

A black and white photograph of a large pile of wood chips, showing their irregular, layered texture and varying shades of grey and black.

Annual Report and Accounts 2017–2018

Forest Research

Annual Report and Accounts 2017–2018

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of The Government Resources and Accounts Act 2000

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Contents

Performance Report

Overview.....	6
Chief Executive’s Statement.....	6
Purpose and activities	8
Performance summary.....	9
Performance Analysis.....	12
Key Actions.....	12
Research highlights from the past year	15
Sustainability Report.....	19

Accountability Report

Corporate Governance.....	22
Directors’ Report	22
Statement of Accounting Officer’s Responsibilities.....	23
Governance Statement.....	23
Remuneration and Staff Reports.....	29
Remuneration Report	29
Staff Report.....	33
Parliamentary Accountability Disclosures.....	36
Financial review.....	36
Fees and charges	36
Remote contingent liabilities	36
Long-term expenditure trends	37
Certificate and Report of the Comptroller and Auditor General to the House of Commons	38

Financial Statements

Statement of Comprehensive Income for the year ended 31 March 2018.....	42
Statement of Financial Position as at 31 March 2018	43
Statement of Cash Flows for the year ended 31 March 2018	44
Statement of Changes in Taxpayers’ Equity for the year ended 31 March 2018.....	45
Notes to the Accounts.....	46



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

As Great Britain's main organisation for forestry and tree-related research, Forest Research fulfils an essential role in supporting the management and understanding of trees, woodlands and forests, their benefits and those issues that threaten them.

Over the past year, our scientists have continued to work hard on key issues, such as climate change adaptation and mitigation, tree pests and diseases and the UK's resilience to them, improving timber quality, flood mitigation, and valuing the many varied contributions that trees bring to communities.

We have met 20 out of this year's 22 Key Actions from our 2017-18 Corporate Plan and have secured £7.7 million of non-core income. This achievement is testament to the hard work and commitment of our staff, their reputation and ability to develop effective research partnerships with colleagues both in the UK and internationally.

As a wood scientist, I am particularly interested in the work we are carrying out for the Sitka *Spruced* project (page 17) with our partners the University of Oxford and the University of Edinburgh (Roslin Institute), and with funding from BBSRC (Biotechnology and Biological Sciences Research Council). This is an extensive programme investigating the timber properties of Sitka spruce, our main commercial conifer species in the UK. This project, if successful, will radically improve our future capacity to selectively breed for key traits such as timber quality or even disease resistance.

In June 2017, the partnership Observatree project was named 'Best community/volunteer initiative' at the Horticulture Week awards. This citizen science project, which trains volunteers to help protect the UK's trees, woods and forests from harmful pests and diseases, has been led by Forest Research, supported by the Woodland Trust, Forestry Commission England, the Department for

Environment, Food and Rural Affairs (Defra), Fera Science Ltd, the Animal and Plant Health Agency, the National Trust, Natural Resources Wales and Forestry Commission Scotland. It is a fine example of collaborative working that goes from strength to strength and it is really pleasing that a new package of funding for the next phase of the project has been recently agreed.

It is a fine example of collaborative working that goes from strength to strength

Our research into tree pests and diseases continues. Acute oak decline (AOD) is just one of the current threats our trees face and much research is under way. The late Peter Goodwin's role in highlighting AOD and supporting its cause has been fundamental, as shown by the video 'Saving our Oak', produced by our partners at the Woodland Trust and available on YouTube. Continuing with our AOD research and the Action Oak Partnership will be a fitting legacy to what Peter set in motion.

This year also saw the first comprehensive, independent, science review of Forest Research since December 2011. This was a regular review that all government science and research bodies are subject to. It was carried out in November 2017 by the Forestry Commission's Expert Committee on Forest Science, chaired by Professor

Julian Evans OBE. Primarily, it was a science audit and the subsequent report provided a supportive and detailed set of constructive recommendations that we will implement over the coming year.

The review team were impressed by Forest Research's delivery of robust, quality science, some of which they found to be world class. They noted that our interdisciplinary approach is working and delivering lots of benefits and synergies, and that the Inventory, Forecasting and Operational Support (IFOS) group has brought some outstanding competencies to our organisation that we need to integrate further. The review also acknowledged the importance of our long-term field experiments, our effective procedures in place for quality assurance and the high-quality fieldwork of our Technical Services Unit. The Committee offered recommendations on extending our quality assurance systems, avoiding underselling ourselves and improving our succession planning, each of which will be addressed.

It has been an important year for Forest Research as new political and operational arrangements draw near as a result of the Scottish Government legislating to complete the devolution of forestry by April 2019. As a result, we have been delighted to host visits by a range of ministerial and departmental stakeholders. In chronological order, we have welcomed Thérèse Anne Coffey MP, Parliamentary Under Secretary of State for the Environment; Lord Gardiner of Kimble, Parliamentary Under Secretary of State for Rural Affairs and Biosecurity; Clare Moriarty, Permanent Secretary for the Department for Environment, Food and Rural Affairs; Fergus Ewing, Cabinet Secretary for the Rural Economy and Connectivity (Scottish Government); Hannah Blythyn, Minister for the Environment (Welsh Government); and The Rt Hon Michael Gove MP, Secretary of State for Environment, Food and Rural Affairs.

In respect of these new arrangements, on 7 November 2017, Thérèse Coffey MP issued a Written Ministerial Statement on The Future of the Forestry Commission. This Statement made it clear that Forest Research will continue as an agency of the Forestry Commission – working across Great Britain – with new governance, commissioning and funding arrangements to be agreed with the devolved administrations in Wales and Scotland.

The review team were impressed by Forest Research's delivery of robust, quality science

The Forestry Commission issued a document to complement the written Ministerial Statement, detailing its future board structure and governance arrangements, including for Forest Research. These arrangements are currently being implemented and are due to take effect from April 2019. In addition, senior officials from all three administrations are finalising a memorandum of understanding that will come into effect on the same date and that will govern, among other things, the future funding of Forest Research and the associated research commissioning process.

As part of these new arrangements, Forest Research will be moving from a Forestry Commission Shared Service model for much of its Human Resources, Information Services and Finance requirements, to having its own independent corporate capabilities by April 2019 – a strand of work that we are already well on the way to implementing. While developing an in-house corporate capacity will enable us to improve our processes and deliver efficiencies, the governance changes have also given us an ideal opportunity to refresh the way we work and re-profile ourselves with our customers. We have therefore embarked on developing a new and ambitious Strategy for Forest Research, which will be launched later this year and implemented from April 2019 when our new organisational arrangements come into force.

These are busy and exciting times at Forest Research, but we are only where we are because of the effort, expertise and dedication of our staff and I would like to thank them for their considerable hard work 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 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.

FR's Vision

To be recognised as a world-leading provider of applied forest and tree-related science, forestry data services, policy evidence, technical development, specialist extension services and professional training.

FR's 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

Much of FR's work is funded by the FC 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. In addition, FC England, FC 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 231 (full-time equivalent) staff during the year 2017–18 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 on page 26.

