. NFI data have also clarified the extent of forests at risk

from the outbreak of the European spruce bark beetle (*Ips typographus*) in England, directly informing policy decisions, surveillance and eradication efforts.

We have undertaken innovative work for Forestry Commission England on the potential use of Earth observation data to generate improvements in compliance monitoring. We have also produced the first draft land registration mapping of the national forest estate in Scotland, which we will be finalising during 2019.

Forest Research continues to be active in its support of forestry in Wales. Our researchers have undertaken an i-Tree Eco survey of urban trees in Cardiff and have continued to monitor tree health, from working with the Tree Health Citizen Science Network Day to formal surveys for Natural Resources Wales (NRW) and laboratory support for the NRW tree health team.

Unsurprisingly, our work is increasingly focusing on resilience and how long-lived urban and forest trees will cope with the challenge of climate change. Understanding how to maintain the provisioning role that trees provide in a rapidly evolving climate where risks such as fire, wind and drought are changing is a core theme of much of our work. As a result, we contributed to reviewing the scientific evidence behind measures to enhance the resilience of Scottish forests in support of the new Scottish Forestry Strategy published in February 2019.

International collaborations are growing, and, over the past year, our scientists have worked with colleagues around the world on a variety of subjects, from assessing the effects of nature-based activities on migrants in Sweden to community engagement in urban tree health in New Zealand and landscape-scale restoration, continuous-cover forestry and remote-sensing projects in China.

Hosting visits from key stakeholders and scientists from other organisations continues to provide important opportunities to hone our thinking and showcase our work. In June 2018, we were pleased to host a visit from Clare Moriarty, then Permanent Secretary for the Department for Environment, Food and Rural Affairs (Defra), to our Northern Research Station (NRS), where she was given demonstrations of Forester GIS and Geostore and information on our latest research into timber properties. We also had a very informative and enjoyable visit in November 2018 from senior staff from the Jamaican Forestry Department, which should form the basis of future collaborative work. The same month, we were delighted to host a second visit to NRS from Fergus Ewing, the Scottish Government's Cabinet Secretary for the Rural Economy, to discuss the improved planting stock used by industry and the potential for further improving growth rates and timber properties.

As part of completing the devolution of forestry, Forest Research has developed its own stand-alone corporate capabilities in readiness for 1 April 2019. Our Information Technology

(IT) platforms and our new Enterprise Resource Planning (ERP) system went live on 1 April 2019. During the year, our HR team implemented our new payroll and pensions systems effectively. The IT desktop roll-out will be finalised in May 2019 and our new capabilities will help us to be more nimble and responsive to our clients. At the same time, it is pleasing to note that Forest Research achieved its Environmental Management System ISO 14001 re-accreditation during 2018, which is now a stand-alone accreditation and no longer part of a wider Forestry Commission certification approval.

We were also delighted to appoint Professor Chris Quine as our new Chief Scientist. Chris brings a wealth of forestry knowledge and scientific experience to his new role and will be pivotal in helping us evolve as an organisation to meet the exciting challenges and opportunities ahead.

I often mention the quality of our staff in my annual summaries and it is gratifying when that quality is recognised by others. Our principal pathologist, Dr Joan Webber, was awarded an OBE last summer. She has led work on Dutch elm disease, is the UK's leading expert on *Phytophthora* and is also recognised as an expert on ash dieback, formerly known as Chalara. Much of her work has been in collaboration with scientists in the UK and overseas, including Taiwan, New Zealand, the US and Japan. In addition, her ability to explain complex tree health issues to the public has drawn praise.

Dr Steve Lee, who has recently retired from Forest Research, was also awarded an OBE in the New Year's Honours list for his expertise in tree breeding. Steve's leadership of the conifer-improvement programme, especially his work on Sitka spruce, has led to a major increase in the volume and quality of timber being produced and almost 50% of the commercial conifers now planted in the UK are genetically improved (not modified!) stock that have been developed from his work. More recently he was involved in trying to identify ash trees resistant to ash dieback. Two of our recently retired staff – Jackie Watson, who used to work for our Statistics team in IFOS, and Rob Sykes, who worked on tree breeding alongside Steve Lee – also received Imperial Service Medals.

These are busy times and our staff continue to deliver great science, innovation and data services to the sector and to government, which is a testament to their hard work, expertise and commitment. I would also like to thank our diverse range of stakeholders, partners and customers for their ongoing support and collaboration, which we really appreciate and hope will continue in the future.

Professor James Pendlebury
Chief Executive and Agency Accounting Officer

Purpose and activities

Who we are

Forest Research (FR) is the research agency of the Forestry Commission (FC) and Great Britain's principal organisation for forestry and tree-related research. 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 strategic objectives

1. To provide evidence and expertise to inform the development and delivery of UK, English, Welsh and Scottish forestry-related policies.
2. To provide innovative applied research, development, monitoring, scientific services, forestry data services and professional training to UK, European and international forestry stakeholders.
3. To facilitate knowledge exchange directly, and/or in partnership with others, to UK, European and international audiences.
4. To be the preferred supplier to the UK, Scottish and Welsh governments for forestry science as a result of its quality of service, value for money and reputation with the sector.
5. To work in partnership with others to promote the development of forest science and research capacity and capability, in particular through staff recruitment, training and development.

As part of the wider Defra family, FR will help to deliver Defra's Strategy, 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, which are 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

During 2018–19, much of FR’s work is funded by the FC with the former Corporate and Forestry Support acting as purchaser of research and other services in support of 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, Forest Enterprise (FE) England, FE 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 238 (full-time equivalent) staff during the year 2018–19 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 26.

On 23 June 2016, the EU referendum took place and the people of the United Kingdom voted to leave the EU. Until the United Kingdom 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 Union 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 2018–19 financial year has been particularly challenging for the business. Forest Research has successfully managed to establish its own corporate services functions, maintained delivery of its normal critical scientific and research activities, and achieved financial balance. In particular, Forest Research has:

- successfully achieved a financial balance for the year and a net operating surplus of £27,000;
- achieved or exceeded targets for 19 out of the 20 Key Actions in our 2018–19 Corporate Plan and substantially achieved the remaining target of fully transitioning to new corporate arrangements by 1 April 2019 (pages 13 and 14);
- secured £8.1 million of non-core income;
- published a new Strategy for FR: *A Strategy for Growth*;
- surveyed 1,690 hectares of forested land as required by the National Forest Inventory;
- finalised the corporate services transition from FC Shared Services to FR, establishing new corporate services teams, implementing new IT infrastructure and a new Enterprise Resource Planning system;
- identified an outbreak of *Ips typographus* in Kent and continued to support Defra colleagues in dealing with the outbreak;
- established an enhanced volunteer network for the Observatree project, which will be further increased in 2019–20;
- successfully produced reports on the role of urban tree stature and age on ecosystem service delivery by large, medium and small tree species over their lifespan;
- identified new strains of *Phytophthora ramorum* through use of the Forest Research Tree Alert system and liaised with Europe to highlight the threat, which is of greater significance to Mediterranean countries;
- completed evaluation, for FC and Defra colleagues, of the flood regulation service of existing forest cover to inform natural capital accounts;
- supported the mainstreaming of the Active Forest Programme and delivered the associated monitoring and evaluation;
- continued to lead a European Union (EU) COST Action programme on Payments for Ecosystem Services involving 175 participants from 32 countries;

- led an extremely successful Woodland Creation and Ecological Networks (WrEN) project conference, bringing together strong diverse stakeholder interest and support for the research;
- reported on the long-term experiments on free growth of oak, in partnership with Woodland Heritage, Natural Resources Wales and Forestry Commission Scotland;
- completed and disseminated the development of improved models for predicting the development of top height with age for major UK tree species;
- updated and published yield curves for Sitka spruce (SS) and improved SS;
- led the PESFOR-W COST Action programme on Forests for Water Quality Payments for Ecosystem Services and co-organised with partners the International Union of Forest Research Organizations (IUFRO) and Water Global Expert Panel on Forests for Water with around 40 international participants;
- completed transition of key operational Forester software to a web-hosted platform and our associated spatial data repository to a new cloud-hosted shared Geostore;
- published a large range of UK National Statistics and Official Statistics on subjects including woodland carbon code statistics, timber price indices, Forestry Statistics 2018, Nursery Survey 2018 and analyses from the National Forest Inventory.

