Forest Research

Annual Report and Accounts 2009–2010

The Research Agency of the Forestry Commission

HC 130

Forest Research
Annual Report and Accounts 2009–2010

Together with the Comptroller and Auditor General's Report on the Accounts

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of The Government Resources and Accounts Act 2000

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Contents

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Chief Executive's Introduction

This has been another busy year for Forest Research, with a number of notable firsts for the organisation. I would like to begin by congratulating Professor Peter Freer-Smith on becoming the first Chief Scientist for the Forestry Commission. This greatly strengthens our links with other government research bodies and provides a professional focus for our staff.

This year Forest Research (FR) also launched its first spin-out company, C-Cure Solutions Ltd, in partnership with the University of Surrey. C-Cure Solutions Ltd will offer new charcoal-based methods of land remediation, which are more effective than the methods currently used. I am very pleased to see that our Public Sector Research Exploitation funding, used to improve our commercialisation skills, is now helping us launch such businesses and develop other opportunities. This funding has also enabled our Business and Innovation Team to arrange a number of courses on commercialising technology in conjunction with HM Treasury and the Environment Agency, and these have been very well received by all of those who have participated to date.

We are, as ever, grateful for the ongoing support and cooperation of our partners and collaborators both in the UK and further afield. These include the Forestry Commission, central government, the devolved administrations in Wales, Scotland and Northern Ireland, the wider public sector, universities, research institutes, environmental non-governmental organisations (NGOs), the private sector and the Commission of the European Union.

I would particularly like to express our sincere thanks to the members of our Advisory Committee on Forestry Research for their sage advice and independent assessment of the quality and relevance of the science we undertake. I would also like to thank the members of FR's Audit and Risk Committee for their hard work and commitment in advising on financial-management risk control and governance and the members of our Intellectual Property (IP) Steering Group for their ongoing help in protecting and commercialising our knowledge.

Perhaps the most important scientific achievement of the year was the contribution our staff made to what is now widely referred to as the Read report, *Combating climate change – a role for UK forests: An assessment of the potential of the UK's trees and woodlands to mitigate and adapt to climate change*. The review was led by Professor Sir David Read from Sheffield University and it brought together experts from across the UK on the subject of climate change and forestry. Our staff played a key role in the preparation and delivery of the report, which was launched by the Minister for State, Hilary Benn last November. Forest Research also helped to supply background information for the UK

negotiators at the climate-change talks in Copenhagen, and one of our experts, Robert Matthews, accompanied the Department of Energy and Climate Change (DECC) negotiating team in Copenhagen.

The research undertaken by FR underpins the UK Forestry Standard and the guidelines that support it, and our work is pivotal in determining the standards that define sustainable forestry. Forestry is a long-term business and thus has the potential to make a significant and cost-effective contribution to adaptation to and mitigation of climate change. Forest Research has been actively undertaking research into the role of forestry in reducing impacts, and thus informing policy makers and growers on sensible risk-reduction strategies that will create resilient forests and woodlands for the future. Our research is directly supporting policy development and practical guidance across the UK, for example, on species choice and management including soil management. We also provided advice on stump harvesting to minimise soil damage and maximise soil-carbon stocks, and our research underpinned the Land Use and Climate Change Report that went to the Welsh Assembly Government.

While we are rightly placing much emphasis on future-proofing our forests and woodlands, the protection of what we already have is an increasing priority. Forest Research, in conjunction with private-sector growers, environmental NGOs, arboriculturalists, scientific colleagues in the devolved administrations and the Department for Environment Food and Rural Affairs (Defra), is working on a range of forest pests, from *Phytophthora* to red band needle blight, oak processionary moth and acute oak decline. This apparent increase in biosecurity problems may be linked in part to a changing climate, but is almost certainly a function of the international plant trade.