Performance summary

Operating review

During the past exceptionally busy year, Forest Research has:

- achieved or exceeded targets for 20 out of the 22 Key Actions in our 2017–18 Corporate Plan, as outlined on page 12;
- secured £7.7 million of non-core income;
- surveyed 2,106 hectares of forested land as required by the National Forest Inventory;
- continued to progress its transition to standalone IS (Information Services), HR (Human Resources) and finance corporate services;
- continued to support FC England colleagues and landowners in dealing with an outbreak of sweet chestnut blight (*Cryphonectria parasitica*) in south-west England;
- held a very successful conference for the end of Phase 1 of the Observatree project at the Royal Botanic Gardens in Edinburgh;
- produced a report for Forest Services England on the tree canopy cover for 265 towns and cities across England;
- continued to lead a European Union (EU) COST action programme on Payments for Ecosystem Services involving 175 participants from 32 countries;
- reported on three years' evidence of the ash dieback field trials to the effect that of the 155,000 trees planted from 15 different seed sources around 2.5% of the trees are still alive and appear healthy despite Chalara having been confirmed on all of the 14 planting locations involved;
- co-organised with partners the International Union of Forest Research Organizations (IUFRO) New Generation Plantations platform annual encounter in June 2017 with around 80 international participants, addressing the issues of climate change, adaptation and landscape resilience;
- worked with Forest Enterprise Scotland and Forest Enterprise England to transition their 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 2017 and analyses from the National Forest Inventory;
- delivered 15 soil courses for over 179 delegates from the public and private sectors;
- worked with Forest Enterprise Scotland on delivering their statutory requirements in respect of mapping and registering all of their land holdings with Registers Scotland.

Financial review

Forest Research had net operating income of £10,000 in 2017–18 (2016–17: £459,000 net operating expenditure).

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

- other management costs increased by £372,000 (11.5%), mainly as a result of increased utilities costs (in comparison to the previous year when we received a large credit) and increased computer costs relating to transition of Forester software and associated spatial data repository to a cloud-hosted web platform and services;
- materials and services costs increased by £209,000 (5.8%), mainly as a result of an increased requirement for external services and support for research contracts undertaken in year;
- income from external (non-Corporate and Forestry Support (CFS)) during the year amounted to £7.7 million.

In 2017–18 Forest Research secured more non-CFS income than in 2016–17, rigorously restricted non-income-generating expenditure and did not incur any unexpected additional costs, such as depreciation on transferred assets. This resulted in a net operating income of £10,000.

Additions to fixed assets in the year were £1,154,000 (2016–17: £2,006,000), on essential infrastructure work (replacement of glasshouses, renovation of laboratories) and scientific equipment.

Financial objective – Key Actions

Forest Research's primary financial objective set out in the Framework Document is to recover the full economic costs of its operations from the sale of services to customers. In 2017–18 the recovery rate was 100.1%, compared with 97.9% in 2016–17.

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 that Forest Research will be undertaking to support the delivery of the Forestry Commission's Science and Innovation Strategy for Forestry in Great Britain, and to fulfil our own Corporate Plan objectives for 2018–19, are as follows:

- Carry out surveys and monitoring across the country as required under the EU Plant Health Directive to ensure that the UK retains Protected Zone status against regulated tree pests and diseases, and provide a report on these activities to the UK and EU statutory bodies.
- Progress Phase 2 of the Observatree partnership and build an expanded volunteer network.
- Participate in the public launch of the Action Oak Partnership and the development of its knowledge exchange and research functions.

- Publish results emerging from the Woodland Creation and Ecological Networks (WrEN) natural experiment project to inform future conservation actions of woodland planting and management, and organise a WrEN conference to bring diverse stakeholders together.
- In partnership with Woodland Heritage, Natural Resources Wales and FC Scotland, host a meeting and publish the results celebrating the long-term experiments on Free Growth of Oak.
- 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.
- Publish and implement Forest Research's new Strategy.
- 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. A sample analysis for 2017–18 indicates that 99.5% 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 (2016–17: £35,000). No further non-audit services were provided in 2017–18 or 2016–17.

Disclosure of audit information to the auditors

So far as I am aware, there is no relevant audit information of which the Forest Research auditors are unaware. I have taken all the steps that I ought to have taken to make myself aware of any relevant audit information and to establish that the Forest Research auditors are aware of that information.

Performance Analysis

The performance of the Agency 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 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 section on page 36. Operating and Financial Reviews describing our key financial results for the year have been included on page 9.

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 19.

The Executive Board has concluded that our achievements against our Corporate Plan Key Actions for 2017–18 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/key-actions-17

Key Actions

Key Action	Progress
Complete the end of the Observatree (Phase 1) project, including an end-of-project conference and work to secure a future phase of the project and its legacy	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	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.

Key Action	Progress
Report to Forest Services England on tree canopy cover in selected English towns and cities	Achieved.
Enhance our research and operational support to the development of the Action Oak Partnership	Achieved.
Extend our contribution to natural capital accounting, through leading a COST Action programme on Payments for Ecosystem Services, and participate in the 'Forests and Water Payments for Ecosystem Services' workshop at the IUFRO World Congress, September 2017	Achieved.
Complete the Greensurge project and outputs including research dissemination and integration workshops with urban planners, managers and practitioners, leading to the production of guidelines on participatory governance of urban greenspace	Achieved.
With support from the Genomia Fund, develop and market ecological network analyses to planning authorities, developers and conservation agencies	Achieved.
Report to Defra on three years' evidence of the ash dieback field trials including the effect of seed source on survival	Achieved.
Co-organise, with partners including the Forestry Commission, Forestry Commission Scotland, the World Wide Fund for Nature and Confor (Confederation of Forest Industries), the IUFRO New Generation Plantations meeting in June 2017	Achieved.
Hold a workshop for forest managers and policy advisors on recent research into the greenhouse gas balance of productive forestry on peaty soils	Rescheduled: A Forests and Peaty Soils Management Workshop was held on 25 and 26 April 2018 at Bellingham, Northumberland.
Survey 1,500 hectares of forest land for the National Forest Inventory	Exceeded: We had surveyed 2,106 hectares by the end of March 2018.
Contribute to the delivery of partners' events including the Institute of Chartered Foresters Conference (a focus on urban trees and woodlands, April 2017); Royal Welsh Show (July 2017); IUFRO Conference (with a focus on Freiburg meeting, September 2017); the SIMWOOD Conference (Paris, September 2017); and activities of the European Forest Institute	Achieved.
Continue to work with Forest Enterprise Scotland and Forest Enterprise England to transition Forester software to a web-hosted platform and to move our associated spatial data repository to a new cloud-hosted shared GeoStore by June 2018	Achieved.
Publish official statistics, including UK National Statistics and Official Statistics, forestry statistics, timber price indices, UK wood production and analyses from the National Forest Inventory	Achieved.
Prepare consultation draft National Forest Inventory reports regarding the use of woodlands by the public and woodland ownership	Achieved.

Key Action	Progress
Undertake a current and future market analysis to better understand the opportunities for attracting commercial and/or other income to underpin future business sustainability	Achieved. Market analysis papers have been discussed internally and decisions will be incorporated within the new FR Strategy that will be launched later this year.
Continue to build relationships with new and existing customers, especially Defra, the devolved administrations and forestry sector, and maintain external income including that from non-FC core funding	Achieved.
With FR staff, initiate horizon scanning of the UK, European and international applied forest research/monitoring/scientific services and forestry data services markets to develop a new science offer for our key customers to be offered by FR from 2019 onwards	Achieved.
Contribute to intergovernmental projects dedicated to establishing a new operational model for FR going forward and develop new FR corporate arrangements for existing shared services such as human resources, information technology and finance by April 2019	Achieved.
Develop a new strategy for the Agency that is bold and ambitious	Ongoing: Under development and being consulted on with staff and stakeholders before being launched later this year.
Develop FR's forest soil survey capability and identify other opportunities for FR to offer professional training to a range of new and existing customers	Achieved.

Research highlights from the past year

During the past year, Forest Research has been involved in studies across a broad range of subjects, including pests and diseases, the effects of climate change, valuing forest ecosystem services and the use of forests to improve people's health and well-being. These, and some of our other activities from the year, are summarised below. Further information is available at www.forestresearch.gov.uk

Investigating European forestry pathogens

Since 2015, Forest Research has been working on the forestry side of the EU Pest Organisms Threatening Europe (POnTE) project, with 25 other partners. EU agriculture and forestry are increasingly threatened by alien and native pests as a consequence of trade globalisation and climate change. POnTE aims to find practical, effective solutions for the prevention and integrated control of key emerging pests, including *Hymenoscyphus fraxineus*, which causes Chalara ash dieback, and *Phytophthora* species, which affect forest ecosystems.