Financial review

Forest Research embarked on a significant corporate services transition programme in 2018–19. Despite the significant additional challenges associated with the transition programme, we successfully achieved financial balance for the year and reported net operating income of £(27,000) (2017–18: £(10,000)).

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

- other management costs increased by £1,480,000 (41%), mainly as a result of non-recurrent transition expenditure associated with IT and the implementation of new corporate systems;
- materials and services costs decreased by £227,000 (6%), mainly as a result of decreased costs associated with the FC Shared Services provision and a reduction in the use of external research support required during the year;
- income from external sources (non-core income) during the year amounted to £8.1 million, which represents a 5% increase on external research work compared to the level achieved in 2017–18.

In 2018–19, Forest Research secured more non-core income than in 2017–18, rigorously restricted non-income-generating expenditure and effectively monitored the financial position across the business throughout the year to ensure a net operating income of £27,000 was achieved.

Additions to fixed assets in the year amounted to £1,827,000 (2017–18: £1,154,000) and included expenditure on essential infrastructure work (enhancement of water supply and enabling works for the new Entomology and Pathology Quarantine Laboratory at the Alice Holt site), scientific and IT 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 2018–19 the recovery rate was 100.1%, which was consistent with the 100.1% rate achieved in 2017–18.

Performance against other operational and scientific Key Actions is reported in the Performance Analysis on page 12.

The future

Our work is founded on the principle that research and evidence are at the heart of informed policy-making and sustainable land management practices. This has helped shape our priorities, which are to provide the science and evidence to:

- protect our trees and forests;
- 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 Forest Research will be undertaking to support the delivery of the Forestry Commission’s Science and Innovation Strategy for Forestry in GB, and to fulfil our own corporate objectives for 2019–20, 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.
- 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.
- Further develop the Observatree partnership and enhance the volunteer network.
- Develop the Action Oak partnership and enhance its knowledge exchange and research functions.

- Survey 1,690 hectares of forested land as required by the National Forest Inventory (NFI) and publish reports on woodland ownership and woodland habitat condition.
- Implement Forest Research's new Strategy: *A Strategy for Growth*.
- 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 2018–19 indicates that 99.6% 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 £38,000 (2017–18: £38,000). No further non-audit services were provided in 2018–19 or 2017–18.

Performance Analysis

The performance of Forest Research is closely monitored throughout the year by the Executive Board. 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;
- 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 Executive Board ensures that progress against Key Actions is appropriately measured and reported, including consideration of risk and uncertainties that potentially impact on performance, through our risk management procedures. In addition, regular monitoring of

the financial position in comparison to Corporate Plan 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 42. Operating and financial reviews describing our key financial results for the year have been included on pages 9 and 10.

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 to refresh the Statement in response to Defra’s Counter Fraud and Error initiative.

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 21.

The Executive Board has concluded that our achievements against our Corporate Plan Key Actions for 2018–19 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
Progress Phase 2 of the Observatree partnership and build an expanded volunteer network	Achieved.
Carry out surveys, provide diagnostic services 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. Complete the transition of TreeAlert to Forest Research and maintain and enhance its functionality for country-wide reporting	Achieved.
Participate in the public launch of the Action Oak partnership and the development of its knowledge exchange and research functions	Achieved.
Gather scientific information and evidence to assist with the management of damaging pests and diseases and the development of tree health policy, and ensure the dissemination of this information	Achieved.
Undertake reports on the role of urban tree stature and age on ecosystem service delivery by large, medium and small tree species over their lifespan	Achieved.
Complete an evaluation for the Forestry Commission/Defra of the flood regulation service of existing forest cover to inform natural capital accounts	Achieved.

Support the mainstreaming of the Active Forest Programme and undertake the associated monitoring and evaluation	Achieved.
Publish results emerging from the WrEN natural experiment project to inform future conservation actions of woodland planting and management, and organise a WrEN conference to bring diverse stakeholders together	Achieved.
Lead the PESFOR-W COST Action programme on Forests for Water Quality Payments for Ecosystem Services	Achieved.
In partnership with Woodland Heritage, Natural Resources Wales and Forestry Commission Scotland, host a meeting and publish the results celebrating the long-term experiments on free growth of oak	Achieved.
Review the opportunities that Earth observation techniques and capabilities have to improve effectiveness and efficiency of forest productivity and major management interventions, initially for Kielder Forest	Achieved.
Complete and disseminate the development of improved models for predicting the development of top height with age for major UK tree species	Achieved.
Update the current published yield curves for Sitka spruce (SS) and improved SS	Achieved.
Contribute to the delivery of partners' events, including the Institute of Chartered Foresters Conference (a focus on innovation, April 2018), Royal Highland Show (June 2018), Royal Welsh Show (July 2018), APF (September 2018) and activities of the European Forest Institute	Achieved.
Complete the transition of Forester software and associated spatial data repository to a cloud-hosted web platform	Achieved.
Publish UK National Statistics and Official Statistics releases on subjects including forestry statistics, timber price indices, UK wood production and analyses from the National Forest Inventory (NFI)	Achieved.
Survey 1,690 hectares of forest land for the NFI and write NFI reports on woodland ownership and woodland habitat condition	Achieved.
Deliver the transition of FR such that it is working to the new operational model, with new governance arrangements and supporting operating systems, from 1 April 2019	Substantially complete at 31 March 2019, but ongoing until May 2019.
Publish and implement FR's new Strategy	Achieved.
Meet FR's financial targets for income generation	Achieved.

Research highlights from the past year

Over the past year, our scientists have been involved in a wide variety of research projects, from investigating the cooling benefits of urban trees to developing a remote young-tree detection system using Earth observation data. Here, we summarise a selection of recent projects. Further information on these activities and other work is available at

www.forestresearch.gov.uk

Cooling effect of urban trees

Periods of hot weather, such as those experienced in the summer of 2018, can affect people's comfort and aggravate existing cardio-respiratory diseases. The UK's latest Met Office projections suggest that hot summers may become more common by the 2050s. This increase in temperature will be particularly felt in towns and cities where temperatures are already normally higher than in rural areas. The trees and greenspaces within towns and cities can help to provide a solution to this challenge by lowering local temperatures and thereby offering relief to those living and working in these locations. Forest Research has been studying the cooling benefits of urban trees and greenspaces since 2011 and this year have made advances researching this important topic, as outlined in three new publications.