Our use of the latest genetic sequencing technology has unravelled the genome of the bacterium that causes horse chestnut bleeding canker, and Dr Sandra Denman and her team are at the forefront of research into acute oak decline, having identified those bacterial agents that have a key role. This is particularly exciting since one species, which has been obtained consistently from affected trees, is new to science. Forest Research also plays a key role in the new GB Biosecurity Programme Board and our tree-health experts are involved with supporting this group as they try to deal with the new and emerging threats to British Forestry such as pine tree lappet moth. I foresee that this is an area that will be of increasing concern for some time to come.

We are also working more closely with Defra and have a number of projects funded by them. This includes a project involving our hydrologists looking at a new approach to flood management by working with natural processes to slow the flow of water and thus reduce the risk of flooding in Pickering. Another example is our work on urban greening and our team has been awarded Defra funding to collate information on the benefits, costs and current status of green infrastructure. This will build upon a significant amount of foundation work that FR has already undertaken in this area.

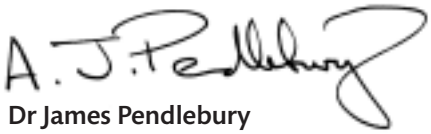
We already have strong links with the devolved administrations as research providers and through staff secondments. For example, I am very pleased that one of our staff, Stefania Pizzirani, is currently on a part-time secondment to the Scottish Government's Renewable Strategy and Onshore Renewables Team. Our presence in Wales has also been strengthened by our new Head of Forest Research in Wales, Dr Hugh Evans, who is actively working with a range of partners to realise our ambition for a research forest as part of a wider landscape-scale research capability.

One of the best indicators of a scientific institute's standing and quality is who wants to work with it. The fact that we have strong international links, and are particularly active in Europe, is a testament to the quality of our staff and their work. Forest Research is a member of the European Forest Institute (EFI) Atlantic Regional Centre and our staff are active within the International Union of Forest Research Organisations (IUFRO). We are involved with 12 large-scale European-funded projects and four bilateral international projects; a list of these and our other GB projects is included in this report. The lengthening list of external projects is not only a testament to our expertise; these contracts are also a vital source of additional income for the organisation. I am particularly pleased that, despite the difficult general financial situation, we increased our external income by over £400,000 compared to 2008–09 and significantly reduced our deficit. I would like to thank all FR's staff for the efforts they have made in this regard over the past year.

Communicating our research continues to be important to us and we serve a wide range of audiences. I would particularly like to congratulate Bruce Nicol and Alexis Achim (who used to work for FR), for winning the *Forestry Journal*'s annual Silviculture prize for the best article in the journal. A full list of publications and major events that FR has organised, or been part of, is included in this report, demonstrating our commitment to ensuring that our science is both of the highest quality and of practical use to the industry.

As an organisation we are also committed to the health and well-being of our staff and to investing in their skills. To this end we have invested a considerable amount of time and effort in management training over the past year for staff at all levels, and will continue to do so over the coming few years. In addition, as a means of reducing the risk of serious accidents, we recently conducted a review of staff certified to use chainsaws on a regular or occasional basis in order to reduce the number and to ensure that those who continue to use chainsaws have regular refresher/update training, work to industry best practice and maintain their levels of competence. It was very encouraging to see from an internal organisational survey that our staff recognise that FR takes health and safety seriously.

This report shows that FR staff have been extremely productive and successful over the past year across a wide array of scientific disciplines. We look forward to similar success in the year ahead.



