

# Annual Report and Accounts 2014–2015

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# Forest Research

## Annual Report and Accounts 2014–2015

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Cover image: Ash progeny trial, part of the Living Ash project.

Page 7: Pollinating isolated Sitka spruce female flowers on a graft.

Page 21: Observatree volunteer training event at Gibside. © Adrian Ashworth/Observatree/Woodland Trust Media Library.

Page 29: Urban trees, Glasgow. © Glenn Brearley.

Page 35: Aerial photo showing woodland connectivity. © Bluesky International Ltd/Getmapping PLC.

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Page 47: *Hylobius abietis* on Scots pine.

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# Foreword

The past 12 months have been busy and successful for Forest Research. We have achieved or exceeded targets for 20 of the 21 Key Actions from our Corporate Plan for 2014–15 (see page 10) and in doing so have secured £4.9 million of non-core income, our highest ever total. This success is testament to the hard work of our staff, their reputation and ability to develop effective research proposals with colleagues across the UK and Europe. The only Key Action we missed involved ranking 15 ash seed sources for Chalara resistance, which proved difficult due to the onset of the disease at our 14 test sites being later than expected. However, this natural infection from the wider environment has now occurred, so we hope to be able to produce preliminary findings later this year.

Our science is designed to help the UK forestry sector address how to provide the multipurpose, resilient forests required for the future against a background of increasing change and rapidly altering environmental and societal demands. As a consequence we have been working hard this year with the sector and with colleagues across government to develop a future science programme for 2015–19. The new programme will address the challenges that the industry faces over the next five years and is forward looking and interdisciplinary.

Our science is designed to help the UK forestry sector address how to provide the multipurpose, resilient forests required for the future

We have been keen to increase knowledge of our research and improve our media profile and can report success in this area during the last year. Dr Tom Nisbet appeared on the BBC's *Bang Goes the Theory* programme discussing our work on the 'Slowing the Flow at Pickering' project (which was funded by the Department

for Environment, Food and Rural Affairs (Defra)), and Dr Daegan Inward appeared on the BBC's *The One Show* to discuss insect life on a recently felled oak tree at Westonbirt Arboretum. Dr Shelagh McCartan's work collecting juniper seeds as part of the Millennium Seed Bank project received coverage in local papers and BBC local radio. The year ended with Dr Joan Webber, Head of Tree Health, appearing on BBC Radio 4's *Gardeners' Question Time* to answer questions from programme regular Pippa Greenwood on a number of tree disease issues.

The ongoing problems caused by tree pests and pathogens and associated public interest in tree health are reflected in our research priorities and are also the subject of our main citizen science project Observatree. Forest Research's Kate Hutchinson and her colleagues from Observatree partners (the Woodland Trust, the National Trust, the Food and Environment Research Agency (Fera), the Forestry Commission, Defra and Natural Resources Wales) are making excellent progress with the project including providing 12 very well received induction events for our volunteer network; preparing training materials on Chalara dieback of ash, longhorn beetles, Dothistroma needle blight (DNB), acute oak decline (AOD) and *Phytophthora lateralis*; commencing volunteer tree health surveys at selected National Trust and Woodland Trust sites; and launching the project website ([www.observatree.org.uk](http://www.observatree.org.uk)).

As part of its joint-working approach, Forest Research was also involved in the official launch of the Ecosystem Services Community Scotland (ESCom Scotland) alongside its partners the James Hutton Institute, the University of Edinburgh's School of Geosciences and the Centre for Ecology and Hydrology.

Over the past year we have also carried out a major overhaul of our website ([www.forestry.gov.uk/forestresearch](http://www.forestry.gov.uk/forestresearch)) and made an effort to improve the accessibility of our numerous research seminars by promoting them as webinars, a move which has been popular and both increased and broadened the audiences for our research.

To improve Forest Research's corporate governance and strategic capacity we have appointed Shireen Chambers FICFor, Executive & Technical Director of the Institute of Chartered Foresters (ICF), as our first ever non-executive director on a nine-month trial basis. This is a new and exciting development for Forest Research and the trial will allow us to explore how this will work in practice and inform the decision about how to create it as a formal ongoing position.

## Forest Research is taking an active role in developing the next generation of forest scientists.

As ever, it is our staff who are vital to our success and, while it is the collective effort and teamwork that is important, it is also good to see a number of individuals being recognised for their contribution to the sector. We were delighted that Dr Joan Webber was awarded

the ICF's Medal for her outstanding work on tree health. We were also pleased that Dr Chris Quine was awarded an Honorary Professorship by the University of Stirling and that I was honoured in a similar way by the University of the Highlands and Islands.

It was also very gratifying that the paper 'Civil society and flood resilience: characterising flood risk volunteers and understanding motivations and benefits' by Forest Research's Liz O'Brien, Bianca Ambrose-Oji, Jake Morris and David Edwards was chosen as the winner of the Campbell Adamson Memorial Prize, the award for the best paper submitted to the 2014 Voluntary Sector and Volunteering Research Conference.

At a time when funding for science is increasingly competitive and many are concerned about forest science capability in the future, I am pleased to say Forest Research is taking an active role in developing the next generation of forest scientists. We currently have 18 PhD students affiliated with us, five based at Alice Holt, five based at the Northern Research Station and eight based at universities across the UK (co-supervised by Forest Research staff).

Finally, my thanks are due to our many partners and customers for their support, time and feedback and, of course, to all my Forest Research colleagues for their commitment, effort and achievements during the year.



**Professor James Pendlebury**  
**Chief Executive**





# Strategic Report



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# Introduction to Forest Research

Forest Research is the Forestry Commission's Research Agency and is the UK's foremost body for forest and tree-related research.

## Background

The overall objective of the Forestry Commission (FC) is to lead the development and promotion of sustainable forest management and to support its achievement internationally. Forest Research (FR) is the FC's Research Agency and main research provider.

## FR's Aim

To be a robust, market-relevant and flexible research organisation with a reputation for innovative applied science.

## FR's Strategic Objectives

1. To provide high-quality science to inform the development and delivery of UK government and devolved administration forest policies.
2. To provide innovative applied research, development, monitoring and scientific services to UK, European and international forestry stakeholders.
3. To transfer research knowledge directly, or in partnership with others, to UK and international audiences.

## 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, development and surveys specifically related to their respective forest estates. FR 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.

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## 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 scientific services

address the social, economic and environmental components of sustainability. There is a focus on providing knowledge and practical solutions based on high-quality science.

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, continuous cover forestry, timber quality, land reclamation and the restoration of native woodlands). Much of the research is directed at increasing the many benefits of woodlands and their inherent resilience.

FR works closely with the FC, the European Commission and other international bodies to ensure compliance with international agreements on the sustainable management of forests and the delivery of social, environmental and economic objectives. The Agency also carries out work on genetic conservation, tree improvement, seed testing, method studies, product evaluation, crop inventory, surveys and monitoring.

## Resources

FR employed 185 (full-time equivalent) staff during the year 2014–15 at Alice Holt Lodge in Hampshire, the Northern Research Station near Edinburgh, our office in Aberystwyth, and at field stations across England, Scotland and Wales. Contact information is given on the back cover.

There is a focus on providing knowledge and practical solutions based on high-quality science.

# Key Actions

Forest Research's progress and achievements on its Corporate Plan Key Actions for 2014–15 are given below.

Key Action	Commentary
Support the delivery of the Tree Health and Plant Biosecurity Evidence Plan (2013), emerging Plant Biosecurity Strategies and Defra's 10-point Plan for Growth (specifically point 4, proactively safeguarding plant health) by continuing to research and provide evidence on the biology and management of a range of pests and diseases, including oak processionary moth (OPM), acute oak decline (AOD), Dothistroma needle blight, <i>Phytophthora ramorum</i> , <i>Phytophthora austrocedrae</i> , <i>Hylobius</i> and Chalara.	<b>Achieved:</b> For example, on oak processionary moth ( <i>Thaumetopoea processionea</i> ) Forest Research (FR) co-organised a two-day conference with the University of Hull on 'Invasive insects and trees: detection, management and policy' (February 2015), which included an Expert Meeting on OPM and five presentations by FR's entomologists. And on Dothistroma needle blight: widespread survey and laboratory analysis has confirmed the presence of the disease in Scots pine ( <i>Pinus sylvestris</i> ) in England and in some Caledonian pinewoods. We have continued working with others internationally by chairing the DIAROD EU COST Action Joint Management Committee and Working Group meeting and by providing training for EU partners. A Defra-funded project on social and economic barriers to Dothistroma disease management is completed and a successful communications workshop (October 2014) attracted stakeholders from across Britain. Work on the other pests and diseases is equally comprehensive but not reported here.
Deliver a number of Living with Environmental Change (LWEC)-funded tree health projects.	<b>Achieved:</b> FR is a partner in seven collaborative projects funded by Phase 2 of the LWEC Tree Health and Plant Biosecurity Initiative and has delivered its components of the research.
Progress the LIFE+ Observatree project to develop a tree health early warning system and update the Tree Alert system for the reporting of tree pests and diseases.	<b>Achieved:</b> Observatree was operational from the end of March 2015 and is ongoing; see <a href="http://www.observatree.org.uk">www.observatree.org.uk</a>
Actively horizon scan and contribute to contingency plans in respect of pests and diseases on the pest risk register.	<b>Achieved:</b> This is ongoing through involvement with Food and Environment Research Agency (Fera)/Defra register discussions. FR participated in Forestry Commission (FC) England's emergency planning exercise dealing with a hypothetical outbreak of Asian longhorn beetle ( <i>Anoplophora glabripennis</i> ), contributing subject matter advisors and specialist technical information.
Collaborate and launch the Ecosystem Services Community Scotland (ESCom Scotland).	<b>Achieved:</b> The founding organisations (FR, the Centre for Ecology and Hydrology, the James Hutton Institute and the University of Edinburgh's School of Geosciences) held a launch conference in April 2014, attended by 90 policy-makers, practitioners and researchers, and a subsequent science workshop in June 2014, attended by 60 participants.