We are investigating both the biology and control of Chalara ash dieback. For example, to better understand the life cycle and seasonal variance of Chalara spores, we are measuring their airborne presence throughout the year. We already have two years' data and will continue to record data for a third year. We are also gathering Chalara from different European countries to study genetic variation within and between pathogen populations. Meanwhile, we are developing a technique using Real Time PCR to detect whether Chalara is present in ash (*Fraxinus excelsior*) seeds. Additionally, for disease control, we are researching whether hot water can eradicate Chalara from ash seeds if they are disease infested.

The other part of this project focuses on the detection of new *Phytophthora* species that may already be present in British soils. This work involves sampling both 'natural' and 'disturbed' sites throughout Britain to establish a baseline of *Phytophthora* presence. The aim is to identify those species that might pose a threat to UK trees in the future. Soils from England, Scotland and Wales have been studied using Illumina Next Generation Sequencing (NGS) and bioinformatics analyses, which identify those *Phytophthora* species present by their DNA profile.

We are also surveying for possible new *Phytophthora* species or hybrids in widely different environments, such as forests, riverside woodlands, new plantings, tree collections and public gardens in the UK. Additionally, as Southeast Asia is regarded as the centre of origin for many introduced *Phytophthora* pathogens that affect forest trees in Europe, our staff have been involved in some intensive surveys in Vietnam and Japan to see what *Phytophthoras* exist in their natural environments and thus anticipate possible future threats.

Estimating the value of Welsh forest resources

In response to the *State of Natural Resources Report* published by Natural Resources Wales in September 2016, the Welsh Government commissioned Forest Research to estimate the value of benefits (ecosystem goods and services) provided by forests in Wales. Such quantification and valuation is essential to developing natural capital accounts that include forests, as well as the pursuit of many sustainable forestry goals. The results of Forest Research's study were published in late 2017.

The aim was to provide experimental environmental accounts, at an all-Wales level, using methods employed for the UK by the Office for National Statistics for natural capital accounting that it developed in partnership with Defra, and using the best available data for the Welsh context.

We estimated the annual aggregate value of the four ecosystem service flows provided by woodlands in Wales (timber extraction, carbon sequestration, recreation and air quality improvement) at just over £600 million per annum (in 2015 prices). Of the values of the four services, air quality improvement due to pollution removal is the largest, followed by carbon sequestration, recreation and then timber production.

The total asset value (the net present value over 50 years) of the four woodland ecosystem services is estimated to amount to about £18 billion (in 2015 prices).

The study compares Wales and UK values and discusses major sources of uncertainty in some of the estimates and causes of discrepancies between the Welsh and UK figures.

The study will inform policy development, supporting the sustainable management of natural resources as described in the Environment (Wales) Act 2016 and delivery against the 'Well-being of Future Generations' goals.

Evaluating the Active Forest programme

The Active Forest programme is a partnership funded by Sport England and Forestry Commission England, set up to understand more about participation and the provision of outdoor activity in forests. Forest Research led the evaluation of the recently completed three-year pilot programme, which focused on five forests in England. A wide range of core activities such as running and cycling were developed through the programme, along with a variety of events and new activities such as table tennis, volleyball, Gruffalo orienteering and football.

Our social and statistical scientists gathered a range of organisational, survey, interview and focus group data and published an evaluation report. The evaluation approach was critical to the programme and encouraged a willingness between the partners to discuss methods, change approach, trial new methods and learn and adapt as the programme progressed.

There were 700,097 sporting visits during the pilot, with a 246% increase in the number of visits in the third year compared with the first. Focus group data indicated that the beauty, scenery, wildlife, sensory experiences, sense of freedom, getting away from everyday life, and atmosphere of the forest sites were key drivers for participants to get involved. The four key benefits identified by over 80% of survey respondents were physical well-being, fun and enjoyment, mental well-being and a feeling of escape and freedom.

Key success factors that led to well-being outcomes included the size and attractiveness of the forests, the governance of the programme, the range of activities on offer, and the programme targeting a diverse range of people.

The Active Forest programme is now being expanded and 20 forest sites will be involved over the next five years. Our scientists have further developed the evaluation and will help the partners to develop and adapt their approach based on the evaluation findings.

Communicating the risk of Lyme disease

Although spending time outdoors is known to have many health benefits, it can also have risks. One of these risks is the threat of Lyme disease, and recent studies are suggesting an increase in the number of Lyme disease cases in the future, due in part to changes in the climate. Forest Research has been working with Forestry Commission Scotland to determine how environment-sector organisations can convey the risks to their visitors and staff that spend time outside without causing undue alarm.

Lyme disease is the most common tick-borne disease in Europe. It is a bacterial infection transmitted by infected ticks that are usually picked up by brushing against vegetation or animals. Ticks are found on deer or sheep, but also on pets and warm-blooded animals. Not all ticks carry the bacteria responsible for Lyme disease. Early treatment can successfully halt the disease, but vigilance is important.

Forest Research's social scientists conducted a literature review of Lyme disease, focusing on how it is spread, detected and treated, and its incidence in the UK. We then looked at what behaviours would be most relevant to reducing a person's risk of infection while still benefiting from the many advantages of spending time outdoors. A risk communication framework was developed, considering what behaviours are needed to reduce risk, who the key audience is, where the information should be targeted, and how.

A Briefing Note has been published, outlining the findings from this work. This includes guidance on the best points in time at which behaviour may be influenced and what actions could be taken by the environment-

sector organisations and their staff and visitors. This publication forms part of a larger awareness-raising programme led by Forestry Commission Scotland that includes some public information on checking for ticks and internal staff case studies and videos.

Building long-term resilience to forest pests and diseases

One important aspect of Forest Research's response to threats to tree health is the building of long-term resilience to pests and diseases within our forested landscapes. The PROTREE project set out to better understand how we might develop this resilience using Scots pine (*Pinus sylvestris*) as a model species. The project was led by the Centre for Ecology and Hydrology, with Forest Research and five other research organisations as partners. It was funded through the Living With Environmental Change partnership's Tree Health and Plant Biosecurity Initiative.

Forest Research's work in PROTREE has been particularly successful in developing our understanding of Dothistroma needle blight by clarifying the native and non-native status of strains of the disease in Britain. We have also shown that seeds sampled from native populations of Scots pine, grown under common conditions, show high diversity in terms of their susceptibility to the pathogen. This suggests they have the genetic adaptability to evolve resilience to the disease.

We have also studied aspects of pine pitch canker (caused by the fungus *Fusarium circinatum*), a disease in Spain that could potentially spread to Britain. This work showed that conifers differ in their susceptibility, with Monterey pine (*P. radiata*) being most susceptible and Scots pine the least susceptible to pine pitch canker. We also found that different strains of the pathogen show very different sensitivities to particular fungicides, underlining the need for control measures to be tested across a broad range of strains of the pathogen.

Throughout the project we and our project partners have been actively involving stakeholders. For example, we participated in the design of the 'CALEDON' computer game, which illustrates the challenge for the forest manager in maintaining a healthy forest, and we have helped provide visitors with the opportunity to play this game at several nature and science events.

Growing better trees faster

Forest Research and the University of Edinburgh have been part of a new BBSRC contract coordinated by the University of Oxford called 'Sitka Spruced'.

The project aims to investigate the potential for genomic breeding in Sitka spruce (*Picea Sitchensis*, the main tree species grown for timber production in Britain). This involves the selection of trees based on aspects of their DNA that are well correlated with important physical characteristics for timber production. The advantage of this approach is that the DNA of a tree can be investigated as soon as there is a seed, and trees can then be selected for breeding or to support plant production many years earlier than at present.