Dr James Pendlebury
Chief Executive

FR Corporate Plan Key Performance Indicators – Progress Report

Key Performance Indicator (KPI)	Commentary
1. FR will restructure to operate as three new research centres entitled the Centre for Forestry and Climate Change, the Centre for Forest Resources and Management and the Centre for Human and Ecological Sciences. FR will establish and develop a profile for each centre as part of its overall science and business development plans.	The three new Centres became officially operational on 2 April 2009 and a series of country-specific targeted launches were undertaken, such as the one held at Defra on 14 January 2010, which was attended and well received by nearly 60 members of staff from Defra, DECC and the Department for Business, Innovation and Skills (BIS).
2. During 2009–10, FR will develop new science and business plans. The latter are to be endorsed by the Forestry Commission Executive Board (FCEB) by 31 March 2010.	A draft science strategy was produced by the end of March 2010 and is being finalised for publication in the autumn. Investment plans were produced for both Alice Holt and the Northern Research Station. Work on revising the Framework Agreement between the Department and Agency is ongoing and, as this will affect how the business may run in future, a new business plan for the Agency may be delayed into early 2010–11.
3. During 2009–10, FR will complete the work to establish internal finance and project management systems in support of its new organisational structure. By 30 September 2009, FR's QA system will be fully integrated with its project management and will be extended by a review of data-management procedures.	The electronic time recording system (TRS) was finally implemented during the year and has run successfully for a number of months. A new business-planning platform was developed in conjunction with the TRS and is being implemented for the 2010–11 financial year. The review of data-management procedures has been completed and a number of actions identified. FR's fairly comprehensive QA system is in place as required.
4. During 2009–10, FR will participate in the FC corporate programmes, in particular Business Sustainability, Investors in People, and Equality and Diversity.	With the exception of staff on maternity or long-term sick leave, all staff have undergone diversity training. FR has also been actively involved in business sustainability planning and is one of the first parts of the FC due to be submitted for ISO 14001 accreditation in 2010–11.
5. FR will continue to improve its business processes and infrastructure in line with the key recommendations from the Efficiency and Delivery Review and produce a comprehensive investment strategy for the organisation by 31 March 2010.	FR has produced investment plans for both sites and has invested a considerable amount in repairing the Alice Holt science-block roof. FR also secured support from DECC's Low Carbon Technology Programme to install 185 photovoltaic panels on the Alice Holt science-block roof, which will generate a minimum of 24,056 kWh of renewable electricity per annum.
6. FR will meet its annual business plan and deliver its agreed outputs to customers.	FR delivered its agreed outputs to customers, increased its external income by over £400,000 compared to 2008–09 and significantly reduced its deficit below the target level agreed in its corporate plan.

About 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) provides research, technical development, monitoring, surveying and advice to support this objective.

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 robust science to inform the development and delivery of policies of the UK Government and devolved administrations.
2. To provide innovative applied research, development and monitoring services to UK and European forestry stakeholders.
3. To transfer research knowledge directly, or in partnership with others, to UK and international audiences.
4. To deliver research under the seven themes of the Forestry Commission's Science and Innovation Strategy for British Forestry 2010–13.

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 forestry policies of the UK government and the devolved administrations of Scotland, Wales and Northern Ireland. In addition, FC England, Scotland and 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 Union, UK research councils, commercial organisations, private individuals and charities. Collaborative bids with other research providers and consortium funding have become increasingly important, placing emphasis on effective partnership working.

Activities

Research and development are essential components in delivery of the benefits of sustainable forestry in a multifunctional landscape. FR's research, surveys and related 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, 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. The protection of woodlands from pests and diseases, and predicting the impacts of environmental change are also overarching themes. FR works closely with the FC, the Commission of the European Communities and other international bodies to ensure compliance with international agreements on the sustainable management of forests and the consideration of social and economic issues. The Agency also carries out work on genetic conservation, tree improvement, seed testing, method studies, product evaluation, crop inventory, surveys and monitoring.

Resources

FR currently employs 250 (full-time equivalent) staff at Alice Holt Lodge in Hampshire, the Northern Research Station near Edinburgh, the FC Wales National Office in Aberystwyth and at field stations across England, Scotland and Wales. Contact information is given on the back cover. FR has published a Corporate Plan for the period 2010–11 and copies are available to download from **www.forestry.gov.uk/fr/corporateplans**

Advisory Committee on Forestry Research

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Natural England
Peterborough

PROFESSOR C. A. GILLIGAN
Professor of Mathematical Biology and Fellow King's College
Department of Plant Sciences
University of Cambridge

The Advisory Committee provides guidance for the Agency and the Forestry Commission on the quality and direction of FR's research. The Committee also supports FR staff, by alerting us to new opportunities and by networking to raise FR's profile. Meetings allow Committee members to keep up-to-date with FR's work; focus is usually on those research programmes to which Visiting Groups have been appointed in the year.