In collaboration with Ricardo Energy & Environment and Uppsala University, Sweden, we have identified which tree characteristics are linked to the greatest cooling and have proposed a methodology that can be used by urban planners and tree managers to compare and select tree species according to their cooling ability. With the University of Reading, we have published information on the evaporative cooling provided by urban forests. Using a mathematical model, we explain that air-conditioning unit energy consumption may fall by up to 13% in Inner London due to the evapotranspiration provided by its trees and that this benefit may lead to annual savings of up to £22 million.

We have also published a comprehensive summary of current knowledge relating to the cooling benefits of urban trees and greenspaces and highlighted current gaps in that knowledge. In this work we have explained the design strategies that can be used to maximise cooling and have emphasised the importance of trees being provided with enough space, water and soil nutrients to grow and be healthy so that they can achieve their cooling potential.

Forest Research is now working towards answering some of the knowledge gaps identified, for example through a study investigating the amount of local-level cooling associated with street trees and how this can help improve the thermal comfort of residents during hot days.

Further information and full references are available from
www.forestresearch.gov.uk/urban-trees-and-climate

Detecting young trees from space

Foresters need to know if young trees have survived their first five years, which is the phase when they become established. This usually requires visiting the planting site, but with tens of thousands of hectares planted and increasing costs, visiting all trees, every year, often proves too expensive. This cost is carried not only by the foresters who plant the trees, but also by those who regulate tree-planting activities, such as the Forestry Commission, Scottish Forestry and Natural Resources Wales. Even recent aerial photography cannot help as the young trees are too small to be visible.

In searching for a solution, our researchers hypothesised that even if the trees are too small to see, maybe we can 'feel' them using Synthetic Aperture Radar (SAR). A different technique to using optical data, SAR provides 'fuzzy' data on the presence of objects, their size, orientation and texture.

Forest Research realised that the tree-establishment sites change dramatically through the cumulative impact of weed control, cultivation and the establishment of regular lines of young trees. It was also proposed that within any given year there would be a unique change in the relative height between the annual vegetation and the perennial trees, which would leave a unique signature of texture change within the year and over the five years of establishment. This suggestion convinced the Defra Earth Observation Centre of Excellence to fund a proof-of-concept project.

A multi-disciplinary team of Forest Research, Capgemini and Joint Nature Conservation Committee staff was established. The team used SAR data from the Copernicus Earth observation programme along with machine learning to build a model that 'learned' the unique texture of young trees and could discern them from the texture of other land uses.

The resultant model proved that SAR and machine learning could not only accurately identify planted areas of over 0.5 hectares, but also proved sensitive enough to discern cultivation prior to planting.

Following this successful trial, we are now planning to implement a SAR young-tree detection system on behalf of the Forestry Commission during the forthcoming year.

Protecting Scotland from new pests and diseases

Plants play essential roles in our lives by underpinning habitats and food webs, helping to characterise our landscapes, regulating our climate and providing raw materials for many economic activities. However, the potential for these contributions to be disrupted by pests and diseases is ever present.

To help address this in Scotland, a new virtual Plant Health Centre has been established, with funding from the Scottish Government. Led by the James Hutton Institute, the Centre brings together a number of organisations, including Forest Research, to coordinate plant health needs and activities across Scotland and provides a Strategic Advice Response Team to enable rapid expert responses to policy questions.

Our new Chief Scientist, Professor Chris Quine, is the Centre's sector lead for forests and woodlands. Forest Research's wider expertise from our pathologists, entomologists, social scientists, climate change and spatial scientists will also be drawn upon. Other sector leads are from the Royal Botanic Garden Edinburgh (horticulture and environment) and Scotland's Rural College (agriculture).

Early work by the new Centre has focused on those plant health threats of highest risk to Scotland. For example, one major threat is *Xylella fastidiosa*. This bacterial pathogen is able to infect over 200 plant species worldwide and is currently causing major economic losses to olive trees in Italy. Forest Research scientists have been involved in considering how UK contingency plans need to be adapted to particular Scottish conditions by using broad-scale risk mapping, and by making use of recent invertebrate sampling to establish the presence of potential vectors of the disease in woodlands in the Central Belt.

In the coming years the Centre will continue to work closely with a broad range of stakeholders to understand and act on their priorities and concerns. This coordinated approach across sectors should help to improve our monitoring of plant diseases and understanding of the threats, share the best ways of managing risks and impacts and help coordinate emergency responses. More information is available at **www.planthealthcentre.scot**

Putting woodland bats on the map

If measures to halt declines in biodiversity are to be effective, significant evidence gaps must be filled. Information on woodland-specialist bat species is scarce because of the difficulties in surveying for bats in these structurally complex environments. This impedes conservation efforts and complicates the design and implementation of woodland management plans aimed at protecting bats and enhancing their habitats. More accurate and cost-effective

methods are needed to provide reliable data on the activity levels and distributions of these rare and inconspicuous species.

Over two survey seasons, the Bat Conservation Trust and Forest Research have been working with volunteers across four study areas to pilot methods and technologies for surveying woodlands for bats. The aim was to develop, for the first time, a citizen-science approach that could be carried out at a large enough scale to provide species- and family-specific trend data on bats in woodlands. Data collection was completed in 2018 and the project team has started to synthesise the findings to inform plans for the British Bat Survey, a new monitoring scheme under development by the National Bat Monitoring Programme (NBMP). In addition to comparing the content and quality of the acoustic data recorded using different devices, practical issues such as equipment affordability and user-friendliness are being assessed.

As well as delivering a baseline for long-term monitoring, the species records collected from the survey are being incorporated into a modelling framework for predicting species distributions at national, regional and local scales. This hierarchical approach was developed by Forest Research in 2018 for identifying the factors influencing a species' habitat suitability, while overcoming some statistical issues common to these types of models.

Once validated, the spatially-explicit outputs can be used to inform targeted woodland- to landscape-scale decision-making and strategies in bat conservation. Forest Research is now working with the Woodland Trust to explore the usefulness of these models for targeting woodland planting in areas to improve bat habitat suitability and connectivity now and in future potential climates.

Investigating the effects of peatland restoration on water quality and carbon dynamics

Forest Research has been working with Forestry Commission Scotland (Forest Enterprise), the Scottish Environment Protection Agency (SEPA) and the Royal Society for the Protection of Birds (RSPB) to study the effects of peatland restoration by deforestation on water quality, hydrological flows and dissolved organic carbon (DOC) transport.

Forests and peatlands both play important roles in the hydrological cycle and in the global warming story; they provide important habitats for a variety of species, regulate water flows, influence water quality and affect carbon storage and release.

In Scotland, climate change concerns are driving removal of non-native coniferous trees from a number of peatland sites, primarily for habitat restoration and protection of soil-carbon stocks. While the importance of restoration is well recognised, its effects on freshwater

ecology and water quality, particularly in terms of DOC and nutrient transport, have not been fully investigated. Restoration is often carried out over a relatively short period and at a large scale, leading to concerns about the impact of such a rapid change in forest cover on water quality and ecology. Species such as the freshwater pearl mussel and Atlantic salmon are especially vulnerable to deteriorations in water quality. Moreover, aqueous carbon losses can impact upon drinking water provision due to the link between DOC concentrations and the formation of carcinogenic compounds following water disinfection by chlorination.