Key Action	Commentary
Publish information to assist the forest sector in promoting the recovery of acidified waters in forested catchments.	<b>Achieved:</b> A Practice Guide, <i>Managing forests in acid sensitive water catchments</i> , has been published.
Provide advice on the impact of forestry on flooding and the use of woodland to mitigate flooding impacts.	<b>Achieved:</b> Activities have included written briefings for FC England and presentations to the Chartered Institution of Water and Environmental Management's Natural Flood Management Conference, the Shropshire Wildlife Trust and the Flow Partnership. An FR report, <i>The role of productive woodlands in water management</i> , was published in March 2015.
Provide advice on the potential for adopting behavioural policy 'nudges' to encourage woodland creation and management.	<b>Achieved:</b> A Research Note, <i>Behavioural policy 'nudges' to encourage woodland creation for climate change mitigation</i> , has been published. This work, and other findings from our forest hydrologists, was presented to FC England and used to shape Woodland Capital Grants as part of the government's £900 million Countryside Stewardship Scheme.
Rank ash seedling populations for Chalara resistance.	<b>Reframed and carried forward to 2015–16:</b> Chalara has been confirmed at all 14 ash trial sites monitored by FR. The onset of disease was later than expected; we will be able to give more accurate information on the post-infection survival rates of the 15 seed sources in autumn 2015.
Continue to provide updated information to the sector on forest resilience, including information and expertise on alternative species and management techniques.	<b>Achieved:</b> An operational species trial into the performance of 19 emerging species was planted in March 2015. Past and present species research and profiles of selected 'novel' species have been presented at a number of field meetings across Britain.
Integrate knowledge of forest growth and subsequent use on carbon dynamics at a European scale.	<b>Achieved:</b> For example FR's report <i>Review of literature on biogenic carbon and life cycle assessment of forest bioenergy</i> , published in May 2014, has informed the development of EU policy towards the use of wood for bioenergy and other products.
Provide, in collaboration with partners, an integrated approach for valuing the ecosystem services afforded by urban trees, through the development of the i-Tree tool.	<b>Achieved:</b> FR has agreed to partner the i-Tree Cooperative to update the i-Tree Eco model across the UK. The UK will be the third country outside the USA to have a fully functional model.
As part of our Communications Strategy, refresh FR's web and digital communications channels to increase their use, desirability and accessibility by our customers and users; focus our participation at events where our skills and expertise will have greatest impact and provide communications training opportunities for FR staff.	<b>Achieved:</b> A refreshed website was launched in December 2014 and our corporate newsletter, <i>FR News</i> , was updated into an e-newsletter format in November 2014. FR is establishing a Twitter account (@Forest_Research), which should operate from mid-May 2015. Three online videos were released (September 2014) to outline the principles of forest tree species selection, in addition to three tutorials to support the use of our Ecological Site Classification decision support tool.
Publish, every six months, information on FR's knowledge exchange activities.	<b>Achieved:</b> Updates were published on our website in October 2014 and March 2015.

Key Action	Commentary
<p>Support training and continuing professional development programmes for the forestry sector through hosting targeted events with other partners, such as the Institute of Chartered Foresters (ICF), quantify and assist training opportunities in forestry research through doctoral training programmes, PhD and MSc studentships and secondments.</p>	<p><b>Achieved:</b> Participation and membership of professional institutions, such as the ICF and the Chartered Institute of Public Relations (CIPR), is recognised in staff job plans and a number of our events are recognised as eligible for continuing professional development. We continue to support and host a number of PhD students both in-house and at various universities across the UK.</p>
<p>Continue to develop our engagement in citizen science including, but not exclusive to, Observatree.</p>	<p><b>Achieved and ongoing:</b> We carried out a major overhaul of the Tree Alert web tool to enable anyone to submit information to our advisory and surveillance teams. We also participated at the 2015 Dynamic Earth exhibit in Edinburgh aimed at attracting secondary school students into scientific careers.</p>
<p>Deliver the agreed annual business plan, programme outputs and secure a total of £4.8 million of income from non-core FC GB sources.</p>	<p><b>Achieved:</b> Our Annual Report notes a non-core income of £4.9 million. Sincere thanks are due to all staff, partners and collaborators involved.</p>
<p>Strengthen relationships and partnership working with the forestry sector across government, devolved administrations, international forestry research organisations and our partners in European forestry projects.</p>	<p><b>Achieved:</b> FR contributes to a number of Defra One Business workstreams, including Network Evidence Action Plans, Skills and Evidence, Knowledge Management and Partnership Working. FR's Chief Executive and Chief Scientist continue to play active roles in both the European Forest Institute and the International Union of Forest Research Organizations (IUFRO). Six FR staff attended the IUFRO World Congress in Salt Lake City, USA, to present invited papers and/or chair sessions.</p>
<p>Further develop Forest Research in Wales, working with the Welsh Government, Natural Resources Wales, and new and existing customers and partners.</p>	<p><b>Achieved:</b> The Head of FR in Wales, Tom Jenkins, works for the Welsh Government (WG) Forestry Policy Team (FPT) two days per week, where he is the policy lead on Forest Research and Tree Health. During 2014-15, FR has liaised closely with both WG and Natural Resources Wales (NRW) during the consultation, development and implementation of the FC Science and Innovation research programme. FR has also been directly involved in ongoing industry-led discussions surrounding policy implications of the figures for Wales presented in the Forestry Commission's '50 year forecast of softwood availability' and the future provision of shared services for Wales. FR continues to advise the WG FPT on issues surrounding land use, land-use change and forestry, forest carbon and the provision of ecosystem services from trees, woodlands and forests within Wales. Active links with Welsh universities continue to be developed, not least with the Universities of Aberystwyth, Bangor and Swansea. At a policy level, the Head of FR in Wales attends the meetings of WG's independent Woodland Strategy Advisory Panel, chairs the Phytophthora Operational Response Team and both reports to, and advises, the Wales Tree Health Steering Group.</p>

Key Action	Commentary
Support and actively contribute to forest sector initiatives and national campaigns, such as 'Grown in Britain'.	<p><b>Achieved:</b> FR partnered the FC at Confor's APF Show 2014, co-designed joint exhibitions and spoke at a seminar on plant health. We also presented at the Royal Welsh Show. FR played an active role in forestry sector organisations, participating at the ICF Conference 'Trees, People and the Built Environment II' (April 2014, 200 delegates) and the Arboricultural Association conference 'Healthy trees, healthy people' (September 2014, 250 delegates). We work directly with the 'Grown in Britain' initiative and one FR Board Member is a Trustee of Woodland Heritage.</p>
Continue to engage with business change initiatives within the FC, Defra and the devolved administrations.	<p><b>Achieved:</b> Several staff (including Board Members and trade union representatives) are actively involved in FC, Defra and devolved programmes.</p>

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# Research highlights from the past year

During 2014–15 emphasis has been on tree health, adaptation of forest management to climate change, the involvement of volunteers – citizen science – and the ecosystem services provided by woodlands, particularly greenhouse gas mitigation and water management. We have addressed these issues in partnership with others, using both social and physical science ranging from molecular biology through to remote sensing. The summaries below cover a selection of the specific projects that contribute to a comprehensive evidence base and to our major communication activity which informs policy and practice in these areas.

## Valuing natural capital

Modern land management policy and practice increasingly seek to account for the multiple benefits provided by nature – these are known as ‘ecosystem services’. Timber production is the traditional focus of forestry, but landscape amenity, water quality, recreation, flood management and biodiversity benefits are receiving growing attention. Forestry management is also increasingly linked to climate change adaptation and mitigation strategies.

Despite significant contributions to the economy and human well-being, many ecosystem services have little or no realisable market value at present. A related problem is that market prices provide little incentive to conserve or invest in the ecosystem assets (‘natural capital’) upon which these services depend, often resulting in their degradation.

Forest Research is engaged in a range of projects on valuing ecosystem services and natural capital. These studies aim to develop decision support systems to assist with the incorporation of such values into land-use planning so as to help ensure that natural capital and associated ecosystem services are recognised and managed sustainably.

One tool we have been developing is an integrated optimal rotation length model, which accounts for the economic values of a range of ecosystem services provided by forests rather than just timber production. These ecosystem services include climate change mitigation benefits linked to carbon storage and substitution (e.g. when more carbon intensive materials like steel and cement are displaced by wood in construction). The model also integrates information on wind risk, allowing adaptation to the possible increasing frequency of wind storms in our changing climate to be investigated. While the model is still a prototype, it holds the potential to be further refined and used by land managers to enable them to consider a range of ecosystem service values in decisions about rotation lengths in forests. For more information, visit [www.forestry.gov.uk/fr/rotationmodelling](http://www.forestry.gov.uk/fr/rotationmodelling)

## Analysis of Sitka spruce breeding trials

Soon after the creation of the Forestry Commission in 1919, Sitka spruce (*Picea sitchensis*) was identified as one of the most promising species to create a strategic reserve of timber for the UK. As a result of an effective breeding programme using forest trials, selection and progeny testing, it has remained one of the sector's most productive species. Recently, advanced statistical methods have been used to pull together the results of all our genetic improvement experiments. These results enable us to rank the individual parent trees and provide the forestry sector with clear advice on the best genetic stock to use.

Tree breeders at Forest Research brought together all the growth and form data ever collected from suitable Sitka spruce progeny trials planted in Britain. Then, with experts from the University of Edinburgh who specialise in analysing large animal-breeding datasets, they carried out a single, massive analysis. The analysis involved measurements of stem diameter, wood density, stem straightness and branching from trees planted in 150 experiments from 1967 to 1999 when each experiment was 15 years old. This amounted to nearly 250,000 trees and 1 million data points. Specialised BLUP (best linear unbiased prediction) software – developed by animal breeders to remove environmental effects associated with different testing years and testing environments – was adapted for the analysis to remove the variation associated with differing site quality of the many trials planted all over Britain during the 30-year period of establishment. The result is a comparative assessment of 'breeding values' for the 1,800 Sitka spruce 'plus' trees selected since the early 1960s as individuals with superior properties and also trees from the 450 full-sibling families put out to test more recently. (Full-sibling families are controlled populations where both parents for the seed are known.) These breeding values will be used to establish the best seed orchards possible, and to identify the best full-sibling families, which can then be re-created by controlled pollination and multiplied up using vegetative propagation from cuttings.

## Observatree – volunteer citizen science

Forest Research is leading the LIFE+ funded Observatree project, which started in autumn 2013 and is establishing a tree health early warning system using citizen science. Together with the Forestry Commission, the Woodland Trust, the Food and Environment Research Agency (Fera), the National Trust, Defra and Natural Resources Wales, Forest Research aims in this project to address the increasing threat to our trees from new pests and diseases introduced to the UK.

The project is encouraging the public, particularly those working in the tree and forestry sector, to look out for new pests and diseases and to report any findings through the Forestry Commission's online Tree Alert tool. Early detection is vital to successfully eradicating, controlling or managing a pest or disease. The second crucial aspect of Observatree is to increase capacity to assess and verify these reports through a network of skilled volunteers, assisting Forest Research scientists in tree health early warning and supporting the implementation of the Government's Tree Health Management Plan.

During the past year the project has recruited and trained over 200 volunteers, with recruitment being led by the Woodland Trust and training led by Forest Research with contributions from the other partners. We have also been working on understanding the most effective method of using this additional resource of volunteers, starting with them undertaking regular tree health surveys on National Trust and Woodland Trust land during 2014. During these surveys, volunteers found a number of tree pests and diseases that are currently priorities for Forest Research, including confirmed cases of acute oak decline, *Phytophthora lateralis* and *Perenniporia*. We have now completed the groundwork so the volunteers can begin assisting with the verification and follow-up surveying of tree health reports from the public in spring 2015.



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In the remaining part of the four-year project we will continue to test and expand the concept of using citizens to improve the early detection of tree pests and diseases, as well as researching similar activity in Europe and sharing best practice. For more information, see [www.observatree.org.uk](http://www.observatree.org.uk)

## Modelling the effects of climate change on the pine weevil life cycle

Forest Research scientists have been developing a better understanding of the role of temperature in the life cycle of the pine weevil (*Hylobius abietis*). This beetle is one of the most economically important European forest pests, and large populations can build up in the root stumps after a stand of pine or spruce is felled. The emerging adults feed on the bark of replanted seedlings, often girdling and killing them. To prevent this, insecticides may be applied, or the area left unplanted (fallow) until the weevils have dispersed. Protection may be required for up to four years in some areas.