However, first we have to determine if there is a correlation between the trees' physical characteristics and aspects of their DNA. To do this, Forest Research searched its database of genetic trials to find an existing mid-rotation experiment of the right pedigree mix replicated on at least two forest sites. Then, during summer 2017, nearly 700 trees in Brecon Forest (Wales) and another 700 in the replicated trials in West Argyll (Scotland) were felled. Each tree was measured for growth characteristics on site before being cut into sections to provide wood samples for detailed analysis back in the laboratories of Forest Research's Northern Research Station. DNA was also collected from each tree and the University of Oxford team will be responsible for seeking out the specific markers in each sample before the University of Edinburgh determines how these markers may be used in future selections for desirable characteristics.

Reducing flooding in Omagh, Northern Ireland

Interest in natural flood management and the potential for woodland creation to reduce flood risk continues to grow across the UK. This year Forest Research was asked by the Northern Ireland Forest Service to build on

its previous 'opportunity mapping' work that used GIS spatial datasets to identify priority areas for woodland creation to benefit flood risk management in the country.

The objective of the latest study was to quantify the hydrological effects of woodland planting opportunities in the Camowen and Drumragh catchments which drain to Omagh. The town has a history of significant flooding, with 11 notable events in the past 60 years. The flood of November 2015 was particularly severe, causing serious damage to residential property and businesses in the town centre and disruption to travel due to bridge closures.

Almost 9,000 hectares of land have been identified in the two catchments as a priority area for potential woodland creation to reduce flood risk in the town. A rainfall-runoff model was developed and applied to assess the impact of different woodland creation scenarios that vary the amount and placement of planting. Results suggest that woodland creation could have a marked effect on downstream flooding by delaying and reducing peak flows. The modelling method provides a potentially powerful tool for evaluating the impact of land-use change on flood runoff, including identifying target areas where such measures could be most effective.

The findings of this work add to a growing body of research demonstrating that woodland creation and management can have an important role to play in helping to manage flood risks for impacted communities.

Supporting Scottish policy-making on climate change

As part of its work on climate change, Forest Research is collaborating with ClimateXChange, a Scottish Government-funded centre of expertise involving Scotland's leading research providers, sector stakeholders and policy teams. ClimateXChange brings these stakeholders together to help ensure that policies are informed by the best available evidence, to support the Scottish Government's aims to adapt to the changing climate and make the transition to a low carbon economy. Forest Research's contribution aims to support forestry in becoming more resilient to climate change and to deliver Scotland's greenhouse gas emissions reduction targets.

Our work for ClimateXChange in 2017-18 has covered a range of climate change topics that examine aspects of both mitigation and adaptation in forestry. During the year we have worked with other ClimateXChange collaborators, particularly from the James Hutton Institute (JHI), on three evidence reviews on the potential benefits of agroforestry in a changing climate, on comparison of peatland restoration methods, and on carbon and greenhouse gas impacts of afforestation and replanting on peaty soils.

Working with JHI and University of Aberdeen researchers we also carried out an analysis on the potential changes in carbon stocks from afforestation scenarios in Scotland, combining expertise on soil carbon and forest stand growth modelling with land-use data. We provided briefings on the importance of contingency planning as an adaptation measure for forestry, on the impact of climate change across the forestry supply chain, and on what the forestry sector could learn from risk management in the finance sector to help with adaptation decisions.

These analyses and reviews have been developed in close discussion with Forestry Commission Scotland policy advisors and those from other public sector organisations, to inform their work and policy discussions and, where appropriate, have been widely disseminated through the ClimateXChange website.

Sustainability Report

This report is not subject to audit

FR seeks to reduce its environmental impact wherever possible and remained certified to ISO 14001. We participated in a Government Internal Audit Agency (GIAA) audit in November 2017 and undertook an internal audit of ISO 14001 in February 2018. Throughout the year, we monitor our sustainability figures and the FR Board receives updates every six months.

Business sustainability remains a standing item at the Site Management Committee meetings at Alice Holt and at our Northern Research Station. We monitor business sustainability 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 have trialled smaller and more energy-efficient vehicles and look forward to testing the suitability of hybrid (petrol/battery) vehicles in 2018–19. Looking further ahead, we will be implementing a new IT infrastructure from April 2019 that will allow us to use Skype more frequently. This will further support reduced travel while still allowing valuable face-to-face contact.

In 2017–18 we received Defra funding for replacement glasshouses at our two main sites. From a business sustainability perspective this has resulted in facilities that can be better controlled and which are more energy efficient.

Information on our travel, energy usage, waste and water for 2017–18 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 marginally higher than 2016–17 figures (which was a revised baseline year, established to recognise the significant increase in staff at FR). Our consumption will naturally fluctuate due to differing business travel needs, prevailing research priorities and year-to-year variations in the weather. Our consumption of electricity, gas and other fuels is less than the baseline, but total costs have increased as a result of rising prices per unit. Photovoltaic (PV) energy generation at Alice Holt continues to provide benefits, this year producing 24,115 kWh of electricity, similar to the amount generated last year.

It is pleasing that our recycling efforts are resulting in 93% of estate and office waste being recycled, exceeding our target of 80%. Our waste includes sewage sludge (109 tonnes equivalent) and other waste (72 tonnes equivalent) at costs of £2,040 and £22,948, respectively. Our water consumption is higher than in 2016–17 as a result of increased work in our plant nurseries and, regrettably, a burst water supply pipe at Alice Holt in early February; this supply pipe is due to be replaced in 2018–19.

As part of the FC, we participate in the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme and will submit a report (through the FC) until the scheme closes in March 2019. Our report will be submitted in July 2018 and payments made in September 2018. In 2016–17, we paid £13,735 for CRC Allowances and have estimated a similar charge for 2017–18.

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 the FR Environmental Management System, which is certified to ISO 14001.

FR 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 regards 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.

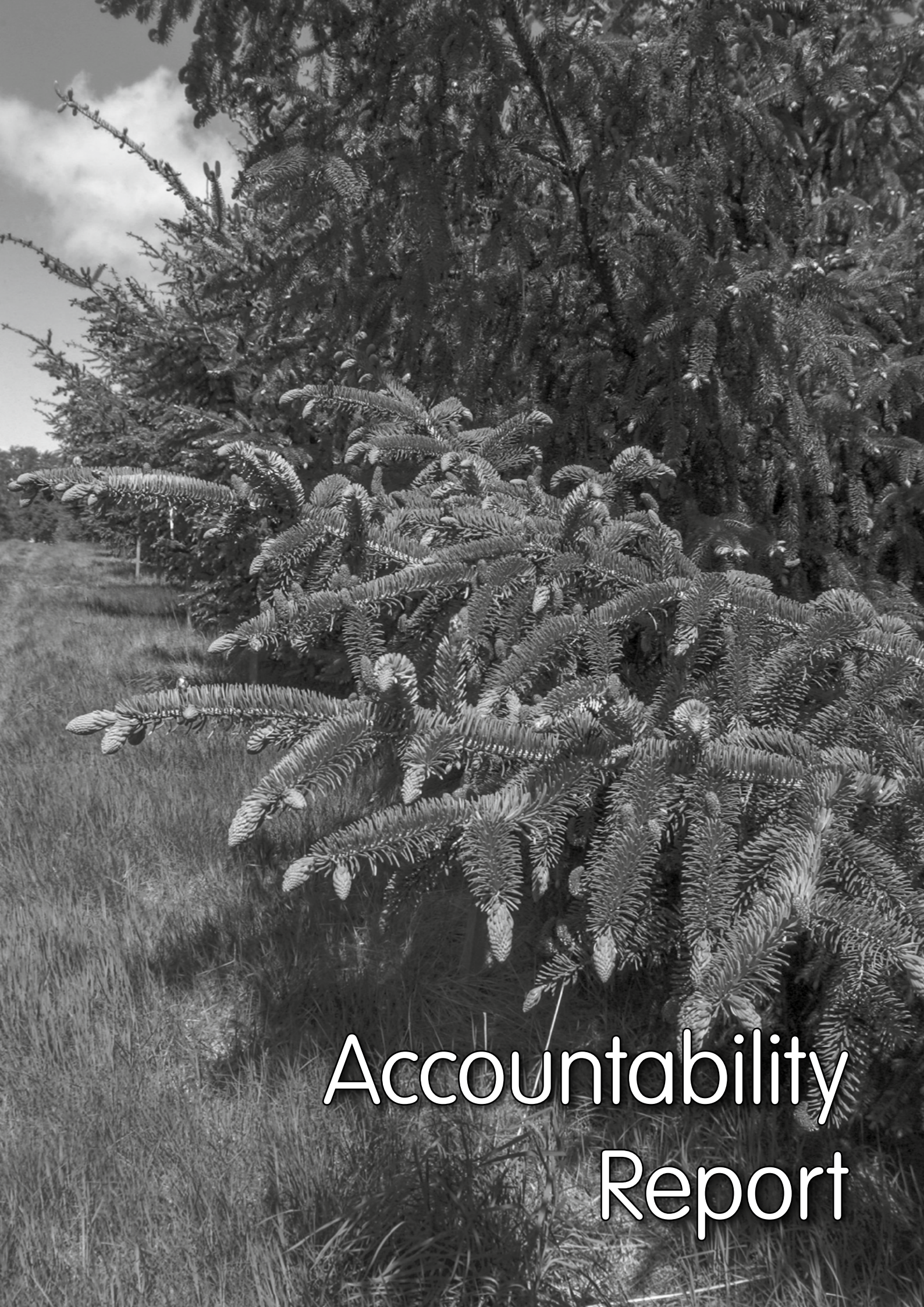
This report has been prepared with reference to *Public sector annual reports; sustainability reporting guidance 2017–18*.