Forest Research has set up a number of research sites around Scotland with varying environmental conditions to quantify the carbon and nutrient losses resulting from peatland deforestation. The work will improve our understanding of the effects of peatland restoration on water quality and carbon dynamics and inform whether additional measures are needed to minimise any effects. These would be incorporated into future revisions of the UK Forestry Standard Water Guidelines to the benefit of water consumers and the freshwater environment.

Land managers and resilience

Over the past year, our social and economic researchers have continued investigating the many factors that influence the behaviour of landowners and managers in relation to their management of trees, woods and forests. Land managers play a key role in the delivery of forest ecosystem services, and in responding and adapting to climate change and the threat of various pest and diseases. They can be encouraged in these actions by active woodland management and woodland creation, which is the focus of a number of current government policies.

We carried out an evidence review, ran research workshops and undertook semi-structured interviews in partnership with the Sylva Foundation and Oxford University to explore the barriers land managers experience in changing or adapting their forestry practice for resilience. It is clear that different kinds of woodland managers understand resilience in different ways. This depends on their beliefs and world views, their management objectives, their understanding of forest ecology, and their perceptions of risk and uncertainty.

The results from our research show that changing management practices relies on providing relevant information in a way that impacts owners' and managers' beliefs and responds to their concerns about uncertainty. This information can come from a variety of sources and over a period of time, as part of a pathway to change. We found that future knowledge-transfer approaches must tailor advice specifically for different types of woodland manager, such as those that focus on timber production, or multiple objectives, or conservation.

We started a new project in mid-2018 for Defra that is extending our existing research to look specifically at land-manager responses to tree pests and diseases. This time we are working in partnership with the Sylva Foundation, Oxford University, Gloucestershire University and Bangor University. In this research, as well as delving deeper into the beliefs and values that affect managers' behaviours, we are also looking at how grants and other non-financial incentives, such as partnerships, can help land managers to overcome the barriers they may face in treating, felling and restocking in the face of diseases such as Chalara dieback of ash or *Phytophthora* in larch. This applied research will help Defra and partners to structure policy options that can support land managers in the coming years.

Red Squirrels United

Populations of red squirrels are being replaced by the non-native grey squirrel, which outcompetes our native red and also carries a virus that is lethal to red squirrels. Forest Research is a partner in the Red Squirrels United project, funded by European LIFE and the National Lottery Heritage Fund, which brings together UK organisations to help protect red squirrels by raising public awareness and engaging volunteers in community groups.

Our role has been to investigate the motivations for, and challenges of, sustainable red squirrel conservation. Our social researchers have engaged with key stakeholders in some of the few areas of the UK where red squirrels remain. This has been facilitated by our partners The Wildlife Trusts, Wildlife Trust for Lancashire, Manchester and North Merseyside, Red Squirrels Trust Wales, Northumberland Wildlife Trust, Ulster Wildlife, The Wildlife Trust of South & West Wales, and Newcastle University.

Volunteers are vital for red squirrel conservation and we have used workshops, focus groups and interviews to elicit more than 50 volunteers' experiences. Our report details volunteer motivations and outlines the challenges and barriers volunteers face. We are also exploring how the actions of conservation organisations, such as the Red Squirrels United partners, can improve volunteers' experiences and increase volunteer numbers. Having observed volunteers' difficulties in engaging landowners and gaining access for grey-squirrel control, we have also interviewed over 30 land managers/landowners to explore levels of support and engagement in squirrel management. These findings (due later in 2019) will be of relevance to other conservation and wildlife-management efforts.

In 2019, we will be overseeing a survey of communities in the Red Squirrel United delivery areas to assess the programme's impact on knowledge and attitudes towards squirrels and their management and whether there has been an increase in volunteer activity. Responses will be compared to those from our 2015 nationwide public survey, and community surveys undertaken throughout the project. Earlier findings demonstrated limited knowledge of the

impact grey squirrels have on red squirrels but an acceptance that humane controls could be justified where negative impacts were observed.

Sustainability Report

This report is not subject to audit.

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 2018–19, as we successfully achieved 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 more frequently and the major benefits of this will be realised from April 2019 onwards, when reduced travelling for meetings is expected across the business.

In 2018–19 we received Defra funding for an enhanced water ring at the Alice Holt site. The new water ring was fully operational in the final quarter of 2018–19 and will significantly reduce the frequency of water leaks at the site, improving working conditions for all site staff and enabling enhanced water usage control.

Information on our travel, energy usage, waste and water for 2018–19 is detailed in the following table, along with comparison data for the previous three years. We monitor our electricity, gas and water consumption. Our combined greenhouse gas emissions are higher than the 2017–18 levels, mainly as a result of increased staffing levels from the establishment of our own corporate services teams. Photovoltaic (PV) energy generation at Alice Holt continues to provide benefits, producing 25,830 kWh of electricity in 2018–19, which represents a 7% increase on the volume of electricity generated in 2017–18 (see table on page 23).

It is pleasing that our recycling efforts are resulting in 96.9% of estate and office waste being recycled, exceeding our target of 80%. Only 3.1% of our waste in 2018–19 related to landfill and incinerated waste, which is an extremely satisfying outturn that we will aim to improve on in 2019–20. Our water consumption was significantly lower than in 2017–18, mainly due

to the enhancements to the mains water ring at the Alice Holt site. The decrease in water usage amounted to 46% from the usage in 2017–18.

As part of the Forestry Commission, we participate in the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme and will submit a report through the FC. The scheme closed in March 2019 and our report will be submitted in July 2019 with associated payments made in September 2019. In 2017–18, we paid £12,082.84 for CRC Allowances and have estimated a similar charge for 2018–19.

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.

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 has been prepared with reference to *Public sector annual reports: sustainability reporting guidance 2018 to 2019*.

Performance measurement		2018-19 performance		2017-18	2016-17	2015-16
Area		Actual (cost/qty)	Comment	New baseline		
Travel Expenditure and associated Carbon equivalent emissions†		£373,665 387	Target: 10% reduction on baseline (actual 22.8% increase)	£433,064 337	£428,307 329	£441,245 459
Energy Electricity, gas and other heating fuels (estate)*	Consumption (kWh)	2,848,915		2,486,756	2,578,429	2,676,905
	Expenditure and tonnes CO ₂ e	£235,737 666		£191,207 776	£180,543 765	£187,953 904
	Generation (kWh)	25,830	FR generated kWh from the photovoltaic panels at Alice Holt	24,115	24,987	25,548
Total energy~	Expenditure	£672,705		£624,271	£608,850	£629,198
Estate and office waste#	Amount (tonnes)	418	Target: >80% recycling (actual: 96.9%) Target: <20% landfill (actual 1.4%) Incinerated (actual 1.7%)	181	278	1,345
	Expenditure	£44,037		£24,988	£33,567	£35,052
Estate and office water	Quantity used (m ³)	7,350	Target: 8% reduction on baseline (actual: 46% decrease)	13,725	12,098	14,137
	Expenditure	£9,272		£18,329	£15,442	£18,810

† Greenhouse gas emissions: Scopes 1, 2 and 3 business travel including national and international air/rail travel and CO₂e.
* 2018-19, 2017-18 and 2016-17 figures take account of charges to tenants for utilities and the income and power generated by the photovoltaic panels at Alice Holt.
~ Total expenditure on energy and travel – the fossil fuel consumption of the built estate (heating and lighting, etc.) and the CO₂ from travel.
Waste cost: recycling £30,872 (2017-18: £19,394), landfill £6,731 (2017-18: £5,563), incineration £6,434 (2017-18: £30).