The changing climate may bring particular challenges for forest management as pine weevils develop more rapidly under warmer conditions. At present, the length of their life cycle in the UK varies between one and three years, depending on location, meaning the period of seedling vulnerability also varies considerably.

To try to predict the likely influence of climate change on the future impact of this pest, our scientists used novel laboratory techniques to collect data on weevil development. These data were combined with temperature data collected at field sites across the UK, and future climate predictions from the Met Office, to create a model to simulate how the weevil life stages will be affected by a warming climate over the next century. The model predicts that the life cycle will be particularly affected in the north and west of the UK, decreasing to a mainly two-year cycle by the 2030s. Therefore, the required fallow period would be shorter, making it a more attractive option and potentially saving use of pesticides. Overall, this could significantly reduce the economic impact of the weevil. The information from our study should prove highly valuable in forest management.

In a new collaboration with Maynooth University, Ireland, we are also now widening the scope of this work to explore the effect of climate upon the damage that pine weevil causes in Ireland and across its European range.

## Species choice for forest products

Sitka spruce (*Picea sitchensis*) was the most important species in the establishment of commercial conifer forests in Great Britain. We now recognise that forests consisting of only one tree species can be vulnerable to biological and climatic threats, both known and unknown. Planting a wider range of tree species is an important risk management strategy to protect our forests, and our forest industries, for future generations. Over this past year, and continuing in 2015, we have been carrying out research into a number of potentially marketable conifer species to determine the impacts of growing those on the supply chain.

Our researchers visit forest stands to assess stem form and quantify the potential merchantable volume. We then fell and process sample trees in a controlled manner, to produce samples on which we measure the important timber-grade-determining wood properties of stiffness, strength and density. The results of our tests will inform forest managers and owners about the potential market consequences of planting a particular species. This year, together with Edinburgh Napier University, we have studied and collected samples of Norway spruce (*Picea abies*), western hemlock (*Tsuga heterophylla*), western red-cedar (*Thuja plicata*), noble fir (*Abies procera*), Japanese cedar (*Cryptomeria japonica*), Pacific silver fir (*A. amabilis*) and Serbian spruce (*P. omorika*). We will soon begin looking at grand fir (*A. grandis*), European silver fir (*A. alba*), birch (*Betula pendula* and/or *B. pubescens*) and sycamore (*Acer pseudoplatanus*). Results from these tests will be released as they become available, starting in late 2015.

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## Forestry and flood management

How forestry affects flooding continues to attract much attention. The severe storms and floods of winter 2013–14 once again highlighted the need to develop a more sustainable approach to flood management. This includes a greater use of natural processes to reduce and slow down flood flows, something that trees and woodlands can be very good at. During the year, our scientists have therefore been working closely with the Forestry Commission, the Environment Agency, Defra and a range of other organisations to explore how tree planting could help to manage future flooding.

In particular we have been continuing work on a number of studies that are measuring and modelling how much of an effect woodlands can have on the generation of floodwaters and their progression downstream. Unfortunately, this is not an easy task as no two flood events are the same. Another difficulty is that the size and frequency of floods may well alter due to climate change.

A flagship project is our Defra-funded partnership study 'Slowing the Flow at Pickering' in North Yorkshire. This was featured earlier in the year in an episode of the BBC's science programme *Bang Goes the Theory*, and more recently as a case study in the Royal Society's report *Resilience to extreme weather*. The project, which started in 2009, involves a range of land management 'measures' being trialled to reduce flooding in the town, including woodland creation, constructing timber 'minibunds' and encouraging the formation of large woody debris dams.

Local people believe that these measures are already having an effect, including preventing a near flood in November 2012. However, our recent analysis of river flows was unable to prove that the 'soft engineering' measures are yet reducing flood risk. More time is needed for these to develop, as well as a longer run of data and a greater range of flood events, before we can check model predictions that the woodland measures will make a significant contribution to reducing future flooding. We therefore plan to continue our research into the role of woodlands in flood risk management. For more details, see [www.forestry.gov.uk/fr/slowingtheflow](http://www.forestry.gov.uk/fr/slowingtheflow)

## Using existing woodlands to study ecological networks

An ecological network is a suite of core habitat areas surrounded by buffer zones and connected by corridors and stepping-stone patches. The concept of ecological networks is seen as an effective response to biodiversity conservation in landscapes that have become fragmented by centuries of human activities, and has become a priority in conservation and forestry policies over the past decade, with the mantra 'bigger, better, more, joined'.

Although this approach is appealing and is based on a number of sound scientific principles, the evidence is ambiguous and there is much debate on the relative merit of, and balance between, alternative conservation actions. In a time of limited resources it is important to ensure that forest planning is effective and underpinned by the best available evidence.

A number of landscape-scale projects are under way to set up and evaluate ecological networks. However, it will be many years until actual biodiversity benefits are realised. In an attempt to improve the evidence base sooner, scientists from Forest Research, the University of Stirling and Natural England are working together on a project called WrEN (Woodland Creation and Ecological Networks), which is using historical woodland creation sites, and their surrounding landscape, as long-term, large-scale natural experiments.

The team used old maps to identify over 100 woodlands created during the past 150 years that have inadvertently formed ecological networks, and then studied their biodiversity. The woodlands, in two study areas in lowland agricultural landscapes in Scotland and England, were specifically selected to represent distinct components of ecological networks. This allows us to evaluate the relative impacts of site (bigger, better) and

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landscape-scale (more, joined) attributes of ecological networks on different groups of species including plants, insects, birds, bats and other small mammals. The results and further research work over subsequent years will improve our understanding of the value of ecological networks and inform the effective design of future conservation landscapes.

The project has been made possible with funding from the Forestry Commission, University of Stirling, Natural England, Defra, The National Forest, Scottish Natural Heritage and others.

### **Using remote digital cameras to monitor phenology**

Phenology is the study of the timing of recurring natural events, such as the date of bud-burst or flowering in trees. As these events are mainly driven by temperature, phenology records are used as an indicator of climate change and to help us understand how forests are responding to the changing climate. However, making frequent manual observations can be time consuming and also logistically difficult at remote forest sites.

To address this problem, Forest Research scientists, working in collaboration with the University of Edinburgh, have been developing novel techniques to use remote digital cameras, known as 'PhenoCams', as an alternative to manual observations. Two towers, one at Alice Holt Forest, Hampshire, and the other at Harwood Forest, Northumberland, have been equipped with digital cameras that automatically take photos looking down at the forest canopy every half hour during daylight.

As well as providing a permanent record of the state of the forest canopy, the images can be assessed using an approach analogous to satellite remote sensing. Based on the colour content of each individual pixel, we can now quantify the phenological state of the trees within an image. Although long-term trends have yet to emerge from the data, since the start of the project in 2009 we have already observed around 17 days of variation in the timing of spring 'green up' at the Alice Holt oak woodland (e.g. spring 2011 showed early leaf emergence following a warmer 2010–11 winter; in contrast leaf emergence in 2013 was late after a colder winter). As the 'PhenoCams' are based at sites where Forest Research is monitoring the flows of carbon in forests, the data collected are also helping us to improve our understanding of the forest carbon cycle.

### **Assessing the value of urban trees using i-Tree Eco**

The trees in our towns and cities are an asset, providing important services such as filtering particulate material from the air, and providing shading and attractive scene-scapes. Managing urban trees as an asset would help ensure the long-term sustainable provision of these services, though such an approach is rare in the UK.

i-Tree Eco is a peer-reviewed tool developed in the USA by the i-Tree Cooperative for mapping, assessing and valuing urban forests, based on their amenity and the range of services and functions that the trees perform. It is a useful urban forest advocacy tool, and can help in succession planning should the urban forest succumb to pests, diseases or the effects of climate change. i-Tree Eco can be applied to a single park or the urban forest across a borough or town.

Forest Research has supported the uptake of i-Tree Eco since its first use in the UK in Torbay in 2010 and has applied it to the urban forests of Edinburgh, Glasgow, Wrexham, Bridgend, Swansea and the Tawe Catchment. We are also a partner in the London i-Tree Eco project. Together with the Arboricultural Association and Treeconomics, Forest Research is recommending the use of i-Tree Eco as the tool of choice for valuing the services provided by urban trees in the UK.

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i-Tree Eco requires field data collected by trained surveyors. So far, the supplementary weather, pollution and phenology data that are also required have had to be collected on a project-by-project basis, potentially leading to inconsistencies between projects. To help the uptake of i-Tree Eco, Forest Research is working with the i-Tree Cooperative to develop a fully functional UK model, removing the need for future projects to separately collect these complementary datasets. This work has been enabled by funding from the Forestry Commission and Natural Resources Wales, and support from the Woodland Trust.

The new functionality will be incorporated into i-Tree Eco version 6, due for release in the UK in spring 2015. The tool is freely downloadable from [www.itreetools.org/eco](http://www.itreetools.org/eco); further information is also available at [www.forestry.gov.uk/fr/itree](http://www.forestry.gov.uk/fr/itree)



**Professor James Pendlebury**  
**Chief Executive and Accounting Officer**

3 June 2015





# Directors' Report

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# Management commentary

## 1. Basis of accounts

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.

## 2. Status

Forest Research is a cross-border Government Research Agency and has been an Executive Agency of the Forestry Commission since 1 April 1997. It undertakes the major part of the Commission's research and development programmes as well as providing survey, monitoring and scientific services to the wider Forestry Commission and devolved administrations. The relationship between Forest Research, the Forestry Commissioners and Forestry Ministers is described in the Framework Document.

Under the Framework Document, Forest Research is funded from the sale of its services to both the Forestry Commission and external customers. Any annual surplus or deficit is counted in the Forestry Commission's net funding requirement.

## 3. Strategy

The strategic aims and objectives of Forest Research have been set to assist the Forestry Commission to achieve its objective to take the lead in development and promotion of sustainable forest management and to support its achievement nationally. These are discussed in detail in Forest Research's Corporate Plan, which is available on the Forestry Commission website and the Forest Research website ([www.forestry.gov.uk](http://www.forestry.gov.uk) and [www.forestry.gov.uk/forestresearch](http://www.forestry.gov.uk/forestresearch), respectively).

Our science is designed to help the UK forest sector address how to provide the multipurpose resilient forests required for the future against a background of increasing change and rapidly altering environmental and societal demands. As a consequence, we have been working hard this year with the sector and colleagues across government to develop a future science programme for 2015–19. The new programme will address the challenges that industry faces over the next five years and is forward looking and interdisciplinary.

## 4. Relationships with stakeholders

The past year has been exceptionally busy for the Agency as reflected in our ongoing work on a range of pests and diseases, citizen science, biogenic carbon and ecosystem services. Forest Research and our many partners have continued to provide evidence and management information on a range of pests and diseases affecting our forests. For example, on Dothistroma needle blight we have continued with our widespread survey work to confirm its spread and presence, continued our international collaboration by chairing the DIAROD EU COST Action on the disease, and completed a Defra-funded project on the social and economic barriers to Dothistroma disease management. The collaboration between Forest Research and all parts of the forestry sector in dealing with these various outbreaks continues to be exceptional.

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Forest Research has worked hard on improving our media profile, with staff appearing on or being interviewed by the BBC on its programmes *Bang Goes the Theory*, *The One Show* and *Gardeners' Question Time*.