Performance measurement		2017-18 performance		2016-17	2015-16	2014-15
Area		Actual (qty/cost)	Comment	New baseline		
Greenhouse gas emissions: Scopes 1, 2 and 3 business travel including national and international air/rail travel and tonnes CO ₂ e		£433,064 337	Target: 10% reduction on baseline (actual 2.4% increase)	£428,307 329	£441,245 459	£486,297 518
Electricity, gas and other heating fuels (estate) #	Consumption (kWh)	2,486,756	FR generated 24,115 kWh from the photovoltaic panels at Alice Holt	2,578,429	2,676,905	2,429,460
	Expenditure and tonnes CO ₂ e	£191,207 776		£180,543 765	£187,953 904	£178,078 820
Total energy*	Expenditure	£624,271		£608,850	£629,198	£664,624
Estate and office waste ~	Amount (tonnes)	181	Target: >80% recycling (actual: 93%) Target: <20% landfill (actual 7%)	278	1,345	200
	Expenditure	£24,988		£33,567	£35,052	£21,140
Estate and office water	Quantity used (m ³)	13,725	Target: 8% reduction on baseline (actual: 13.4% increase)	12,098	14,137	12,763
	Expenditure	£18,329		£15,442	£18,810	£17,739
<p># 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.</p> <p>* Total energy is the fossil fuel consumption of the built estate (heating and lighting, etc.) and the CO₂ from travel.</p> <p>~ Waste cost: recycling £19,394 (2016-17: £29,225), landfill £5,563 (2016-17: £2,039), incineration £30 (2016-17: £2,175).</p>						



Professor James Pendlebury
Chief Executive and Accounting Officer

7 June 2018



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:

Andrea Leadsom MP	<i>Secretary of State until 10 June 2017</i>
Michael Gove MP	<i>Secretary of State from 11 June 2017</i>
Thérèse Coffey MP	<i>Parliamentary Under Secretary of State</i>

Composition of the Management Board

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

James Pendlebury *	<i>Chief Executive</i>
Peter Freer-Smith *	<i>Chief Scientist until 25 September 2017</i>
Sarah England	<i>Head of Human Resources</i>
Helen McKay *	<i>Head of Centre for Sustainable Forestry and Climate Change</i>
Chris Quine *	<i>Head of Centre for Ecosystems, Society and Biosecurity</i>
Sandra Smith	<i>Head of Finance</i>
Peter Weston	<i>Head of Inventory, Forecasting and Operational Support</i>
Hugh Williams	<i>Head of Centre for Research Services</i>
Shireen Chambers	<i>Non-Executive Director until 31 October 2017</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 which 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 2017–18.

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 2017–18 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, normally through Director Central Services, 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 (FREB)

The FREB was established to manage the day-to-day operations and performance of the Agency, within the policy framework set by Ministers and the Forestry Commissioners. The Board meets regularly and met 11 times during 2017–18. The Board discussed a wide range of forest research and related issues, including:

- future science;
- future strategy;
- communications;
- Forestry Governance Project;
- Corporate Plan Key Actions;
- health and safety;
- business development, including external income;
- devolution of Shared Services;
- External Review of Forest Research;
- risk management.

At each of the meetings during 2017–18 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 FREB, including membership and attendance, is available on our website, www.forestresearch.gov.uk

Audit and Risk Assurance Committee

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 2016-17;
- Internal and External Audit strategies and reports;
- information security;
- Forestry Governance Project;
- Governance Statement;
- the Committee's structure and effectiveness.

There were three ARAC meetings during 2017-18 (May and November 2017 and March 2018) and attendance was as follows:

Name	No. of meetings
Mary Barkham	3
Shireen Chambers	3
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:

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 as follows:

'I am today announcing new arrangements for the governance and management of the Forestry Commission. The Scottish Government is legislating to complete the devolution of forestry, with the effect that from 2019 – the centenary year of the Forestry Commission – the Commissioners' statutory remit will be only in England. The Commission, its dedicated staff and above all our 250,000 hectares of English public forests are a great national asset. I am confirming today that the Forestry Commission will be retained in England, and will continue to manage our public forests for public benefit – including supply of timber, public access, and the environment.

We will establish a new Board of Commissioners of the Public Forest Estate. Commissioners will continue to be appointed by Her Majesty the Queen on the advice of her Ministers, who will retain a power of direction.

The Government will not allow any net reduction in the size of the Public Forest Estate, and will support the Commissioners in taking opportunities through active management of the estate to plant more woodland and increase natural capital.

We will continue our work to protect, improve and expand forests and woodlands in England beyond the PFE [Public Forest Estate], as part of the Government's commitment for this to be the first generation to leave the natural environment in a better state than it found it.

We will work together with the Scottish and Welsh Governments to promote strong forest science, to sustain high standards for forestry in the UK, and to protect our trees against pests and diseases. Our world-renowned research agency Forest Research will continue as an agency of the Forestry Commission, with new governance, commissioning and funding arrangements agreed with the devolved administrations.

These arrangements provide certainty for the future of the Forestry Commission, and a strong, sustainable platform for our precious forest and woodland environments to thrive for the long term.'

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; these arrangements are currently being implemented and are due to take effect from April 2019. In addition, senior officials from all three administrations are finalising a memorandum of understanding that will come into effect on

the same date and govern, among other things, the future funding of Forest Research and the associated research commissioning process.

Subsequent to Minister Coffey's statement, the Forestry and Land Management (Scotland) Bill completed its final Parliamentary stage on 20 March 2018 and was passed unanimously by MSPs.

Introduced to the Scottish Parliament in May 2017, the Bill is part of a larger project to complete forestry devolution. The Bill among other things:

- confers on the Scottish Ministers forestry and land management functions based on those currently held by the Forestry Commissioners, and removes those functions from the Commissioners as they apply to Scotland – this delivers improved accountability, transparency and policy alignment as forestry will be fully accountable to Scottish Ministers and the Scottish Parliament;
- provides a modern legislative framework to develop, support and regulate forestry in Scotland, including a requirement for a Scottish forestry strategy and a duty to promote sustainable forest management, and the Forestry Act 1967 Act is repealed as it applies to Scotland;
- confers on Ministers a duty to make arrangements for research in relation to the promotion of sustainable forest management;
- enables more effective use of Scotland's publicly owned land – the National Forest Estate will be managed to deliver economic, environmental and social outcomes and the Scottish Government will be able to offer land management experience and expertise to others;
- requires Scottish Ministers to appoint a chief forester and, in making administrative arrangements to carry out their forestry and land management functions, to establish a single agency or two agencies.