Professor James Pendlebury
Chief Executive and Accounting Officer
30 May 2019

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	<i>Secretary of State</i>
Thérèse Coffey MP	<i>Parliamentary Under-Secretary of State until 25 September 2018</i>
David Rutley MP	<i>Parliamentary Under-Secretary of State from 26 September 2018</i>

Composition of the Management Board

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

James Pendlebury*	<i>Chief Executive</i>
Chris Quine*	<i>Chief Scientist from 1 October 2018</i>
	<i>Head of Centre for Ecosystems, Society and Biosecurity until 30 September 2018</i>
Michelle Hausrath	<i>Head of Human Resources from 16 April 2018</i>
Helen McKay*	<i>Head of Centre for Sustainable Forestry and Climate Change</i>
Meirion Nelson	<i>Finance Director</i>
Peter Weston	<i>Head of Inventory, Forecasting and Operational Support</i>
Hugh Williams	<i>Head of Centre for Research Services until 3 August 2018</i>
David Edwards	<i>Interim Head of Centre for Ecosystems, Society and Biosecurity from 19 November 2018</i>

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 2018–19 (2017–18 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 account 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 Director FC England, in his role as Additional Accounting Officer for the Forestry Commission, has designated Forest Research's Chief Executive as the Agency's Accounting Officer. 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 2018–19 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 Executive Board

The Forest Research Executive Board (FREB) 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 11 times during 2018–19. The Board discussed a wide range of forest research and related issues, including:

- future science;
- finalising Forest Research's new Strategy: *A Strategy for Growth*;
- communications;
- Target Operating Model and business planning;
- Corporate Plan Key Actions;
- health and safety;
- business development, including external income;
- Corporate Services Transition Programme and establishment of corporate services;
- risk management and business continuity.

At each of the meetings during 2018–19 the Board also discussed the Finance and Human Resources reports and received verbal updates on Forestry Commission-wide governance meetings. They also periodically reviewed Centre reports on Sustainable Forestry and Climate Change, Ecosystems, Society and Biosecurity, Research Services and Inventory, Forecasting and Operational Support.

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

Audit and Risk Assurance Committee

The FREB 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 FREB 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 (GIIA). 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:

- risk management;
- Annual Report and Accounts 2017–18;
- Internal and External Audit strategies and reports;
- information security;
- Corporate Services Transition Programme;
- Memorandum of Understanding with Defra and the devolved administrations;
- Governance Statement;
- the Committee's structure and effectiveness.

There were three ARAC meetings during 2018–19 (May and November 2018 and March 2019) 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.

I receive an Annual Assurance Statement from the Director of Central Services for the Forestry Commission, based centrally in Edinburgh, providing me with assurance on the standard of governance and control within Central Services.

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 Executive Board 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 Executive 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.

The ARAC supports the Accounting Officer and the Agency Executive Board 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.

Forestry Governance Project

Thérèse Coffey MP, Defra Parliamentary Under-Secretary of State, issued a Written Ministerial Statement on The Future of the Forestry Commission on 7 November 2017.

Alongside the Written Ministerial Statement, the Forestry Commission issued a document detailing the future Board structure and governance arrangements for the Forestry Commission, including Forest Research. Good progress has been made on the implementation of these arrangements that take effect from April 2019. In addition, senior officials from all three administrations have finalised a Memorandum of Understanding that governs, among other things, the future funding of Forest Research and the associated research commissioning process.

A new Forest Research Board has been created with effect from April 2019, which includes representation from Defra, the Scottish and Welsh governments, Forestry Commissioners, Senior Agency Executives and independent Non-Executive Directors.

Business continuity management

Forest Research has business continuity plans to ensure that there are procedures in place to facilitate the recovery of business activities. It is currently finalising its IT migration from Forestry Commission infrastructure to its new infrastructure, with migration expected to be complete by the end of April 2019.

Forest Research Transition Programme

For the past 15 years Forest Research, in common with all parts of the Forestry Commission, has drawn heavily on the Shared Services, based in Silvan House in Edinburgh, for much of its Human Resources, Information Services and Finance requirements. During 2018–19, Forest Research established its own corporate services arrangements following the FC Executive Board decision to disband the former FC Shared Services arrangements. With the exception of the imminent completion of the IT desktop migration, Forest Research has successfully established its own independent corporate capabilities.

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. In response to the new General Data Protection Regulation (GDPR), we established a programme board with associated terms of reference to formally manage, implement and monitor our successful delivery response to GDPR requirements. We continue to work with staff on matters such as awareness and information audits and with the Forestry Commission on policy and guidance. The FR Senior Information Risk Owner discusses shared organisational matters and any specific issues with colleagues across the FC and with the FC Departmental Security and Data Protection Officers. Collectively this work continues to help our understanding of the value of the information we hold and reinforces 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.

Wider circumstances and future challenges

The main challenges for Forest Research during 2018–19 and beyond are:

- embedding the transition of our new corporate IT, HR and Finance capabilities while maintaining business continuity;
- 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;

- delivering the interdisciplinary science programmes for 2015–20;
- 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 2019–20 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 Executive 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 Great Britain/England. 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 members of the Forest Research Executive Board.

Name	2018–19				2017–18			
	Salary £000	Benefits in kind (to the nearest £100)	Pension benefits £000	Total £000	Salary £000	Benefits in kind (to the nearest £100)	Pension benefits £000	Total £000
James Pendlebury	75–80	9,800	16	105– 110	80–85	4,700	8	90–95
Peter Freer- Smith*	–	–	–	–	35–40	–	–	35–40
Sarah England~	–	–	–	–	40–45	–	26	65–70
Michelle Hausrath#	50–55	–	21	70–75	–	–	–	–
Helen McKay	65–70	–	6	70–75	65–70	–	(1)	65–70
Meirion Nelson	65–70	5,000	29	100– 105	–	–	–	–
Chris Quine§	70–75	–	37	105– 110	65–70	–	–	65–70
Sandra Smith^	–	–	–	–	55–60	–	21	75–80
Peter Weston	65–70	–	25	90–95	65–70	–	4	70–75
Hugh Williams†	20–25	–	17	35–40	60–65	–	17	75–80
David Edwards+	45–50	–	34	80–85	–	–	–	–

* Peter Freer-Smith retired on 25 September 2017. His full year equivalent salary band was £75,000–£80,000.

~ Sarah England left on 31 March 2018; she worked 60% for Forest Research and 40% for Forestry Commission. The table shows the whole of her pension benefits but only the FR share of her salary.

Michelle Hausrath joined on 16 April 2018. Her full year equivalent salary band was £55,000–£60,000.

§ Chris Quine was promoted on 1 October to Chief Scientist.

^ Sandra Smith left on 31 October 2018; she was no longer a member of FREB from 31 March 2018.

† Hugh Williams left on 3 August 2018. His full year equivalent salary band was £60,000–£65,000.

+ David Edwards was promoted on 19 November to Interim Head of Centre for Ecosystems, Society and Biosecurity. His full year equivalent salary band was £60,000–£65,000.

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 2018–19 or 2017–18.