The Advisory Committee met in June 2009 at Alice Holt Lodge to provide advice on FR's new organisational structure and on the ongoing review of the Forestry Commission's Science and Innovation Strategy. This Strategy has subsequently been completed, agreed by Forestry Ministers and published. The Committee considered the feedback from its foresighting event held in November 2008 and discussed the key strategic issues facing FR. In addition to Committee business, Professor Read, Professor Jarvis and Dr Kirby made substantial inputs to the first national UK assessment of forestry and climate change which was published by The Stationery Office in November 2009 (entitled *Combating Climate Change, A role for UK Forests*, available from www.tsoshop.co.uk). Professor Read chaired the climate change review and continues to chair the Advisory Committee. This was the last year of the current Committee membership and departing Committee members have been closely involved in FR's development over the past five years or more. The FC and FR are very grateful to Committee members for their time and wide range of contributions. During 2010–11 a new Committee will be established with similar terms of reference.

Centre for Forestry and Climate Change

We investigate and provide guidance on the complex interaction between climate change and forests, particularly the growing effects of climate change on pest and pathogen behaviour. Our work provides scientific evidence to inform policies on the role of woods and forests in mitigating the effects of increased greenhouse gases. We offer information for those working with trees and woodlands to adapt their management practices sustainably. Our research also helps in the development of green infrastructure in towns and cities. Here are four examples of current projects.

Changing behaviour of *Phytophthora ramorum*

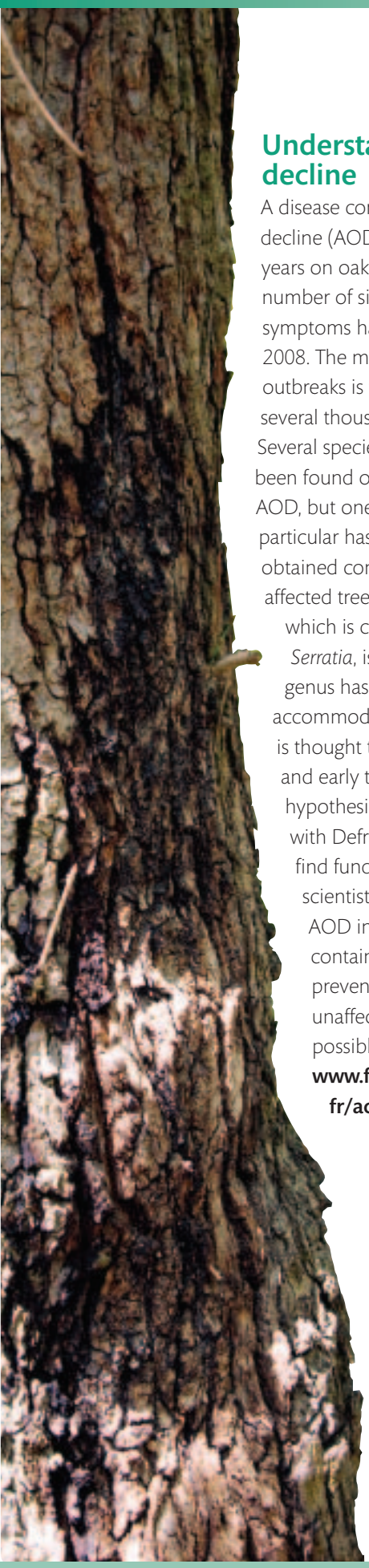
Before 2009, the recently introduced 'sudden oak death' pathogen, *Phytophthora ramorum*, had infected fewer than a hundred trees in Britain, most of which were beech *(Fagus)*, southern beech *(Nothofagus)* and non-native oak *(Quercus)*. However, in August 2009, we found that stands of mature Japanese larch *(Larix kaempferi)* in south-west England that had developed extensive dieback were infected with *P. ramorum* (see photo above). The affected trees were ~30–100 km east of previous tree-infected sites and symptoms included extensive resin bleeding on trunks and branches, causing dieback and death.