The Scottish Government will now establish two agencies of the Scottish Government to deliver Ministers' forestry responsibilities. These will be Forestry and Land Scotland which, as a successor agency to Forest Enterprise Scotland, is anticipated to retain its critically important financial flexibilities that stem from its classification as a public corporation for accounting purposes. The second agency will be Scottish Forestry, which will deliver the policy, regulation, support and grant functions currently the responsibility of Forestry Commission Scotland. This represents a change from the planned arrangements, which were for Scottish Forestry to be a dedicated Scottish Forestry division.

As agencies of Scottish Ministers, both will be part of the Scottish Government and will deliver Scottish Ministers' new functions under the Bill and other functions related to, or connected to, forestry and land management as Ministers may determine.

Business continuity management

Forest Research has business continuity plans to ensure that there are procedures in place to facilitate the recovery of business activities. The plans will be reviewed towards the end of 2018–19 to take account of the Transition Programme.

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. However, as part of the wider transitions to the new arrangements detailed above, the FC Executive Board has decided to disband the current arrangements such that Forest Research and the countries are now each working to establish their own independent corporate capabilities by April 2019. Therefore Forest Research formed a Transition Programme Board in July 2017 to manage the transition of all of these services into Forest Research and developed a Corporate Services Business Case setting out its proposals for its staffing requirements for the provision of IT, Finance and HR services. This proposal was subject to formal consultation with the FC Trade Unions during the period 2 October to 1 November 2017 and was subsequently accepted for implementation on 21 November 2017. As a consequence, Forest Research has employed a programme manager to coordinate and manage all the relevant strands of the transition and has recruited key

IT, HR and Finance staff to oversee key corporate service implementation. The financing of this transition has been agreed by the FC Executive Board and will be supplied by FC England and FC Scotland.

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. We are aware that the law is changing on personal data. In response to the new General Data Protection Regulation (GDPR), we are establishing a programme board with associated terms of reference to formally manage, implement and monitor our response and delivery against 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 Forestry Commission 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:

- managing the delivery of the transition to establish our new corporate IS, HR and Finance capabilities by April 2019 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 or other issues;
- delivering the interdisciplinary science programmes for 2015–19;
- 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 2018–19 Forest Research will remain focused on managing these challenges either directly, or in partnership with other bodies across the Defra network and wider government, while continuing to maintain business continuity across the broad range of its operations and meeting stakeholder expectations in line with the Corporate Plan.

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	2017-18				2016-17			
	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	80-85	4,700	8	90-95	80-85	4,300	16	100-105
Peter Freer-Smith #	35-40	-	-	35-40	75-80	-	15	90-95
Sarah England *	40-45	-	26	65-70	40-45	100	69	110-115
Helen McKay	65-70	-	(1)	65-70	65-70	-	10	75-80
Chris Quine	65-70	-	-	65-70	65-70	-	10	75-80
Sandra Smith	55-60	-	21	75-80	50-55	-	21	75-80
Peter Weston	65-70	-	4	70-75	65-70	-	12	75-80
Hugh Williams	60-65	-	17	75-80	60-65	-	21	80-85

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

* Sarah England joined on 4 April 2016; she works 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.

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 2017-18 or 2016-17.

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 and house purchase loans.

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 2017-18 was £85,000 – £90,000 (2016-17: £85,000 – £90,000). This was 3.14 times (2016-17: 3.17) the median remuneration of the workforce, which was £27,870 (2016-17: £27,614). In 2017-18 no employees (2016-17: 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 of pensions.

Pension benefits 2017-18 – subject to audit

Name	Accrued pension at age 60 at 31/3/18 and related lump sum (LS) £000	Real increase (decrease) in pension and related lump sum (LS) £000	CETV at 31 March 2018 £000	CETV at 31 March 2017* £000	Real increase (decrease) in CETV £000
James Pendlebury	15-20 plus 45-50 LS	0-2.5 plus 0-2.5 LS	355	324	7
Peter Freer-Smith	30-35 plus 95-100 LS	0-2.5 plus 0-2.5 LS	734	721	(1)
Sarah England	30-35 plus 75-80 LS	0-2.5 plus 0 LS	510	469	12
Helen McKay	30-35 plus 100-105 LS	0-2.5 plus 0-2.5 LS	715	705	(2)
Chris Quine	30-35 plus 90-95 LS	0-2.5 plus 0-2.5 LS	690	647	0
Sandra Smith	10-15	0-2.5	213	186	16
Peter Weston	35-40 plus 55-60 LS	0-2.5 plus 0 LS	804	751	4
Hugh Williams	20-25 plus 10-15 LS	0-2.5 plus 0 LS	372	339	5

*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** sometime between 1 June 2015 and 1 February 2022. All members who switch to **alpha** have their PCSPS benefits 'banked', with those with earlier benefits in one of the final salary sections of the PCSPS having those benefits based on their final salary when they leave **alpha**. (The pension figures quoted for officials show pension earned in PCSPS or **alpha**, as appropriate. Where the official has benefits in both 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 3% 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 – subject to audit

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

Name	2017-18	2016-17
	£000	£000
Mary Barkham *	0	0
Shireen Chambers #	4	5
Judith Webb	1	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 was also 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
1A	1

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

	2017-18	2016-17
Permanent staff – male (4 Executive Board Members)	127	122
Permanent staff – female (3 Executive Board Members)	75	76
Total permanent	202	198
Others – male	19	18
Others – female	10	11
Total others	29	29
Total staff	231	227

Staff costs – subject to audit

	2017-18			2016-17
	Permanent staff	Other staff	Total	
	£000	£000	£000	£000
Wages and salaries	7,034	707	7,741	7,631
Social security costs	737	65	802	813
Employer's superannuation costs	1,445	137	1,582	1,491
Apprenticeship levy	38	-	38	-
Agency staff costs	-	85	85	179
Total	9,254	994	10,248	10,114

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 2017-18, employers' contributions of £1,564,961 were payable to the PCSPS (2016-17: £1,538,254) 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 2017-18 to be paid to the member when they retire and not the benefits paid during this period to existing pensioners.

Employees can opt to open a partnership pension account, a stakeholder pension with an employer contribution. Employer contributions of £9,920 (2016-17: £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 £653, 0.5% of pensionable pay (2016-17: £399, 0.5%), were payable to the PCSPS to cover the cost of the future provision of lump sum benefits on death in service or ill-health retirement of these employees.

Contributions due to the partnership pension providers at the Statement of Financial Position date were £nil. 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 2017–18 was 11.4 per employee (2016–17: 8.6), compared with the average of 10.5 (2016–17: 9.6) for the Forestry Commission.

Early departure costs

During 2017–18 two members of staff left under Compulsory or Voluntary Redundancy terms (2016–17: one). They received compensation payments of less than £10,000.

Expenditure on consultancy

During the year Forest Research incurred £45,000 on consultancy services (2016–17: £nil).

Off-payroll engagements

Defra are required to disclose information in their Annual Report and Accounts relating to the review of tax arrangements of public sector employees. Forest Research has no off-payroll engagements for more than £245 per day for longer than six months.

People

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

- **teamwork:** we work collaboratively with each other and our stakeholders, ensuring 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 2017–18 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 first annual Equality Monitoring report in March 2018.

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 our FR Staff Council. Key issues raised and discussed have included the decentralisation of work from 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 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 funding from Corporate and Forestry Support was decided as part of SR10 and confirmed in SR15. 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 2017–18. In 2016–17 there were no losses or special payments.