In our role as the UK's leading scientific experts on tree health, we were also actively involved in supporting or contributing to government and devolved administration activities concerning tree health. Forest Research is a partner in seven collaborative projects funded by Phase 2 of the Living with Environmental Change Tree Health and Plant Biosecurity Initiative. Our staff also continue to contribute to the development of the Interim UK Plant Health Risk Register and the UK Plant Health Strategy Evidence Group.

At a time when funding for science is increasingly competitive and many are concerned about forest science capability in the future, Forest Research is taking an active role in developing the next generation of forest scientists. We currently have 18 PhD students affiliated with us, five based at Alice Holt, five based at the Northern Research Station and eight based at universities across the UK (co-supervised by Forest Research staff).

## **5. Aims and objectives**

The aim of Forest Research is to support and enhance forestry and its role in sustainable development, by providing high-quality research and development in a well-run organisation, as set out in the Framework Document. The objectives of Forest Research are listed on page 8.



# Current and future development and performance

## 6. Operating review

During the past exceptionally busy year, Forest Research has:

- achieved or exceeded targets for 20 out of our 21 Key Actions in our 2014–15 Corporate Plan;
- secured £4.9 million of non-core income, our highest ever total;
- supported the delivery of the Tree Health and Plant Biosecurity Evidence Plan (2013) and Defra's 10-point plan for growth (specifically point 4 – proactively safeguarding plant health);
- contributed to Defra's One Business workstreams, including those relating to the development of Network Evidence Action Plans, Skills and Evidence, Knowledge Management and Partnership Working;
- provided research input to the Outbreak Management Teams and control strategies for established pests and pathogens *Chalara fraxinea*, Dothistroma needle blight, *Phytophthora ramorum* and *Phytophthora austrocedrae*;
- continued to support the UK-wide response to the Chalara dieback of ash – this included our field research staff inspecting and sampling trees across the UK;
- continued to collaborate in seven projects funded by Phase 2 of the Living with Environmental Change Tree Health and Plant Biosecurity Initiative;
- collaborated with the James Hutton Institute, the Centre for Ecology and Hydrology and the University of Edinburgh's School of Geosciences in launching the Ecosystem Services Community Scotland (ESCom Scotland) initiative;
- published a Practice Guide on *Managing forests in acid sensitive water catchments*;
- launched a refreshed website and corporate newsletter (*FR News*), and released three online videos to outline the principles of forest tree species selection;
- supported six staff to attend the IUFRO World Congress in Salt Lake City, USA, to present invited papers and/or chair sessions;
- continued to represent UK interests by playing an active role in the European Forest Institute.

## 7. Financial review

Forest Research had net operating income of £193,000 in 2014–15 (2013–14: £318,000).

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

- other management costs decreased by £574,000 (19.4%), mainly as a result of higher expenditure in 2013–14 on replacement windows at the Alice Holt site amounting to £349,000 and the write back of provisions not required during 2014–15 in respect of early departure costs;
- materials and services costs increased by £102,000 (4.0%) and continued to include the costs of contractors in connection with the Defra-funded Chalara tree trials project;
- income from external customers (non-Forestry Commission GB customers) during the year amounted to £4.9 million. This was consistent with the 2013–14 income position, which reflected the results of successfully securing additional external contracts.

Additions to fixed assets in the year were £218,000 (2013–14: £347,000), on essential scientific and other equipment. Construction of a new Polycarbonate House at our Northern Research Station (Roslin) was completed during the first half of 2014–15.

## 8. 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 2014–15 the recovery rate was 101.5%, compared with 102.4% in 2013–14.

Performance against other operational, scientific and financial Key Actions is reported in the main body of these *Annual Report and Accounts*. Forest Research achieved £4.9 million income from non-Forestry Commission GB customers against the Key Action target of £4.8 million.

## 9. Events after the reporting date

There have been no significant events since 31 March 2015.

## 10. 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. The government's Forestry and Woodlands Policy Statement (January 2013), the Welsh Government's Woodland Strategy 'Woodlands for Wales' (2009) and the Scottish Forestry Strategy (2006), and subsequent implementation plans, have helped shape our priorities, which are to provide the science and evidence to:

- protect our trees and forests;
- enhance forest ecosystem resilience and service provision;
- ensure sustainable management and adaptation of our forests to climate change;
- effect knowledge exchange;
- grow our business.

Some of the activities Forest Research will be undertaking to support the delivery of the Forestry Commission's Science and Innovation Strategy for Forestry in GB and to fulfil its own Corporate Plan objectives for 2015–16 are as follows.

- Deliver on Forest Research's Living with Environmental Change-funded tree health research.
- Provide expert advice to underpin the UK pest risk register and new shared contingency plans on priority tree pests; contribute to the monitoring and evaluation of pest risk from new emerging trades.

- Deliver, with partners, the LIFE+ Observatree project to develop a citizen-based tree health early warning system.
- Publish a Practice Guide on managing forest operations for soil and water protection.
- Undertake research into ecosystem services gains/losses from peat land-use change.
- Disseminate results of a collaborative project on the future management of the native pinewood at Black Wood of Rannoch.
- Rank the ash seedling populations for Chalara resistance at the ash trials established in East Anglia (carried forward from 2014–15).
- Identify seed origins of birch and silver fir that are suitable choices for future climates.
- Publish a Research Note on wood properties and uses of Douglas fir in Great Britain.
- Release a new version of the ForestGALES Decision Support Tool to assist managers to minimise wind damage through woodland design and management.
- Produce case studies, taken from the range of our seven research programmes, showing the impact that our work has made on forest policy and practice.
- Participate in specific targeted events including: International Year of Soils 2015; Institute of Chartered Foresters Conference on Tree Pests and Diseases; European Forestry Institute Annual Conference.
- Participate in relevant EU Cost Actions in order to develop research approaches, skills and networks.
- Secure an external income of £4.6 million from non-Forestry Commission GB sources.
- Expand and strengthen relationships in partnership working across government, devolved administrations, international forestry research organisations, universities and forest sector partners.
- Participate in the development of Defra's Network Evidence Action Plans and collaborate with government and others to develop UK LIFE+ bids.
- Further develop Forest Research in Wales, working with the Welsh Government, Natural Resources Wales, and new and existing customers and partners.
- Quantify and assist training opportunities in forestry research through doctoral training programmes, PhD/MSc studentships and secondments.

## 11. 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 2014–15 indicates that 99.4% were paid within the due date. Arrangements for handling complaints on payment performance are notified to suppliers on contracts.

## 12. 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:** working as teams with colleagues and others to ensure that trees, woods and forests meet the needs of people in each part of the country;
- **professionalism:** enjoying and taking pride in our work, achieving high standards of quality, efficiency and sustainability;

- **respect:** treating one another with consideration and trust, recognising each person's contribution;
- **communication:** being open, honest and straightforward with colleagues and others, as willing to listen as to tell;
- **learning:** always learning, from outside the Forestry Commission as well as from within;
- **creativity:** not being afraid to try new ways of doing things.

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.

Equality and diversity is valued highly within our organisation and we are committed to providing equality of opportunity for our staff. Selection for employment or promotion is on merit on the basis of fair and open competition.

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

### 13. Sickness absence

The Forestry Commission has one common sick absence management policy which 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 which is available 24 hours a day. The average number of working days lost to sickness absence in Forest Research in 2014–15 was 7.5 per employee (2013–14: 4.8), compared with the average of 6.9 (2013–14: 5.7) for the Forestry Commission.

### 14. Management

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

Elizabeth Truss MP	<i>Secretary of State (from 15 July 2014)</i>
Owen Paterson MP	<i>Secretary of State (until 15 July 2014)</i>
Lord de Mauley	<i>Parliamentary Under-Secretary of State</i>
Dan Rogerson MP	<i>Parliamentary Under-Secretary of State</i>

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

James Pendlebury *	<i>Chief Executive</i>
Peter Freer-Smith *	<i>Chief Scientist</i>
Mike Cowan	<i>Human Resources Business Partner</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>
Hugh Williams	<i>Head of Centre for Research Services</i>
Shireen Chambers	<i>Non-Executive Director (from November 2014)</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 19.

## 15. Pensions

Information on pensions is contained in the Remuneration Report and accounting policy Note 1.6.

## 16. Personal-data-related incidents

There were no protected personal-data-related incidents reported for Forest Research in 2014–15 or previous financial years. 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.

## 17. 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 £35,000 (2013–14: £29,000). No further non-audit services were provided in 2014–15 or 2013–14.

## 18. 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.



**Professor James Pendlebury**  
**Chief Executive and Accounting Officer**

3 June 2015



# Remuneration Report

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# Remuneration of Board Members

## Remuneration policy

Remuneration of 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 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.

## Employment contracts

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. Professor James Pendlebury was appointed as Chief Executive with effect from 16 June 2008. His notice period is 13 weeks.

Civil Service appointments are made in accordance with the Civil Service Commission Recruitment Code, which requires appointment to be on merit on the basis of fair and open competition but also includes the circumstances when appointments may otherwise be made. All senior staff covered in this report hold appointments which are open-ended until they decide to retire or leave. Professor Peter Freer-Smith'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.

The performance of senior staff is monitored and reviewed through the appropriate Performance Management System (PMS) of the Forestry Commission and the Civil Service. Performance can affect pay progression and bonuses, if awarded, are based on performance. Further information about the work of the Civil Service Commissioners can be found at <http://civilservicecommission.independent.gov.uk>

The following information is subject to audit.

### Remuneration (salary, benefits in kind and pensions)

The salary (includes basic salary, overtime and any allowances subject to UK taxation) and pension entitlements of the members of the Forest Research Executive Board were as follows.

Name	2014-15				2013-14			
	Salary	Benefits in kind (to the nearest £100)	Pension benefits *	Total	Salary	Benefits in kind (to the nearest £100)	Pension benefits *	Total
	£000		£000	£000	£000		£000	£000
James Pendlebury	70-75	3,300	16	90-95	70-75	3,000	12	85-90
Peter Freer-Smith	70-75	8,100	12	90-95	70-75	8,100	11	90-95
Mike Cowan **	25-30	-	21	45-50	20-25	-	17	35-40
					25-30	-	-	-
Helen McKay	65-70	-	8	70-75	65-70	-	(1)	60-65
Chris Quine	65-70	-	9	75-80	65-70	-	(30)	35-40
Sandra Smith **	50-55	-	20	70-75	40-45	-	(7)	30-35
					50-55	-	-	-
Hugh Williams	55-60	-	17	75-80	55-60	-	15	70-75

\* 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.

\*\* Mike Cowan and Sandra Smith became Executive Board members in July 2013. Mike works 60% for Forest Research. The lower salary figures for these staff in 2013-14 relate to the period 1 July 2013 to 31 March 2014, while the higher salary figures are the full year equivalent.

No bonuses were payable in either 2014-15 or 2013-14.

### Benefits in kind

The monetary value of benefits in kind covers any benefits provided by the employer and treated by HM Revenue and Customs as taxable income. They are in respect of the Car Provision for Employees Scheme.

### Highest-paid director and median salary cost disclosure

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 2014-15 was £80,000 - £85,000 (2013-14: £80,000 - £85,000). This was 2.89 times (2013-14: 2.88) the median remuneration of the workforce, which was £28,569 (2013-14: £28,645). In 2014-15 no employees (2013-14: nil) received remuneration in excess of the highest-paid director.