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 2018–19 was £85,000–£90,000 (2017–18: £85,000–£90,000). This was 2.81 times (2017–18: 3.14) the median remuneration of the workforce, which was £31,110 (2017–18: £27,870). In 2018–19 no employees (2017–18: nil) received remuneration in excess of the highest-paid director.

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 2018–19 – subject to audit

Name	Accrued pension at age 60 at 31/3/19 and related lump sum (LS) £000	Real increase (decrease) in pension and related lump sum (LS) £000	CETV at 31 March 2019 £000	CETV at 31 March 2018* £000	Real increase (decrease) in CETV £000
James Pendlebury	15–20 plus lump sum of 50–55	0–2.5 plus a lump sum of 2.5–5	409	355	17
Chris Quine	30–35 plus lump sum of 95–100	0–2.5 plus a lump sum of 5–7.5	793	690	39
Michelle Hausrath	0–5	0–2.5	15	0	11
Helen McKay	30–35 plus lump sum of 100–105	0–2.5 plus a lump sum of 0–2.5	745	715	5
Meirion Nelson	15–20 plus a lump sum of 35–40	0–2.5 plus a lump sum of 0–2.5	277	225	13
Peter Weston	35–40 plus lump sum of 55–60	0–2.5 plus a lump sum of 0–2.5	884	804	26
Hugh Williams	25–30 plus lump sum of 10–15	0–2.5 plus a lump sum of 0–2.5	400	372	11
David Edwards	10–15	0–2.5	208	161	25

* 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: three that provide benefits on a final salary basis (**classic**, **premium** or **classic plus**) with a normal pension age of 60; and one that provides 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** some time 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 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% of pensionable earnings 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 their pensionable earnings during the 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 a panel of

providers. 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** or **classic plus**, 65 for members of **nuvos**, and 65 or State Pension Age (whichever is higher) for members of **alpha**. (The pension figures quoted for Board Members 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 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 effectively 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	2018-19 £000	2017-18 £000
Mary Barkham*	0	0
Shireen Chambers~	0	4
Judith Webb	2	1

* 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 £250 during the year and was previously a member of the Forest Research Executive Board until 31 October 2017.

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

	2018-19	2017-18
Permanent staff – male (5 Executive Board Members)	130	127
Permanent staff – female (2 Executive Board Members)	80	75
Total permanent	210	202
Others – male	17	19
Others – female	11	10
Total others	28	29
Total staff	238	231

Staff costs – subject to audit

	Permanent staff	Other staff	2018–19 Total	2017–18 Total
	£000	£000	£000	£000
Wages and salaries	7,417	661	8,078	7,741
Social security costs	770	62	832	802
Employer’s superannuation costs	1,515	128	1,643	1,582
Apprenticeship levy	39	–	39	38
Agency staff costs	–	180	180	85
Total	9,741	1,031	10,772	10,248

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 2018–19, employers’ contributions of £1,625,715 were payable to the PCSPS (2017–18: £1,564,961) at one of four rates in the range 20.0% to 24.5% 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 2018–19 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. Employers’ contributions of £18,530 (2017–18: £9,920) 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 £722, 0.5% of pensionable pay (2017–18: £653, 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 £2,986 (2017–18: nil). Contributions prepaid at that date were £nil.

Sickness absence

The Forestry Commission has one common sickness absence management policy that covers Forest Research and provides a consistent framework approach to management. The policy is underpinned by an externally provided occupational health service and employee support programme that is available 24 hours a day. The average number of working days lost to sickness absence in Forest Research in 2018–19 was 9.2 per employee (2017–18: 11.4).

Early departure costs

During 2018–19, one person left under Compulsory or Voluntary Redundancy terms (2017–18: two). They received a compensation payment of £66,000 (2017–18: £10,000).

Expenditure on consultancy

During the year, Forest Research incurred £34,000 on consultancy services (2017–18: £45,000).

Off-payroll engagements

Defra are required to disclose information in their Annual Report and Accounts relating to the review of tax arrangements for public sector employees. Information relating to off-payroll engagements for Forest Research is reported below for consistency with Defra's Annual Report and Accounts.

Table 1: All off-payroll engagements as of 31 March 2019, of more than £245 per day and that lasted more than six months

No. of existing engagements as of 31 March 2019	1
Of which...	
No. that have existed for less than one year at time of reporting	1
No. that have existed for between one and two years at time of reporting	–
No. that have existed for between two and three years at time of reporting	–
No. that have existed for between three and four years at time of reporting	–
No. that have existed for four or more years at time of reporting	–

Table 2: All new off-payroll engagements between 1 April 2017 and 31 March 2018, of more than £245 per day and that lasted more than six months

No. of new engagements between 1 April 2018 and 31 March 2019	1
Of which...	
No. assessed as caught by IR35	-
No. assessed as not caught by IR35	1
No. engaged directly and are on the departmental payroll	-
No. of engagements reassessed for consistency/assurance purposes during the year	1
No. of engagements that saw a change to IR35 status following the consistency review	-

People

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

- **teamwork:** we work collaboratively with each other and our stakeholders, ensuring that trees, woods and forests meet the needs of society;
- **professionalism:** we enjoy and take pride in our work, acting with integrity and political impartiality to achieve high standards of health and safety, quality, efficiency and sustainability;
- **respect:** we value each other and our stakeholders, recognising diverse perspectives and treating everyone with consideration;
- **communication:** we are open, honest and objective with each other and our stakeholders. We are prepared to challenge and be challenged;
- **learning:** we are always learning, developing the skills, knowledge and behaviours to support organisational success;
- **creativity:** we seek new ways of doing things, sharing ideas and embracing change.

The Forestry Commission’s People Strategy sets out the strategic direction in relation to our people. We continue to be an organisation that is committed to high levels of employee engagement, motivation and achievement, that openly encourages participation and personal development and that values its staff.

Developing our staff and our culture

We have started to look more closely at our culture, what makes us who we are and how we can be more integrated given the dispersed nature of our staff and the work we do. In 2018–

19 we held workshops run by mental health charity Mind for all our managers and staff to raise awareness of mental health in the workplace and improve its management. We are developing an action plan to better embed our understanding and approach to mental health across the business.

Equality and diversity

We continue to strive towards building a diverse and inclusive environment for all our staff and published our annual Equality Monitoring Report in March 2019.

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, 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 what this might mean with an eye to the future. Our HR team is now trained to carry out job evaluation assessments, work that was previously carried out 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

Much of Forest Research's work is funded by the Forestry Commission with Corporate and Forestry Support acting as purchaser of research and other services in support of the ministerially endorsed Science and Innovation Strategy for Forestry in Great Britain and forestry policies of the UK, Scottish, Welsh and Northern Irish governments. The core funding from the Forestry Commission was confirmed during SR15 and, from 2019–20, Forest Research will be funded under a new Memorandum of Understanding with the UK, Scottish and Welsh 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 no losses or special payments during 2018–19 (2017–18: nil).

Fees and charges

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

Remote contingent liabilities

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

Long-term expenditure trends

	2018–19*	2017–18	2016–17~	2015–16	2014–15
	£000	£000	£000	£000	£000
Staff costs	10,772	10,248	10,114	7,734	7,747
Other management costs	5,088	3,608	3,235	2,527	2,389
Materials and services	3,584	3,811	3,602	2,418	2,707
Total expenditure	19,444	17,667	16,951	12,679	12,843

* 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

30 May 2019

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 2019 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 2019 and of Forest Research's net income for the year then ended; and
- the financial statements have been properly prepared in accordance the Government Resources and Accounts Act 2000 and Secretary of State 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 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 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 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.