Fees and charges

Forest Research's primary financial objective is to recover full economic costs of its operations from the sale of services to customers and it has complied with the principles of cost allocation and charging requirements set out 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

	2017-18 £000	2016-17 * £000	2015-16 £000	2014-15 £000	2013-14 £000
Staff costs	10,248	10,114	7,734	7,747	7,684
Other management costs	3,608	3,235	2,527	2,389	2,963
Materials and services	3,811	3,602	2,418	2,707	2,605
Total expenditure	17,667	16,951	12,679	12,843	13,252

* 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

7 June 2018

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 2018 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 2018 and of the net income for the year then ended; and
- the financial statements have been properly prepared in accordance with the Government Resources and Accounts Act 2000 and HM Treasury directions issued thereunder.

Opinion on regularity

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

Basis of opinions

I conducted my audit in accordance with International Standards on Auditing (ISAs) (UK) and Practice Note 10 'Audit of Financial Statements of Public Sector Entities in the United Kingdom'. My responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the financial statements section of my certificate. Those standards require me and my staff to comply with the Financial Reporting Council's Revised Ethical Standard 2016. I am independent of 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.

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.
- 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. 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.
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

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

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

Other Information

The Accounting Officer is responsible for the other information. The other information comprises information included in the Performance Report and Accountability Report other than the parts of the Accountability Report described in that report as having been audited, the financial statements and my auditor's report thereon. My opinion on the financial statements does not cover the other information and I do not express any form of assurance conclusion thereon. In connection with my audit of the financial statements, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or my knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work I have performed, I conclude that there is a material misstatement of this other information, I am required to report that fact. I have nothing to report in this regard.

Opinion on other matters

In my opinion:

- the parts of the Accountability Report to be audited have been properly prepared in accordance with HM Treasury directions made under the Government Resources and Accounts Act 2000;
- in the light of the knowledge and understanding of the entity and its environment obtained in the course of the audit, I have not identified any material misstatements in the Performance Report and Accountability Report; and
- the information given in the Performance Report and Accountability Report for the financial year for which the financial statements are prepared is consistent with the financial statements and have been prepared in accordance with the applicable legal requirements.

Matters on which I report by exception

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

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

Report

I have no observations to make on these financial statements.

Sir Amyas C.E. Morse
Comptroller and Auditor General

National Audit Office
157-197 Buckingham Palace Road
Victoria
London
SW1W 9SP

12 June 2018



Financial Statements

Statement of Comprehensive Income for the year ended 31 March 2018

	Notes	2017-18 £000	2016-17 £000
Income			
Forestry Commission customers	6.1	(14,520)	(13,395)
Non-Forestry Commission customers			
European Union		(219)	(326)
Other	6.2	(2,938)	(2,771)
Total operating income		(17,677)	(16,492)
Expenditure			
Staff costs	3	10,248	10,114
Other management costs	4	3,608	3,235
Materials and services	5	3,811	3,602
Total operating expenditure		17,667	16,951
Net operating (income)/expenditure		(10)	459
Other comprehensive net (income)/expenditure			
Net loss/(gain) on revaluation of property, plant and equipment	7	(23)	230
Total comprehensive net (income)/expenditure for the year		(33)	689

All income and expenditure are derived from continuing operations.

The notes on pages 46 to 59 form part of these accounts.

Statement of Financial Position as at 31 March 2018

	Notes	31 March 2018 £000	31 March 2017 £000
Non-current assets			
Property, plant and equipment	7	11,624	11,254
Intangible assets		26	67
Financial assets		25	25
Total non-current assets		11,675	11,346
Current assets			
Inventories		130	133
Trade and other receivables	9	1,629	1,739
Cash and cash equivalents	10	1,653	1,108
Total current assets		3,412	2,980
Total assets		15,087	14,326
Current liabilities			
Provisions	12	(20)	(32)
Trade and other payables	11	(1,741)	(1,809)
Total liabilities		(1,761)	(1,841)
Total assets less current liabilities		13,326	12,485
Non-current liabilities			
Provisions	12	(15)	(36)
Total assets less total liabilities		13,311	12,449
Taxpayers' equity			
General Fund		6,277	5,430
Revaluation Reserve		7,034	7,019
Total equity		13,311	12,449



Professor James Pendlebury
Chief Executive and Accounting Officer
 7 June 2018

The notes on pages 46 to 59 form part of these accounts.

Statement of Cash Flows for the year ended 31 March 2018

		2017-18	2016-17
	Notes	£000	£000
Net cash inflow from operating activities			
Net operating income/(expenditure)		10	(459)
Adjustments for non-cash transactions:			
Depreciation	7	792	704
Amortisation	4	42	79
Loss on disposal of property, plant and equipment	7	14	-
Notional audit fee	4	38	35
Movements in provisions	12	11	13
(Increase)/decrease in inventories		3	(134)
(Increase)/decrease in trade and other receivables	9	110	(39)
Increase/(decrease) in trade and other payables	11	(68)	534
Movements in payables relating to investing activities		-	-
Use of provisions	12	(44)	(81)
Net cash inflow from operating activities		908	652
Cash flows from investing activities			
Purchase of property, plant and equipment	7	(1,154)	(1,895)
Purchase of intangible assets		-	(111)
Net cash (outflow) from investing activities		(1,154)	(2,006)
Cash flows from financing activities			
Net cash transfer from the Forestry Commission		791	2,194
Net financing		791	2,194
Net increase in cash and cash equivalents in the period		545	840
Cash and cash equivalents at the beginning of the period		1,108	268
Cash and cash equivalents at the end of the period		1,653	1,108

The notes on pages 46 to 59 form part of these accounts.

Statement of Changes in Taxpayers' Equity for the year ended 31 March 2018

	Notes	General Fund £000	Revaluation Reserve £000	Total Reserves £000
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	7	-	23	23
Transfer from Revaluation Reserve		8	(8)	-
Notional audit fee	4	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
Balance at 1 April 2016		3,660	7,405	11,065
Changes in taxpayers' equity for 2016-17				
Net loss on revaluation of property, plant and equipment		-	(388)	(388)
Net gain on revaluation of intangible assets		-	2	2
Notional audit fee		35	-	35
Comprehensive net expenditure		(459)	-	(459)
Cash transferred from the Forestry Commission		2,194	-	2,194
Balance at 31 March 2017		5,430	7,019	12,449

The notes on pages 46 to 59 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 2017–18 *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.

Forest Research recognises revenue when the amount of revenue can be reliably measured with reference to the Terms and Conditions of each contract and it is probable that future economic benefits will flow to it.

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.

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: at fair value through profit or loss, loans and receivables, and available-for-sale financial assets. The classification depends on the purpose 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 at fair value through profit or loss

Financial assets carried at fair value through profit or loss are 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.

(b) Loans and receivables

Loans and receivables are recognised initially at fair value and subsequently measured at amortised cost using the effective interest method, less provision for impairment. A provision for impairment of loans and receivables is established when there is objective evidence that Forest Research will not be able to collect all amounts due. Any impairment is recognised in the Statement of Comprehensive Income.

(c) Available-for-sale financial assets

Available-for-sale financial assets are initially recognised and subsequently carried at fair value.

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 2018 have been adopted in these statements, taking account of the specific interpretations and adaptations included within the FReM.

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 9 – Financial Instruments. This is effective from 1 January 2018. This standard brings together all three phases of the financial instruments project: Classification and Measurement, Impairment, and Hedge Accounting.

IFRS 15 – Revenue from Contracts with Customers. This is effective from 1 January 2018. This standard replaces all existing IFRS guidance on revenue recognition.