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



## Remuneration of non-executives

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

Name	2014-15	2013-14
	£000	£000
Shireen Chamberst†	2	-
Victoria M. Edwards	1	1
David A. Evans	1	1
Judith Webb	1	1

†Shireen Chambers joined both the Audit and Risk Assurance Committee and the Forest Research Executive Board in November 2014.

## Pension benefits 2014-15

Name	Accrued pension at age 60 at 31/3/15 and related lump sum (LS)	Real increase (decrease) in pension and related lump sum (LS)	CETV at 31 March 2015	CETV at 31 March 2014*	Real increase (decrease) in CETV
	£000	£000	£000	£000	£000
James Pendlebury	10-15 plus 35-40 LS	0-2.5 plus 2.5-5 LS	253	226	13
Peter Freer-Smith	25-30 plus 85-90 LS	0-2.5 plus 0-2.5 LS	666	623	12
Mike Cowan	5-10 plus Nil LS	0-2.5 plus Nil LS	64	51	8
Helen McKay	30-35 plus 90-95 LS	0-2.5 plus 0-2.5 LS	695	686	8
Chris Quine	25-30 plus 80-85 LS	0-2.5 plus 0-2.5 LS	553	519	7
Sandra Smith	5-10 plus Nil LS	0-2.5 plus Nil LS	132	108	13
Hugh Williams	15-20 plus 10-15 LS	0-2.5 plus 0-2.5 LS	264	236	8

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

## Civil Service pensions

Pension benefits are provided through the Principal Civil Service Pension Scheme (PCSPS). From 30 July 2007, civil servants may be in one of four defined benefit schemes: either a 'final salary' scheme (classic, premium or classic plus), or a 'whole career' scheme (nuvos). 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 and nuvos are increased annually in line with Pensions Increase legislation. Members joining from October 2002 may opt for the appropriate defined benefit arrangement or a good-quality 'money purchase' stakeholder arrangement with a significant employer contribution (partnership pension account).

Employee contributions are salary-related and range between 1.5% and 6.85% of pensionable earnings for classic and 3.5% and 8.85% for premium, classic plus and nuvos. Increases to employee contributions will apply from 1 April 2015. 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 their period of scheme membership. At the end of the scheme year (31 March) the member's earned pension account is credited with 2.3% of their pensionable earnings in that scheme year and the accrued pension is uprated in line with Pensions Increase legislation. 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 3% and 12.5% (depending on the age of the member) into a stakeholder pension product chosen by the employee from a panel of three 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 0.8% 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. Normal pension age is 60 for members of classic, premium and classic plus and 65 for members of nuvos.

A new pension scheme, alpha, was introduced on 1 April 2015. The majority of PCS members (includes classic, classic plus, premium and nuvos) will have moved into alpha and most new members will also join alpha. Alpha is a career average scheme, which means that the amount of pension benefit a member receives is based on a proportion of their pensionable earnings in each year that they work. Members who were within 10 years from their normal retirement age on 31 March 2012 will continue to remain in their existing scheme and will not be moved into alpha. Members who were more than 10 but less than 13.5 years from their normal retirement age on 31 March 2012 were able to make a choice on whether they moved into alpha on 1 April 2015 or at a later date.

Further details about the Civil Service pension arrangements can be found at the website [www.civilservice.gov.uk/pensions](http://www.civilservice.gov.uk/pensions)

## 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

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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 individual 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 (decrease) in CETV**

This reflects the increase (decrease) in CETV effectively funded by the employer. It does not include the increase (decrease) 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.



**Professor James Pendlebury**  
**Chief Executive and Accounting Officer**

3 June 2015

An aerial photograph of a rural landscape. The image shows a mix of green fields, some of which appear to be agricultural, interspersed with dense green forests. In the upper right and lower right, there are residential areas with houses and roads. A road or railway line runs along the bottom left. The overall scene is a typical countryside setting.

# Corporate Governance Report

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# 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.

# Governance Statement

## 1. 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.

## 2. 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 which 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 for the year ended 31 March 2015 and up to the date of approval of the Annual Report and Accounts, and complies with HM Treasury guidance.

## 3. 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 Minister, 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 ten times during 2014–15. The Board discussed a wide range of forest research and related issues, including:

- future science;
- Research Strategy Management Board;
- communications;
- Woodland Policy Enabling Programme;
- Science and Innovation Strategy;
- Corporate Plan Key Actions;
- health and safety;
- staff survey;
- business development, including external income;
- risk management.

At each of the meetings during 2014–15 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 and Research Services.

During the year, FREB membership was enhanced by the appointment of a non-executive member, Shireen Chambers, with effect from November 2014. Further information about the FREB, including membership and attendance, is available on our website, [www.forestry.gov.uk/forestresearch](http://www.forestry.gov.uk/forestresearch)

### 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 which is overseen by the ARAC. Through its work, the ARAC provides independent assurance to the FREB on those key activities which support the achievement of country objectives. Assurance is also provided through the findings from work carried out by Internal and External Audit. The ARAC operates in accordance with the principles contained in HM Treasury's *Audit Committee Handbook*.

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

- risk management;
- annual report and accounts 2013–14;
- external and internal audit strategy and reports;
- information security;
- Governance Statement.

There were three ARAC meetings during 2014–15 and attendance was as follows:

<b>Name</b>	<b>No. of meetings</b>
Shireen Chambers *	2
Victoria M. Edwards (Chair)	3
David A. Evans	3
Judith Webb	3

\*Shireen Chambers joined the Committee in November 2014.

## Register of interests

A register of interests of all Board Members is maintained by Forest Research and published on our website, [www.forestry.gov.uk/forestresearch](http://www.forestry.gov.uk/forestresearch)

### 4. 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 Annual Assurance Statements from each of the Heads of Shared Services for the Forestry Commission, based centrally in Edinburgh, providing me with assurance on the standard of governance and control within their area of responsibility.

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 (formerly substantial) 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 Practice for Corporate Governance in the context of its own circumstances, where relevant and practical.

The Audit and Risk Assurance Committee reviews its effectiveness in line with best practice as set out in HM Treasury's *Audit 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.

### 5. 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 they strategically review key risks. Each risk identified in the risk register has a corresponding Senior Risk Owner who is a Board-level officer with the authority to take effective action.

Forest Research has an Audit and Risk Assurance Committee (ARAC) to support the Accounting Officer and the Agency Executive Board in their responsibilities for the effective management of risk, control and governance (see Section 3 above).

During 2014–15 Forest Research completed a comprehensive review of its risk register to ensure that it accurately reflects risks and relevant responses in a changing environment.

### 6. Ministerial Direction

No ministerial directions were given during the year.



## 7. Significant Governance and Risk Issues

### Tree Health

Forest Research will continue to maintain effective relationships to respond to new and ongoing tree health disease outbreaks or other issues. Forest Research is very well networked with a range of other institutes and research providers (e.g. Fera Science Ltd, Rothamsted Research, the James Hutton Institute, the Royal Botanic Gardens, Kew, the Royal Botanic Garden Edinburgh, and Science and Advice for Scottish Agriculture (SASA)) to ensure an effective response capability.

### Forestry Policy

On 16 May 2013, Ian Gambles (Director Forestry Commission (FC) England) instigated the Woodland Policy Enabling Programme (WPEP) – a joint programme of work between FC England and Defra – to consider how best to deliver the Westminster Government’s forestry policy as set out in the *Forestry and Woodlands Policy Statement*<sup>1</sup> published on 31 January 2013. This ongoing programme considers the future of three main projects:

- Forest Services;
- The Public Forest Estate;
- Cross-Border Functions (including Forest Research).

The Government’s Forestry and Woodlands Policy states that *“we will ... work with the devolved nations to ensure that vital cross-border functions in areas such as research, standards and tree health can continue to be delivered centrally, where this is appropriate. ... We are working closely with the devolved administrations to establish a refreshed basis for future cross-border working.”* The WPEP Programme Board therefore agreed that the Cross-Border Functions project should:

- review and where possible validate the current arrangements for cross-border working (including Forest Research) within the Forestry Commission with a view to establishing a refreshed basis for working with the devolved administrations;
- make recommendations on the future of collaborative cross-border activities to be undertaken in partnership with Scotland and Wales.

Although the project has been instigated at the behest of FC England and forms part of WPEP, any recommendations for changes to cross-border functions will be discussed by the Forestry Commissioners and agreed by Ministers from all three administrations. The project board therefore includes representatives from all three administrations as well as Forest Research’s Chief Executive.

### Information Communication Technology (ICT) Infrastructure

The ICT infrastructure modernisation programme continues with further migration of key business applications to the new platform. The programme continues to make positive inroads into the business risk posed by ICT infrastructure failure. The disaster recovery facility at the Northern Research Station is now operational and, subject to testing, has the capacity to restore major corporate systems within five working days.

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<sup>1</sup> [www.gov.uk/government/publications/government-forestry-policy-statement](http://www.gov.uk/government/publications/government-forestry-policy-statement)

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Forest Research is dependent on the Forestry Commission's ICT infrastructure and, while some risk to the business operations of the Agency still remains as work continues, the overall risk position has substantially improved.

### **Business Continuity Management**

Forest Research has business continuity plans to ensure that there are procedures in place to facilitate the recovery of business activities, although it is recognised that these still focus more on disaster recovery than on business continuity. We will review the plans again during 2015–16 to bring them more up to date.

Forest Research is reliant on Shared Services, based in Silvan House in Edinburgh, for many of its Human Resources, Information Services and Finance requirements, and the uncertainty generated by the expectation that these services will be devolved to countries and Forest Research has led to an increase in the loss of key staff which, together with difficulties encountered in recruiting talent, has increased the risk of disruption to business continuity. The Forestry Commission has introduced additional controls and actions, including a review of recruitment and retention policy, to mitigate the risk.

### **Tax**

Current continuing HM Revenue and Customs tax audits have highlighted areas of non-compliance which, as well as leading to the retrospective payment of tax liabilities and potential penalties, will require substantive improvements to our policies, procedures and systems. A formal Forestry Commission-wide working group has been set up to work at pace to ensure full compliance, as soon as practicable, for the future. Notes 12 and 17 to the accounts provide additional information.

### **Information Risk Management**

Forest Research shares a common approach to information risk management with the Forestry Commission. The Forestry Commission continues to take a proportionate approach to information risk. Forest Research does not have as much sensitive information as most other departments and our information holdings are relatively small. We therefore manage risk as appropriate for the business.

Within that context, Forest Research fully considers, manages and cares for its information. Forest Research's Head of Research Services is the Senior Information Risk Officer (SIRO) for Forest Research and participates in the meetings of the Forestry Commission's Information Security Management Forum (ISMF), chaired by the Forestry Commission's Director of Corporate and Forestry Support. The ISMF coordinates and controls the implementation of information security for the Forestry Commission. Forest Research's SIRO sits on and provides information to the Forest Research Executive Board and provides updates to the Forest Research ARAC.

The ISMF has agreed that Privacy Impact Assessments will be required for all projects that involve the handling of personal information.

Three levels of 'Government Security Classification' and 'Responsible for Information' training are now online and will be undertaken by all staff at the appropriate level for their role.

There were no lapses of data security reported during 2014–15 (2013–14: one).