Significantly, we found that infected larch needles can generate huge numbers of spores, fuelling the rapid and widespread infection of larch and also threatening other tree species. To reduce this risk, ten thousand symptomatic larch were felled during the winter and surveys are underway to detect other affected locations. This is the first time *P. ramorum* has had a serious impact on a conifer host and emphasises that much remains to be learned about the threat it poses to trees. For more information visit **www.forestry.gov.uk/pramorumswengland**

Slowing flood flows at Pickering

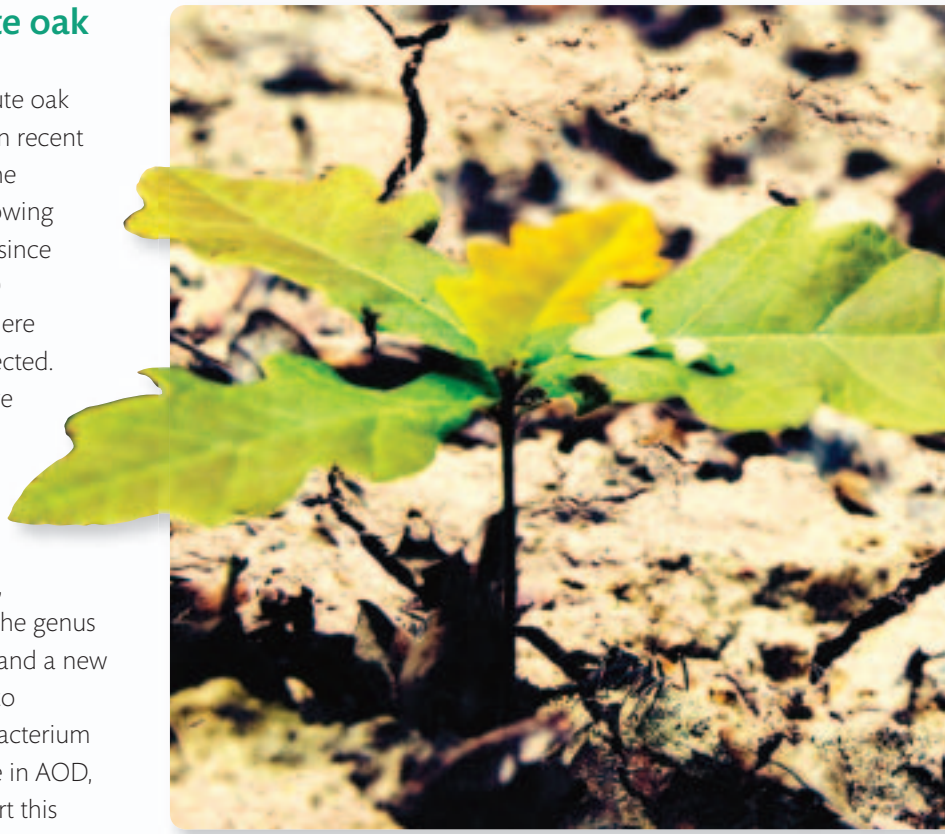
A new project at Pickering in North Yorkshire is looking at how changes in land use and land management could help to reduce the risk of flooding in the town. Pickering has a long history of flooding and, in common with many other affected communities across the country, is at risk of more frequent flooding in the future due to climate change. This two-year demonstration project is funded by the Department for Environment, Food and Rural Affairs (Defra) and led by Forest Research, in partnership with the Environment Agency, the Forestry Commission, Durham University, North York Moors National Park Authority, Natural England and other local partners.