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

Other Information

The 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 Secretary of State directions made under the Government Resources and Accounts Act 2000;
- in the light of the knowledge and understanding of Forest Research and its environment obtained in the course of the audit, I have not identified any material misstatements in the Performance Report or the 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.

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

13 June 2019

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 2019

	Notes	2018-19 £000	2017-18 £000
Income			
Forestry Commission customers	6.1	(16,498)	(14,520)
Non-Forestry Commission customers			
European Union		77	(219)
Other	6.2	(3,050)	(2,938)
Total operating income		(19,471)	(17,677)
Expenditure			
Staff costs	3	10,772	10,248
Other management costs	4	5,088	3,608
Materials and services	5	3,584	3,811
Total operating expenditure		19,444	17,667
Net operating income		(27)	(10)
Other comprehensive net income			
Net gain on revaluation of property, plant and equipment	7	(339)	(23)
Net gain on financial asset	8	(50)	-
Net gain on foreign currency receivable		(115)	-
Total comprehensive net income for the year		(531)	(33)

All income and expenditure are derived from continuing operations.

The notes on pages 52 to 71 form part of these accounts.

Statement of Financial Position as at 31 March 2019

		31 March 2019	31 March 2018
	Notes	£000	£000
Non-current assets			
Property, plant and equipment	7	12,957	11,624
Intangible assets		1	26
Financial assets	8	75	25
Trade and other receivables	9	23	-
Total non-current assets		13,056	11,675
Current assets			
Inventories		129	130
Trade and other receivables	9	3,060	1,629
Cash and cash equivalents	10	2,224	1,653
Total current assets		5,413	3,412
Total assets		18,469	15,087
Current liabilities			
Provisions	12	(16)	(20)
Trade and other payables	11	(2,474)	(1,741)
Total liabilities		(2,490)	(1,761)
Total assets less current liabilities		15,979	13,326
Non-current liabilities			
Provisions	12	-	(15)
Trade and other payables	11	(99)	-
Total assets less total liabilities		15,880	13,311
Taxpayers' equity			
General Fund		8,349	6,277
Revaluation Reserve		7,531	7,034
Total equity		15,880	13,311



Professor James Pendlebury
Chief Executive and Accounting Officer

30 May 2019

The notes on pages 52 to 71 form part of these accounts.

Statement of Cash Flows for the year ended 31 March 2019

		2018-19	2017-18
	Notes	£000	£000
Net cash inflow from operating activities			
Net operating income		27	10
Adjustments for non-cash transactions			
Depreciation	4	830	792
Amortisation	4	16	42
Loss on disposal of property, plant and equipment	4	12	14
Property, plant and equipment write-off			
Notional audit fee	4	38	38
Movements in provisions	12	68	11
Decrease in inventories		1	3
(Increase)/decrease in trade and other receivables	9	(1,454)	110
Increase/(decrease) in trade and other payables	11	832	(68)
Movements in receivables to items not passing through the SCI		115	-
Use of provisions	12	(87)	(44)
Net cash inflow from operating activities		398	908
Cash flows from investing activities			
Purchase of property, plant and equipment	7	(1,827)	(1,154)
Net cash (outflow) from investing activities		(1,827)	(1,154)
Cash flows from financing activities			
Net cash transfer from the Forestry Commission		2,000	791
Net financing		2,000	791
Net increase in cash and cash equivalents in the period		571	545
Cash and cash equivalents at the beginning of the period		1,653	1,108
Cash and cash equivalents at the end of the period		2,224	1,653

The notes on pages 52 to 71 form part of these accounts.

Statement of Changes in Taxpayers' Equity for the year ended 31 March 2019

	Notes	General Fund £000	Revaluation Reserve £000	Total Reserves £000
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	7	–	339	339
Net gain on revaluation of financial asset	8	–	50	50
Net gain on foreign currency receivable		–	115	115
Transfer from Revaluation Reserve		7	(7)	–
Notional audit fee	4	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
Balance at 1 April 2017				
		5,430	7,019	12,449
Changes in taxpayers' equity for 2017–18				
Net gain on revaluation of property, plant and equipment		–	23	23
Net gain on revaluation of intangible assets		8	(8)	–
Notional audit fee		38	–	38
Comprehensive net income		10	–	10
Cash transferred from the Forestry Commission		791	–	791
Balance at 31 March 2018		6,277	7,034	13,311

The notes on pages 52 to 71 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 and in accordance with International Financial Reporting Standards (IFRS) as adapted and interpreted by the 2018–19 *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 occupation 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 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 2019 have been adopted in these statements, taking account of the specific interpretations and adaptations included within the FReM.

The following standards have been adopted for the first time in the 2018–19 Annual Report and Accounts.

IFRS 15 – Revenue from Contracts with Customers. This is effective from 1 January 2018 and replaces all existing IFRS guidance on revenue recognition. The adoption of this standard has had no impact on reported revenue for Forest Research in the 2018–19 Annual Report and Accounts.

IFRS 9 – Financial Instruments. This is effective from 1 January 2018 and brings together all three phases of the financial instruments project: Classification and Measurement; Impairment and Hedge Accounting. The adoption of this standard has had no impact for Forest Research’s 2018–19 Annual Report and Accounts.

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 is effective from 1 January 2019. 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

	2018-19	2017-18
	£000	£000
Wages and salaries	8,078	7,741
Social security costs	832	802
Employer's superannuation costs	1,643	1,582
Apprenticeship levy	39	38
Agency staff costs	180	85
Total	10,772	10,248

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

Note 4. Other management costs

		2018-19	2017-18
	Notes	£000	£000
Travel and subsistence		578	565
Building maintenance		790	661
Utilities		281	262
Training		50	49
Other expenditure		286	263
Computer supplies *		2,132	903
Staff transfer expenses		6	8
Non-cash costs:			
Provisions – early departure costs:			
Provided in year	12	69	11
Unwinding of discount	12	–	–
Depreciation of property, plant and equipment	7	830	792
Amortisation of intangible assets		16	42
Loss on disposal of property, plant and equipment	7	3	14
Loss on disposal of intangible assets		9	
Auditors' remuneration – notional cost		38	38
Total		5,088	3,608

* IFOS incurred £974,000 computer costs (2017-18: £862,000), the majority related to the transition of Forester software and associated spatial data repository to a cloud-hosted web platform and services. This system is used, by more than 1,000 FC staff, to create, store, maintain and view inventory, planning and site management data for the public forest estate in England and Scotland. The remainder of the computer supplies expenditure increase related to the IT transition programme in 2018-19.

Note 5. Materials and services

	2018–19	2017–18
	£000	£000
Materials and supplies	908	868
Central services provided by the Forestry Commission *	967	1,044
Vehicle lease charges from the Forestry Commission *	317	323
Contractors ~	410	774
Commissioned research	310	148
Publications	20	13
Protective clothing	13	13
Miscellaneous expenditure	639	628
Total	3,584	3,811

* Charges are 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. The total charge from the Forestry Commission was £1,284,000 (2017–18: £1,367,000).