## 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.

### 8. Wider circumstances and future challenges

The main challenges for Forest Research from 2015–16 and beyond are:

- responding to new and unforeseen tree health disease outbreaks or other issues;
- delivering the new interdisciplinary science programmes for 2015–19;
- maintaining and increasing the Agency's non-core income;
- managing the likelihood of organisational change to the Agency while maintaining business continuity;
- maintaining Agency relevance to an increasingly devolved governmental client base and changing evidence commissioning arrangements;
- successfully resolving the various tax issues arising from HMRC compliance audits, and ensuring full compliance going forward;
- enhancing our scientific capability and research offer through effective and strategic partnerships;
- growing our international profile, activities and business.

In 2015–16 Forest Research will remain focussed 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.



**Professor James Pendlebury**  
**Chief Executive and Accounting Officer**

3 June 2015



# Audit Report

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# Certificate and Report of the Comptroller and Auditor General to the House of Commons

I certify that I have audited the financial statements of Forest Research for the year ended 31 March 2015 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. These financial statements have been prepared under the accounting policies set out within them. I have also audited the information in the Remuneration Report that is described in that report as having been audited.

## **Respective responsibilities of the Accounting Officer and auditor**

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. My responsibility is to audit, certify and report on the financial statements in accordance with the Government Resources and Accounts Act 2000. I conducted my audit in accordance with International Standards on Auditing (UK and Ireland). Those standards require me and my staff to comply with the Auditing Practices Board's Ethical Standards for Auditors.

## **Scope of the audit of the financial statements**

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. This includes an assessment of: whether the accounting policies are appropriate to Forest Research's circumstances and have been consistently applied and adequately disclosed; the reasonableness of significant accounting estimates made by Forest Research; and the overall presentation of the financial statements. In addition I read all the financial and non-financial information in the Annual Report to identify material inconsistencies with the audited financial statements and to identify any information that is apparently materially incorrect based on, or materially inconsistent with, the knowledge acquired by me in the course of performing the audit. If I become aware of any apparent material misstatements or inconsistencies I consider the implications for my certificate.

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.

## Opinion on regularity

In my opinion, in all material respects 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.

## Opinion on financial statements

In my opinion:

- the financial statements give a true and fair view of the state of Forest Research's affairs as at 31 March 2015 and of the net operating cost 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 other matters

In my opinion:

- the part of the Remuneration Report to be audited has been properly prepared in accordance with HM Treasury directions made under the Government Resources and Accounts Act 2000; and
- the information given in the Strategic Report, Directors' Report and Annex for the financial year for which the financial statements are prepared is consistent with the financial statements.

## Matters on which I report by exception

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

- adequate accounting records have not been kept or returns adequate for my audit have not been received from branches not visited by my staff; or
- the financial statements and the part of the Remuneration 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

**5 June 2015**





# Financial Report



# Statement of Accounts

## Statement of Comprehensive Income for the year ended 31 March 2015

		2014-15	2013-14
	Notes	£000	£000
<b>Income</b>			
Forestry Commission customers	3a	<b>(9,836)</b>	(10,492)
Non-Forestry Commission customers			
European Union		<b>(783)</b>	(531)
Other	3b	<b>(2,417)</b>	(2,547)
<b>Total income</b>		<b>(13,036)</b>	(13,570)
<b>Expenditure</b>			
Staff costs	4	<b>7,747</b>	7,684
Other management costs	5	<b>2,389</b>	2,963
Materials and services	6	<b>2,707</b>	2,605
<b>Total expenditure</b>		<b>12,843</b>	13,252
<b>Net operating income</b>		<b>(193)</b>	(318)
<b>Other comprehensive net (income)/expenditure</b>			
Net (gain) on revaluation of property, plant and equipment	7	<b>(500)</b>	(106)
Net loss on revaluation of intangible assets		-	1
		<b>(500)</b>	(105)
<b>Total comprehensive net income for the year</b>		<b>(693)</b>	(423)

All income and expenditure are derived from continuing operations.

*The notes on pages 52 to 70 form part of these accounts.*

## Statement of Financial Position as at 31 March 2015

		<b>31 March 2015</b>	31 March 2014
	<b>Notes</b>	<b>£000</b>	£000
<b>Non-current assets</b>			
Property, plant and equipment	7	<b>10,622</b>	10,598
Intangible assets		<b>42</b>	44
Financial assets	8	<b>25</b>	25
		<b>10,689</b>	10,667
<b>Current assets</b>			
Inventories		<b>2</b>	2
Trade and other receivables	9	<b>1,568</b>	1,603
Cash and cash equivalents	10	<b>136</b>	255
		<b>1,706</b>	1,860
<b>Total assets</b>		<b>12,395</b>	12,527
<b>Current liabilities</b>			
Provisions	12	<b>(188)</b>	(88)
Trade and other payables	11	<b>(1,267)</b>	(2,165)
		<b>(1,455)</b>	(2,253)
<b>Non-current assets plus net current assets</b>		<b>10,940</b>	10,274
<b>Non-current liabilities</b>			
Provisions	12	<b>(77)</b>	(360)
<b>Assets less liabilities</b>		<b>10,863</b>	9,914
<b>Taxpayers' equity</b>			
General Fund		<b>3,701</b>	3,234
Revaluation Reserve		<b>7,162</b>	6,680
		<b>10,863</b>	9,914



**Professor James Pendlebury**  
**Chief Executive and Accounting Officer**

3 June 2015

*The notes on pages 52 to 70 form part of these accounts.*

## Statement of Cash Flows for the year ended 31 March 2015

		2014-15	2013-14
	Notes	£000	£000
<b>Net cash inflow from operating activities</b>			
Net operating income		193	318
Adjustments for non-cash transactions			
Depreciation	5	683	636
Amortisation	5	9	12
Non-cash inter-country transfers		2	99
Loss on disposal of property, plant and equipment	5	4	12
Notional audit fee		35	29
Movements in provisions	12	(18)	56
Decrease/(increase) in trade and other receivables	9	35	(381)
(Decrease)/increase in trade and other payables	11	(898)	47
Use of provisions	12	(165)	(111)
<b>Net cash (outflow)/inflow from operating activities</b>		<b>(120)</b>	<b>717</b>
<b>Cash flows from investing activities</b>			
Purchase of property, plant and equipment	7	(211)	(330)
Purchase of intangible assets		(7)	(16)
<b>Net cash (outflow) from investing activities</b>		<b>(218)</b>	<b>(346)</b>
<b>Cash flows from financing activities</b>			
Net cash transfer from/(to) the Forestry Commission		219	(375)
<b>Net financing</b>		<b>219</b>	<b>(375)</b>
<b>Net (decrease) in cash and cash equivalents in the period</b>		<b>(119)</b>	<b>(4)</b>
<b>Cash and cash equivalents at the beginning of the period</b>		<b>255</b>	<b>259</b>
<b>Cash and cash equivalents at the end of the period</b>		<b>136</b>	<b>255</b>

The notes on pages 52 to 70 form part of these accounts.

## Statement of Changes in Taxpayers' Equity for the year ended 31 March 2015

	General Fund	Revaluation Reserve	Total Reserves
	£000	£000	£000
<b>Balance at 1 April 2014</b>	<b>3,234</b>	<b>6,680</b>	<b>9,914</b>
<b>Changes in taxpayers' equity for 2014-15</b>			
Net gain on revaluation of property, plant and equipment	-	500	500
Non-cash charges: inter-country transfers	2	-	2
Realised element of the Revaluation Reserve	18	(18)	-
Notional audit fee	35	-	35
Net operating income	193	-	193
Cash deficit transferred from Forestry Commission	219	-	219
<b>Balance at 31 March 2015</b>	<b>3,701</b>	<b>7,162</b>	<b>10,863</b>
<b>Balance at 1 April 2013</b>	<b>3,149</b>	<b>6,588</b>	<b>9,737</b>
<b>Changes in taxpayers' equity for 2013-14</b>			
Net gain on revaluation of property, plant and equipment	-	106	106
Non-cash charges: inter-country transfers	99	-	99
Realised element of the Revaluation Reserve	14	(14)	-
Notional audit fee	29	-	29
Net operating income	318	-	318
Cash surplus transferred to Forestry Commission	(375)	-	(375)
<b>Balance at 31 March 2014</b>	<b>3,234</b>	<b>6,680</b>	<b>9,914</b>

The notes on pages 52 to 70 form part of these accounts.

# Notes to the accounts

## Note 1. Statement of Accounting Policies

These financial statements have been prepared in accordance with the 2014–15 *Government Financial Reporting Manual* (FReM) issued by HM Treasury. The accounting policies contained in the FReM apply International Financial Reporting Standards (IFRS) as adapted or interpreted for the public-sector context. Where the FReM permits a choice of accounting policy, the accounting policy 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. The areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the financial statements, are disclosed in Note 2.

### 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, inventories and available-for-sale financial assets, and derivative financial assets and derivative financial liabilities at fair value through profit or loss.

### 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 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.

### 1.4 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 and it is probable that future economic benefits will flow to it.

## 1.5 Foreign currency translation

### (a) 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.

### (b) 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.

## 1.6 Employee benefits

### Pensions

Past and present employees are covered by the provisions of the Principal Civil Service Pension Scheme (PCSPS). The defined benefit schemes are unfunded and are non-contributory except in respect of dependants' benefits. 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.

## 1.7 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. Staff payroll costs and expenditure on materials and consumables related to systems development software, for general use within Forest Research, are recognised as tangible non-current assets. There was no relevant in-house development activity in the year 2014-15.

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

## **Non-forest land**

Non-forest land is shown at fair value. Professionally qualified staff employed by the Forestry Commission undertake a full revaluation of non-forest land at five-yearly intervals. They follow the principles set out in the Royal Institution of Chartered Surveyors (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. The work of internal staff is reviewed by Smiths Gore, Chartered Surveyors.

Unequipped agricultural land indices provided by the District Valuer are used to restate values between full valuations. A full valuation took place on 31 March 2013.

Revaluation gains and losses are recognised in the Statement of Comprehensive Income in the year of revaluation.

## **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 2013 and Smiths Gore, Chartered Surveyors, reviewed this.

In the intervening years between professional valuations, indices provided by the District Valuer are used to restate values. Indexation was applied as at 31 March 2015.

## **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.

## **Information technology hardware**

Information technology (IT) hardware is shown at fair value less accumulated depreciation. IT values are restated to current value each year using indices provided by the Office for National Statistics.

## 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.

## 1.8 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;
- information technology hardware: over 5 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.

## 1.9 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.

## 1.10 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.

## 1.11 Financial assets

### Classification

Forest Research classifies its financial assets in the following categories: at fair value through profit or loss and loans and receivables. 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.

## 1.12 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.

### 1.13 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.

### 1.14 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.

### 1.15 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.

## Note 2. Critical Accounting Estimates and Judgements

The preparation of financial statements requires Forest Research to make estimates, assumptions and judgements. These are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. 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.

## Note 3. Income

### 3a 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. A separate annual charge is agreed for each project based on full cost recovery. The 2014-15 charges amounted to £7.35 million. 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:

	<b>2014-15</b>	2013-14
	<b>£000</b>	£000
Research, development and other services to:		
Corporate and Forestry Support	<b>7,350</b>	7,971
Inventory, Forecasting and Operational Support	<b>490</b>	833
England	<b>768</b>	809
Scotland	<b>1,228</b>	879
	<b>9,836</b>	10,492

The reduction in core funding from Corporate and Forestry Support was largely offset through additional funding from Forestry Commission Scotland relating to new research project initiatives, for example Observatree and Tree Alert.