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

	2017-18	2016-17
	£000	£000
Wages and salaries	7,741	7,631
Social security costs	802	813
Employer's superannuation costs	1,582	1,491
Apprenticeship levy	38	-
Agency staff costs	85	179
Total	10,248	10,114

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

Note 4. Other management expenditure

		2017-18	2016-17
	Notes	£000	£000
Travel and subsistence		565	519
Building maintenance		661	653
Utilities		262	198
Training		49	98
Other expenditure		263	198
Computer supplies *		903	730
Staff transfer expenses		8	8
Non-cash costs:			
Provisions – early departure costs:			
Provided in year	12	11	12
Unwinding of discount	12	-	1
Depreciation of property, plant and equipment	7	792	704
Amortisation of intangible assets		42	79
Loss on disposal of property, plant and equipment	7	14	-
Auditors' remuneration – notional cost		38	35
Total		3,608	3,235

* IFOS incurred £862,000 computer costs (2016-17: £690,000), 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.

Note 5. Materials and services

		2017-18	2016-17
		£000	£000
Materials and supplies		868	821
Central services provided by the Forestry Commission*		1,044	1,133
Vehicle lease charges from the Forestry Commission*		323	266
Contractors ~		774	543
Commissioned research		148	156
Publications		13	28
Protective clothing		13	10
Miscellaneous expenditure		628	645
Total		3,811	3,602

* 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 £1,367,000 (2016-17: £1,399,000).

~ 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, from 1 April 2016, CFS paid FR for services provided by IFOS and for those FC staff that transferred to FR. The 2017-18 charges to CFS for FR services amounted to £10,023,000. 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:

	2017-18	2016-17
	£000	£000
Research, development and other services to:		
Corporate and Forestry Support	10,023	9,088
England	1,880	1,825
Scotland	2,617	2,482
	14,520	13,395

6.2 Other income

Other income consisted of:

	2017-18	2016-17
	£000	£000
Contracts for research and services	2,832	2,592
Consultancy	-	-
Ad hoc - sample analysis, supply of seeds, conferences, advisory, reimbursement of expenses	106	179
	2,938	2,771

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 2017	2,011	15,341	2,904	1,193	-	21,449
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 2018	1,346	17,683	3,486	1,122	232	23,869
Depreciation:						
At 1 April 2017	-	7,783	1,700	712	-	10,195
Provided in year	-	464	250	78	-	792
Disposals	-	-	-	(55)	-	(55)
Revaluation to current prices	-	1,313	3	(3)	-	1,313
At 31 March 2018	-	9,560	1,953	732	-	12,245
Net book value:						
At 31 March 2018	1,346	8,123	1,533	390	232	11,624
At 31 March 2017	2,011	7,558	1,204	481	-	11,254
Valuation:						
At 1 April 2016	1,960	14,453	2,341	1,104	5	19,863
Additions	-	-	406	61	1,428	1,895
Transfers	-	1,433	-	-	(1,433)	-
Revaluation to current prices	51	(545)	157	28	-	(309)
At 31 March 2017	2,011	15,341	2,904	1,193	-	21,449
Depreciation:						
At 1 April 2016	-	7,378	1,420	615	-	9,413
Provided in year	-	405	215	83	-	703
Revaluation to current prices	-	-	65	14	-	79
At 31 March 2017	-	7,783	1,700	712	-	10,195
Net book value:						
At 31 March 2017	2,011	7,558	1,204	481	-	11,254
At 31 March 2016	1,960	7,075	921	489	5	10,450

Fixed assets were revalued as at 31 March 2018 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 £3.2 million, respectively, at 31 March 2018.

Note 8. Financial instruments

8.1 Financial instruments by category

All financial assets on the Statement of Financial Position are loans and receivables, except for £25,000 (31 March 2017: £25,000) which is classified as available for sale and £105,000 prepayments (31 March 2017: £87,000). 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 £11,000 (31 March 2017: £68,000) taxation and social security costs and £178,000 (31 March 2017: £118,000) 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 that are denominated in Euros and New Zealand Dollars.

Contracts denominated in Euros and New Zealand Dollars form only 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

	2017-18	2016-17
	£000	£000
Current		
EU trade receivables	272	336
Other trade receivables	606	732
Total trade receivables	878	1,068
Other receivables	15	8
House purchase loans to employees	13	15
Prepayments and accrued income – EU	451	367
Prepayments and accrued income – non-EU	272	281
Total current receivables	1,629	1,739

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

As of 31 March 2018, £498,000 (2016-17: £501,000) were fully performing and not overdue or impaired and provided for.

As of 31 March 2018, trade receivables of £380,000 (2016-17: £567,000) 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:

	2017-18	2016-17
	£000	£000
Months overdue		
Less than one month	24	42
One to two months	32	25
Two to three months	112	342
More than three months	212	158
	380	567

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:

	2017-18	2016-17
	£000	£000
Current		
Pounds sterling	906	1,034
Euros	723	703
New Zealand Dollars	-	2
Total	1,629	1,739

Note 10. Cash and cash equivalents

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

	2017-18	2016-17
	£000	£000
Opening balance at 1 April	1,108	268
Net change in balances	545	840
Balance at 31 March	1,653	1,108

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

	2017-18	2016-17
	£000	£000
Current		
Payments received on account	516	793
Trade payables	518	293
Taxation and social security costs	11	68
Other payables	17	33
Accrued expenses and deferred income	679	622
<hr/>		
Total	1,741	1,809

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 2018 and 31 March 2017, with the exception of taxation and social security costs and £14,000 (31 March 2017: £121,000) 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 2018 the amount held in Forest Research bank accounts on behalf of partners was £104,000 (31 March 2017: £625,000).

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

	2017-18	2016-17
	£000	£000
Current		
Pounds sterling	1,504	1,333
Euros	237	476
<hr/>		
	1,741	1,809
<hr/>		

Note 12. Provisions for liabilities and charges

	2017-18		2016-17	
	Other	Early departure costs	Other	Early departure costs
	£000	£000	£000	£000
Balance brought forward at 1 April	5	63	45	91
Provided in year	-	11	-	12
Utilised in year	(5)	(39)	(40)	(41)
Unwinding of discount	-	-	-	1
Balance carried forward at 31 March	-	35	5	63

Analysis of expected timing of discounted cash flows:

	Early departure costs £000
Less than one year	20
Later than one year but not later than five years	15
Balance at 31 March 2018	35

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 0.1 %.

Note 13. Capital commitments

There were no contracted capital commitments as at 31 March 2018 (2016-17: £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:

	2017-18	2016-17
	£000	£000
Land and buildings:		
Not later than one year	7	7
Later than one year and not later than five years	8	14
<hr/>		
Total	15	21

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

	2017-18	2016-17
	£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	73	78
<hr/>		
Total	98	103

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 2018 (31 March 2017: £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 the University of Southampton

	2017-18	2016-17
	£000	£000
University of Southampton	37	23

The above transactions, for course fees, studentship expenses and a collaboration agreement, occurred on an arm's-length basis. These transactions are disclosed as Peter Freer-Smith holds a visiting professorship at the University of Southampton. There was an outstanding balance of £5,069 at 31 March 2018 (31 March 2017: £3,564).

16.2 Transactions with C-Cure Solutions Ltd

	2017-18	2016-17
	£000	£000
C-Cure Solutions Ltd	10	21

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 £530 at 31 March 2018 (31 March 2017: £nil). This is disclosed as, under the Agreement to form the company, James Pendlebury was appointed as the Forest Research Director of the company.

16.3 Transactions with the University of Stirling

	2017-18	2016-17
	£000	£000
University of Stirling	43	19

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 nil balance outstanding at March 2018 (31 March 2017: nil).

16.4 Transactions with the Scottish Forestry Trust

	2017-18
	£000
Scottish Forestry Trust	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 £4,463 at 31 March 2018.

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.

	2016-17	Gross inflows	Gross outflows	2017-18
	£000	£000	£000	£000
Monetary third-party assets – Government	625	149	(670)	104
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 2018 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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