~ The level of spend on contractors is partially determined by the nature of the research work that Forest Research undertakes.

Note 6. Income

6.1 Income from the Forestry Commission

Forest Research undertakes the major proportion of the Forestry Commission's overall annual research programme in the form of specifically commissioned projects to deliver agreed outputs, which is funded via Corporate and Forestry Support (CFS). A separate annual charge is agreed for each project based on full cost recovery. In addition, transition funding was provided by FC England and FC Scotland to undertake the corporate services transition from FC Shared Services. The 2018–19 charges to CFS for Forest Research services amounted to £11,451,000. In addition to the annual research programme, Forest Research provides other research and survey services for the Forestry Commission, the majority of which is on a full cost-recovery basis.

Income from Forestry Commission customers consisted of:

	2018–19	2017–18
	£000	£000
Research, development and other services to:		
Corporate and Forestry Support	11,451	10,023
England	2,164	1,880
Scotland	2,883	2,617
	16,498	14,520

6.2 Other income

Other income consisted of:

	2018-19	2017-18
	£000	£000
Contracts for research and services	2,931	2,832
Consultancy	-	-
Ad hoc – sample analysis, supply of seeds, conferences, advisory, reimbursement of expenses	119	106
	3,050	2,938

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 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

Valuation:						
At 1 April	2,011	15,341	2,904	1,193	-	21,449
2017						
Additions	-	34	401	5	714	1,154
Transfers	64	246	172	-	(482)	-
Disposals	-	-	-	(70)	-	(70)
Revaluation to current prices	(729)	2,062	9	(6)	-	1,336
At 31 March	1,346	17,683	3,486	1,122	232	23,869
2018						
Depreciation:						
At 1 April	-	7,783	1,700	712	-	10,195
2017						
Provided in year	-	464	250	78	-	792
Disposals	-	-	-	(55)	-	(55)
Revaluation to current prices	-	1,313	3	(3)	-	1,313
At 31 March	-	9,560	1,953	732	-	12,245
2018						
Net book value:						
At 31 March	1,346	8,123	1,533	390	232	11,624
2018						
At 31 March	2,011	7,558	1,204	481	-	11,254
2017						

Fixed assets were revalued as at 31 March 2019 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 £4.6 million and £3.5 million, respectively, at 31 March 2019.

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 2018: £25,000) 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 £82,000 (31 March 2018: £11,000) taxation and social security costs and £234,000 (31 March 2018: £178,000) 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

	2018-19	2017-18
	£000	£000
Current		
EU trade receivables	61	272
Other trade receivables	2,025	606
Total trade receivables	2,086	878
Other receivables	10	15
House purchase loans to employees	14	13
Prepayments and accrued income – EU	504	451

Prepayments and accrued income – non-EU	469	272
Total current receivables	3,083	1,629

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

As of 31 March 2019, £731,000 (2017–18: £498,000) were fully performing and not overdue or impaired and provided for.

As of 31 March 2019, trade receivables of £1,496,000 (2017–18: £380,000) were overdue; this total has been reduced by £37,000 for a potential bad debt. The balance relates to a number of customers for whom there is no recent history of default. The age analysis of these trade receivables is as follows:

	2018–19	2017–18
	£000	£000
Months overdue		
Less than one month	1,382	24
One to two months	10	32
Two to three months	70	112
More than three months	34	212
	1,496	380

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:

	2018–19	2017–18
	£000	£000
Current		
Pounds sterling	2,519	906
Euros	564	723
Total	3,083	1,629

Note 10. Cash and cash equivalents

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

	2018-19	2017-18
	£000	£000
Opening balance at 1 April	1,653	1,108
Net change in balances	571	545
Balance at 31 March	2,224	1,653

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.

Note 11. Trade and other payables

	2018-19	2017-18
	£000	£000
Current		
Payments received on account	390	516
Trade payables		518
Taxation and social security costs	82	11
Other payables	410	17
Current part of finance leases	49	
Accrued expenses	1,309	500
Contract liabilities	234	179
Total	2,474	1,741
Non-current		
Current part of finance leases	99	
Total	99	
Total	2,573	1,741

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 2019 and 31 March 2018, with the exception of taxation and social security costs and £165,000 (31 March 2018: £14,000) 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 2019 the amount held in Forest Research bank accounts on behalf of partners was £44,000 (31 March 2018: £104,000).

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

	2018-19	2017-18
	£000	£000
Current		
Pounds sterling	2,371	1,504
Euros	193	237
New Zealand Dollars	9	-
	<hr/> 2,573	<hr/> 1,741

Note 12. Provisions for liabilities and charges

	2018-19		2017-18	
	Other	Early departure costs	Other	Early departure costs
	£000	£000	£000	£000
Balance brought forward at 1 April	-	35	5	63
Provided in year	-	69	-	11
Provision not required written back	-	(1)		
Utilised in year	-	(87)	(5)	(39)
Unwinding of discount	-	-	-	-
Balance carried forward at 31 March	<hr/> -	<hr/> 16	<hr/> -	<hr/> 35

Analysis of expected timing of discounted cash flows:

	Early departure costs
	£000
Less than one year	16
Later than one year but not later than five years	-
Balance at 31 March 2019	<hr/> 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.

The discount rate used to calculate unwinding costs and future costs is 0.29 %.

Note 13. Capital commitments

There were £nil contracted capital commitments as at 31 March 2019 (31 March 2018: £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. There are no lease payments due in more than five years.

Obligations under operating leases comprise:

	2018-19	2017-18
	£000	£000
Land and buildings:		
Not later than one year	7	7
Later than one year and not later than five years	2	8
Total	9	15

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

	2018-19	2017-18
	£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	68	73
Total	93	98

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 2019 (31 March 2018: £nil).

Note 16. Related party transactions

During the year, Forest Research has had a significant number of material transactions with the Forestry Commission, Forest Enterprise country agencies 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

	2018-19	2017-18
	£000	£000
C-Cure Solutions Ltd	7	10

The above relates to charges to C-Cure in respect of accommodation used at Alice Holt and water sample analysis undertaken in the Forest Research laboratories. There was an outstanding balance of £nil at 31 March 2019 (31 March 2018: £530). 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

	2018-19	2017-18
	£000	£000
University of Stirling	6	43

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 £1,717 balance outstanding at 31 March 2019 (31 March 2018: nil).

16.3 Transactions with the Scottish Forestry Trust

	2018-19	2017-18
	£000	£000
Scottish Forestry Trust	33	37

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. There was an outstanding balance of £4,250 at 31 March 2019 (31 March 2018: £4,463).

16.4 Transactions with the Scottish Natural Heritage

	2018-19	2017-18
	£000	£000
Scottish Natural Heritage	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 a nil balance outstanding at 31 March 2019 (31 March 2018: £nil).

16.5 Transactions with the Cairngorms National Park Authority

	2018-19	2017-18
	£000	£000
Cairngorms National Park Authority	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 a nil balance outstanding at 31 March 2019 (31 March 2018: £nil).

16.6 Transactions with the Institute of Chartered Foresters

	2018-19	2017-18
	£000	£000
Institute of Chartered Foresters	2	3

The above transactions, for conference 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 2019 (31 March 2018: £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.

	2017-18	Gross inflows	Gross outflows	2018-19
	£000	£000	£000	£000
Monetary third-party assets – Government	102	162	(220)	44
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 2019 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.

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