### 3b Other income

Other income generated during the year is broadly consistent with 2013-14 where the Agency was successful in winning more external contracts, one of the aims to compensate for reduced income from the Forestry Commission. Other income consisted of:

	<b>2014-15</b>	2013-14
	<b>£000</b>	£000
Contracts for research and services	<b>2,206</b>	2,321
Consultancy	<b>25</b>	-
Ad hoc – sample analysis, supply of seeds, conferences, advisory, reimbursement of expenses	<b>186</b>	226
	<b>2,417</b>	2,547

## Note 4. Staff Costs and Numbers

### 4a Employee costs during the year amounted to:

			2014-15	2013-14
	Permanent staff	Other staff	Total	
	£000	£000	£000	£000
Wages and salaries	5,472	659	6,131	6,062
Social security costs	442	43	485	481
Employer's superannuation costs	1,024	107	1,131	1,107
Agency staff costs	-	-	-	23
Seconded staff costs	-	-	-	11
	<b>6,938</b>	<b>809</b>	<b>7,747</b>	<b>7,684</b>
			<b>2014-15</b>	2013-14
Average number of employees (full-time equivalents)				
Permanent staff – male			<b>102</b>	107
Permanent staff – female			<b>55</b>	53
Total permanent			<b>157</b>	160
Others – male			<b>13</b>	11
Others – female			<b>15</b>	12
Total others			<b>28</b>	23
Total staff			<b>185</b>	183

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](http://www.civilservice.gov.uk/pensions)).

For 2014-15, employer's contributions of £1,129,823 were payable to the PCSPS (2013-14: £1,113,005) at one of four rates in the range 16.7% to 24.3% of pensionable pay, based on salary bands. The scheme actuary reviews employer contributions every four years following a full scheme valuation. The contribution rates reflect benefits accruing during 2014-15 to be paid to the member when they retire and not the benefits paid during this period to existing pensioners.

Employees can opt to open a partnership pension account, a stakeholder pension with an employer contribution. Employers' contributions of £9,055 (2013-14: £4,963) were paid to one or more of a panel of three appointed stakeholder pension providers. Employer contributions are age-related and range from 3% to 12.5% of pensionable pay. Employers also match employee contributions up to 3% of pensionable pay. In addition, employer contributions of £929 (2013-14: £362), 0.8% of pensionable pay, 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

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employees. Contributions due to the partnership pension providers at the Statement of Financial Position date were £nil. Contributions prepaid at that date were £nil.

All salary-related costs for senior staff are disclosed in the Remuneration Report.

#### **4b Benefits in kind are provided under the following schemes:**

- (i) advances of salary for house purchase;
- (ii) advances of salary for purchase of season tickets and bicycles;
- (iii) car provision for employees scheme.

Each scheme is subject to conditions and financial limits.

The Advances of Salary for House Purchase scheme had loans with an outstanding balance of £2,500 or more to one individual member of staff at 31 March 2015 and as at 31 March 2014. The total outstanding value of all loans was £19,000 (2013-14: £21,000). Such loans are unsecured, interest free and typically repayable over 10 years.

#### **4c Early departure costs**

During 2014-15, no staff members left under Compulsory or Voluntary Redundancy terms. During 2013-14 one non-senior staff member left under Compulsory Redundancy terms and received a compensation payment of £8,053.

## Note 5. Other Management Costs

		2014-15	2013-14
	Notes	£000	£000
Travel and subsistence		539	516
Building maintenance		629	1,083
Utilities *		227	232
Training		94	118
Other expenditure		(42)	165
Computer supplies		63	64
Staff transfer expenses		8	13
<b>Non-cash costs:</b>			
Provisions – early departure costs:			
Provided in year	12	52	8
Unwinding of discount	12	4	8
Provisions – HMRC and other	12	84	67
Depreciation of property, plant and equipment	7	683	636
Amortisation of intangible assets		9	12
Loss on disposal of property, plant and equipment	7	4	12
Auditors' remuneration – notional cost		35	29
Total		<u>2,389</u>	<u>2,963</u>

\* The photovoltaic panels at Alice Holt generated 25,062 kWh (2013-14: 24,702 kWh) of electricity.

Included within other management costs are charges from the Forestry Commission amounting in total to £72,000 (2013-14: £77,000).

## Note 6. Materials and Services

		2014-15	2013-14
		£000	£000
Materials and supplies		764	725
Central services provided by Forestry Commission *		720	716
Vehicle lease charges from Forestry Commission *		284	307
Contractors **		621	632
Commissioned research		72	86
Protective clothing		14	13
Miscellaneous expenditure		232	126
Total		<u>2,707</u>	<u>2,605</u>

\* 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 Forestry Commission was £1,004,000 (2013-14: £1,022,000).

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

## Note 7. Tangible Non-Current Assets

	Freehold land	Buildings	Scientific equipment	IT equipment	Other machinery and equipment	Assets under construction	Total
	£000	£000	£000	£000	£000	£000	£000
<b>Valuation:</b>							
<b>At 1 April 2014</b>	<b>1,913</b>	<b>12,918</b>	<b>2,170</b>	<b>24</b>	<b>958</b>	<b>103</b>	<b>18,086</b>
Additions	-	21	40	-	-	150	211
Transfers	-	105	(6)	-	154	(253)	-
Disposals	-	(31)	(41)	(24)	(12)	-	(108)
Revaluation to current prices	21	897	39	-	30	-	987
<b>At 31 March 2015</b>	<b>1,934</b>	<b>13,910</b>	<b>2,202</b>	<b>-</b>	<b>1,130</b>	<b>-</b>	<b>19,176</b>
<b>Depreciation:</b>							
<b>At 1 April 2014</b>	<b>-</b>	<b>6,008</b>	<b>980</b>	<b>20</b>	<b>480</b>	<b>-</b>	<b>7,488</b>
Provided in year	-	386	213	3	81	-	683
Disposals	-	(27)	(41)	(24)	(12)	-	(104)
Revaluation to current prices	-	457	16	1	13	-	487
<b>At 31 March 2015</b>	<b>-</b>	<b>6,824</b>	<b>1,168</b>	<b>-</b>	<b>562</b>	<b>-</b>	<b>8,554</b>
<b>Net book value:</b>							
<b>At 31 March 2015</b>	<b>1,934</b>	<b>7,086</b>	<b>1,034</b>	<b>-</b>	<b>568</b>	<b>-</b>	<b>10,622</b>
<b>At 31 March 2014</b>	<b>1,913</b>	<b>6,910</b>	<b>1,190</b>	<b>4</b>	<b>478</b>	<b>103</b>	<b>10,598</b>
<b>Valuation:</b>							
<b>At 1 April 2013</b>	<b>1,862</b>	<b>12,822</b>	<b>2,108</b>	<b>51</b>	<b>1,020</b>	<b>-</b>	<b>17,863</b>
Additions	-	-	228	-	-	103	331
Disposals	-	(56)	(197)	(26)	(62)	-	(341)
Revaluation to current prices	51	152	31	(1)	-	-	233
<b>At 31 March 2014</b>	<b>1,913</b>	<b>12,918</b>	<b>2,170</b>	<b>24</b>	<b>958</b>	<b>103</b>	<b>18,086</b>
<b>Depreciation:</b>							
<b>At 1 April 2013</b>	<b>-</b>	<b>5,583</b>	<b>960</b>	<b>42</b>	<b>469</b>	<b>-</b>	<b>7,054</b>
Provided in year	-	359	198	6	73	-	636
Disposals	-	(49)	(192)	(27)	(62)	-	(330)
Revaluation to current prices	-	115	14	(1)	-	-	128
<b>At 31 March 2014</b>	<b>-</b>	<b>6,008</b>	<b>980</b>	<b>20</b>	<b>480</b>	<b>-</b>	<b>7,488</b>
<b>Net book value:</b>							
<b>At 31 March 2014</b>	<b>1,913</b>	<b>6,910</b>	<b>1,190</b>	<b>4</b>	<b>478</b>	<b>103</b>	<b>10,598</b>
<b>At 31 March 2013</b>	<b>1,862</b>	<b>7,239</b>	<b>1,148</b>	<b>9</b>	<b>551</b>	<b>-</b>	<b>10,809</b>

Fixed assets were revalued as at 31 March 2015 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 £4.4 million and £2.5 million, respectively, at 31 March 2015.

Depreciation expenses of £683,000 (2013-14: £636,000) have been charged to other management costs in the Statement of Comprehensive Income.

In 2013-14 Forest Research incurred £349,000 replacing windows in the science block at Alice Holt. This cost was accounted for as expenditure (building maintenance in Note 5) rather than capital additions, as our professional valuers (Smiths Gore) confirmed the value of the building was not affected as the new windows were a like-for-like replacement.

## Note 8. Investments

The investment in C-Cure Solutions Ltd is stated at historical costs less impairment. At 31 March 2015 the value was £25,000 (2013-14: £25,000).

C-Cure Solutions Ltd is a spin-out company launched with the University of Surrey during 2009-10, in the area of land remediation. In the period March 2011 to March 2013 Genomia Management Ltd invested £305,000 for 361 shares of the company. The current shareholdings are: Forest Research 24.99%, the University of Surrey 24.98%, the inventors 22.71% and Genomia 27.32%.

C-Cure Solutions Ltd has its registered office at Chancery House, 30 St Johns Road, Woking, Surrey GU21 7SA.

James Pendlebury represents Forest Research as a Director of the Company, for which he receives no personal payments.

In the year ended 31 March 2015, C-Cure Solutions Ltd had turnover of £97,000 and expenditure of £238,000, resulting in an operating loss of £141,000. The organisation raised additional funds of £168,000 during the year. In the year ended 31 March 2014, C-Cure Solutions Ltd had turnover of £65,000 and expenditure of £137,000, resulting in an operating loss of £72,000.

## Note 9. Receivables

### 9a Analysis by type

	2014-15	2013-14
	£000	£000
<b>Current</b>		
EU trade receivables	126	328
Other trade receivables	591	631
Total trade receivables	<u>717</u>	<u>959</u>
VAT	3	3
Other receivables	2	-
House purchase loans to employees	19	21
Prepayments and accrued income	827	620
Total current receivables	<u>1,568</u>	<u>1,603</u>

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

As of 31 March 2015, £431,000 (2013-14: £537,000) were fully performing and not overdue or impaired and provided for.



As of 31 March 2015, trade receivables of £286,000 (2013-14: £422,000) were overdue but not impaired. These relate to a number of customers for whom there is no recent history of default. The age analysis of these trade receivables is as follows:

	<b>2014-15</b>	2013-14
	<b>£000</b>	£000
<b>Months overdue</b>		
Less than one month	<b>52</b>	136
One to two months	<b>15</b>	-
Two to three months	<b>125</b>	61
More than three months	<b>94</b>	225
	<b>286</b>	422

As of 31 March 2015, trade receivables of £nil (2013-14: £nil) were impaired or provided for.

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:

	<b>2014-15</b>	2013-14
	<b>£000</b>	£000
<b>Current</b>		
UK Pound	<b>900</b>	1,198
Euro	<b>656</b>	405
Norwegian Krone	<b>12</b>	-
Total	<b>1,568</b>	1,603

## 9b Intra-government balances

	<b>2014-15</b>	2013-14
	<b>£000</b>	£000
<b>Current</b>		
Balances with other central government bodies	<b>249</b>	604
Balances with local authorities	<b>-</b>	3
Intra-government balances	<b>249</b>	607
Balances with bodies external to government	<b>1,319</b>	996
	<b>1,568</b>	1,603

## Note 10. Cash and Cash Equivalents

The following balances at 31 March are held at commercial banks and as cash in hand:

	2014-15	2013-14
	£000	£000
<b>Opening balance at 1 April</b>	<b>255</b>	259
Net change in balances	<b>(119)</b>	(4)
<b>Balance at 31 March</b>	<b>136</b>	255

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

As part of its normal activities Forest Research maintains Sterling and Euro bank accounts primarily used for the receipt of income from non-Forestry-Commission customers. These accounts are cleared to the Commission's main account on a regular basis. Sums held in these accounts on behalf of partners in European Commission projects are treated as third-party assets and not included in the balances shown.

## Note 11. Trade and Other Payables

	2014-15	2013-14
	£000	£000
<b>Current</b>		
Payments received on account	<b>573</b>	931
Trade payables	<b>206</b>	471
Taxation and social security costs	<b>71</b>	83
Accrued expenses and deferred income	<b>417</b>	680
Total	<b>1,267</b>	2,165

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 as at 31 March 2015 and 31 March 2014, with the exception of taxation and social security costs and £121,000 (31 March 2014: £7,000) due to central government bodies. There were no balances due to local authorities as at 31 March 2015 (31 March 2014: £1,000). Funds held on behalf of partners in European Commission projects are treated as third-party assets (see Note 20). At 31 March 2015 the amount held in Forest Research bank accounts on behalf of partners was £258,000 (31 March 2014: £299,000).

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

	2014-15	2013-14
	£000	£000
<b>Current</b>		
UK Pound	<b>1,032</b>	1,428
Euro	<b>235</b>	737
	<b>1,267</b>	2,165

## Note 12. Provisions for Liabilities and Charges

	2014-15		2013-14	
	Other	Early departure costs	Other	Early departure costs
	£000	£000	£000	£000
Balance brought forward at 1 April	67	381	-	503
Provided in year	84	52	67	8
Provision not required written back	-	(158)	-	(26)
Utilised in year	(74)	(91)	-	(111)
Unwinding of discount	-	4	-	7
<b>Balance carried forward at 31 March</b>	<b>77</b>	<b>188</b>	<b>67</b>	<b>381</b>

Analysis of expected timing of discounted cash flows:

	Other	Early departure costs
	£000	£000
Less than one year	77	111
Later than one year but not later than five years	-	77
<b>Balance at 31 March 2015</b>	<b>77</b>	<b>188</b>

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.

An HMRC audit of Forest Research's treatment of VAT and Income Tax is underway. Provisions for HMRC liabilities have been raised during the year to address areas of non-compliance. All liabilities identified by HMRC were subsequently settled by 31 March 2015. The values are included within Other Provisions and amounted to £74,000 for 2014-15. The HMRC audit is continuing into 2015-16 and an unquantifiable contingent liability is disclosed within Note 17 to recognise the possibility of future non-compliance liabilities arising from the audit.

## Note 13. Financial Instruments

### 13.1 Financial Instruments by category

All financial assets on the Statement of Financial Position are loans and receivables, except for £25,000 (31 March 2014: £25,000) which is classified as available for sale. The available-for-sale asset is Forest Research's share of C-Cure Solutions Ltd.

All financial liabilities on the Statement of Financial Position are classified as other financial liabilities.

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## 13.2 Exposure to risk

### Credit risk

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

### Liquidity risk

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

### Interest rate risk

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

### Foreign currency risk

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

EU contract income denominated in Euros and Norwegian Krone forms only 6% of Forest Research's total income. Therefore, fluctuations in exchange rates do not have a significant impact on Forest Research.

## Note 14. Capital Commitments

There were nil contracted capital commitments as at 31 March 2015 (2013-14: £152,000).

## Note 15. 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:

	<b>2014-15</b>	2013-14
	<b>£000</b>	£000
<b>Land:</b>		
Not later than one year	<b>2</b>	2
Later than one year and not later than five years	<b>3</b>	5
Total	<b>5</b>	7
<b>Buildings:</b>		
Not later than one year	<b>7</b>	1
Later than one year and not later than five years	<b>26</b>	4
Total	<b>33</b>	5
<b>Equipment:</b>		
Not later than one year	-	5
Later than one year and not later than five years	-	-
Total	-	5

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

	<b>2014-15</b>	2013-14
	<b>£000</b>	£000
Not later than one year	<b>5</b>	5
Later than one year and not later than five years	<b>20</b>	20
Later than five years	<b>88</b>	93
Total	<b>113</b>	118

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 16. Other Financial Commitments

There were no other financial commitments at 31 March 2015 (2013-14: £nil).

## Note 17. Contingent Liabilities Disclosed Under IAS 37

An HMRC audit of Forest Research's treatment of VAT and Income Tax is underway. Provisions for HMRC liabilities have been raised during the year to address areas of non-compliance. These liabilities are included within Note 12 and were subsequently settled by 31 March 2015. The HMRC audit is continuing into 2015-16 and, in accordance with IAS 37, an unquantifiable contingent liability is disclosed to recognise the possibility of future non-compliance liabilities arising from the audit. There were no contingent liabilities as at 31 March 2014.

## Note 18. Losses and Special Payments

There were two losses arising during 2014–15 amounting to £51,000 as follows:

- A loss of £40,000 occurred due to a supplier entering into liquidation and the Agency being unable to recover the funds paid.
- A loss of £11,000 has been recorded in respect of expected costs relating to a road traffic accident involving an Agency vehicle.

There were no losses or special payments in 2013–14.

## Note 19. 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 with Defra, who are regarded as related parties. In addition, Forest Research has had operational transactions with other government departments and other central government bodies.

### 19a Purchases of goods and services

	<b>2014–15</b>	2013–14
	<b>£000</b>	£000
The University of Southampton	<b>2</b>	1

The above transactions, for course fees, student stipends and samples, 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 were no outstanding balances at 31 March 2015 (2013–14: £nil).

### 19b Transactions with C-Cure Solutions Ltd

	<b>2014–15</b>	2013–14
	<b>£000</b>	£000
C-Cure Solutions Ltd	<b>20</b>	11

The above relates to charges to C-Cure in respect of accommodation used at Alice Holt and water samples undertaken in the Forest Research laboratories. There was an outstanding balance of £58 at 31 March 2015 (2013–14: £2,186). This is disclosed as under the Agreement to form the company, James Pendlebury was appointed as the Forest Research Director of the company.

## Note 20. 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.

	<b>2013-14</b>	<b>Gross inflows</b>	<b>Gross outflows</b>	<b>2014-15</b>
	<b>£000</b>	£000	£000	<b>£000</b>
Monetary third-party assets – Government Banking Service balances	<b>184</b>	22	(23)	<b>183</b>
Monetary third-party assets – Commercial bank balances	<b>115</b>	314	(354)	<b>75</b>

## Note 21. 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 the reporting period are considered up to the date on which the accounts are authorised for issue. This is interpreted as the date of the Certificate and Report of the Comptroller and Auditor General.

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# Annex: Sustainability Report

## **This Annex does not form part of the auditors' opinion on the Accounts**

Forest Research remains committed to a programme of business sustainability. We will seek to increase efficiencies, where feasible, to achieve reductions in energy consumption, travel-related CO<sub>2</sub> emissions, waste, increase recycling, and follow best practice for water consumption. We continue our support of ISO 14001 and successfully received renewed certification in June 2013. This renewal was overseen by independent assessors and is valid, subject to ongoing compliance and assessment, for the next three years. Our Northern Research Station (near Edinburgh) was successfully assessed by external appraisers in November 2014 and our site at Alice Holt (near Farnham) will be assessed in June 2015.

In August 2014 we undertook an Energy Performance Assessment Rating for Alice Holt. In June 2009 the rating was 165; it is now 67 and the building has been re-classified to a category C (from G). This significant improvement is attributed to a replacement roof and associated insulation works, the installation of photovoltaic panels, replacement boilers and (part) replacement of windows with double glazing. A reduction in the use of heating fuels is a result of the implementation of energy efficiency measures and reduced energy use through the relatively mild winter. Alice Holt is a multi-occupancy site and we will investigate the feasibility of installing sub-meters as appropriate.

On a day-to-day basis, we continue to reduce our environmental impact wherever possible. This includes seeking to reduce business travel and using alternative mechanisms such as Skype, video conferencing and teleconferencing whenever possible. However, increased emissions through travel are caused by the needs of our business to meet customers and undertake work throughout the UK, in Europe and occasionally internationally. Waste has reduced by 4% from the previous year and targets have been exceeded on the amount of waste going to both landfill (5%) and recycling (95%). Water usage has increased due to better recording of water use and the amount of work undertaken in growth rooms and greenhouses. Business sustainability remains a standing agenda item at the regular meetings of the Site Management Committees, at which all staff are represented. Business sustainability is formally reported to the Forest Research Executive Board on an annual basis and if/as required by the business sustainability manager who is also a member of the Board.

The Reporting Requirements table gives information on travel, energy, waste and water. We present the following information in a format consistent with HM Treasury's sustainable reporting guidance 2014-15.



Performance measurement		2014-15 performance		2013-14 performance
Area		Actual (qty/cost)	Comment	Actual (qty/cost)
Greenhouse gas emissions (Scopes 1, 2 and 3 business travel including national and international air/rail travel) and energy used by built estate (tonnes CO <sub>2</sub> e)		379 £486,546	Target: 10% reduction on baseline (actual: 12% increase)	339 £451,644
Electricity, gas and other heating fuels (estate)	Consumption (kWh)	2,429,460	Target: 12% reduction on baseline (actual: 9% decrease)	2,659,800
	Expenditure	£178,078	In addition FR generated 25,062 kWh from the PV panels at Alice Holt	£188,830
Total energy <sup>1</sup>	Expenditure	£664,624		£640,474
Estate and office waste <sup>2</sup>	Amount (tonnes)	200	Target: <20% landfill (actual: 5%) Target: ≥80% recycling (actual: 95%)	204
	Expenditure	£21,140		£15,646
Estate and office water	Quantity used (m <sup>3</sup> )	12,763	Target: 8% reduction on baseline (actual: 32% increase)	9,681
	Expenditure	£17,739		£11,475
Biodiversity action planning	Forest Research does not have biodiversity action plans. However, we do undertake, contribute to, and publish expert research and evidence on aspects of biodiversity (such as managing woodlands for woodland birds and mammals) that form a significant part of the policies, practices and biodiversity action plans of many organisations and landowners across GB, Europe and occasionally, internationally.			
Sustainable procurement	Forest Research follows the procurement terms and procedures of the Forestry Commission as detailed in the respective Forestry Commission Operational Guidance Booklets.			

<sup>1</sup> Total energy is the fossil fuel consumption of the built estate (heating and lighting, etc.) and the CO<sub>2</sub> from travel.

<sup>2</sup> Waste includes sewage and Waste Electrical and Electronic Equipment (WEEE).



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