The project involves, among other measures, planting more trees, especially along streamsides and in the floodplain, and restoring dams formed by large pieces of woody debris, to help slow down and reduce flood flows. For further details about the project, see **www.forestry.gov.uk/fr/slowingtheflow**



Understanding acute oak decline

A disease condition called acute oak decline (AOD) has appeared in recent years on oaks in Britain and the number of sites with trees showing symptoms has grown rapidly since 2008. The main focus of AOD outbreaks is the Midlands, where several thousand trees are affected. Several species of bacteria have been found on trees with AOD, but one species in particular has been obtained consistently from affected trees. This bacterium, which is closely related to the genus *Serratia*, is new to science and a new genus has been proposed to accommodate it. The new bacterium is thought to have a key role in AOD, and early trial results support this hypothesis. Forest Research is working with Defra and other stakeholders to find funding mechanisms to enable scientists to determine the extent of AOD in Britain, develop methods to contain the current outbreak, prevent further spread, and protect unaffected areas as quickly as possible. For more information, visit **www.forestry.gov.uk/fr/acuteoakdecline**



Adapting forestry and woodlands to climate change

Climate change is arguably a greater concern in forestry than other land uses, because of the much longer timescales involved in tree growth and planning forests and woodlands. Measures to adapt forestry to climate change therefore need to be introduced early, anticipating the future and involving specific adaptations rather than being reactive. Adaptation must also allow for future unknowns and uncertainties.

Forest Research has started to analyse the latest climate projections for the UK (UKCP09), which include probability ratings to indicate their levels of certainty. This will enable us to assess the risk of key climate-related events such as droughts, waterlogging, early or late frosts and windthrow, and how these vary geographically and are likely to change in future decades. We are producing publications and holding seminars on adaptation to inform the forestry sector and support the recommendations in the new UK Forestry Standard Climate Change Guidelines. For more information, visit **www.forestry.gov.uk/fr/ccadaptation**

Centre for Forest Resources and Management

We work to make British forests cost-effective, safe, sustainable and beneficial to society overall. Our objective is to understand and advise on scientific and technical aspects of measuring and managing British forests – from creation to maturity and regeneration. This year, our research has focused increasingly on questions of climate change. How can we adapt forest management to minimise risks from climate change? How can forests best contribute to the uptake of carbon dioxide? Here, we outline four current projects.

Growing trees for energy

Short rotation forestry, using fast-growing tree species, may contribute to climate change mitigation by providing biomass to replace fossil fuels. Provided woodland is managed sustainably, woodfuel is a renewable energy source, unlike fossil fuels, and on burning releases much less carbon dioxide than coal, oil or gas. With funding from the Department of Energy and Climate Change and Forestry Commission Scotland, Forest Research has selected 13 sites in Britain to create a network of trials where 11 promising species will be planted. Using the same species (and origins) on all sites allows a direct comparison across sites and species. We have also collected data from suitable existing woodlands planted without research in mind. The third main activity on this project this year has been reviewing and collating information about the impacts and performance of these promising tree species. We have reviewed both published literature and our own past experiments investigating growth for timber rather than biomass. These complementary sources of information will form an evidence base for policy and operational decisions on short rotation forestry. For more details on woodfuel and bio-energy visit **www.forestry.gov.uk/woodfuelscotland**

Silvicultural systems to mitigate climate change

Continuous Cover Forestry (CCF) promotes the mixing of trees of different ages and species. It is often cited as a possible solution to the threats posed by climate change to forestry, but few studies have examined this and there is little evidence available. Forest Research has carried out an in-depth review of the scientific literature to answer the question, 'What evidence exists to support the use of CCF to help Scotland's forests adapt to the risks of climate change?'

We rated the potential impact of a range of hazards to Scottish forests and made an evidence-based judgement about whether CCF could help. We also rated the evidence base on which the judgement was made. Through this analysis, we concluded that CCF has *potential* to help Scotland's forests adapt to *some* of the risks of climate change. However, the benefits are highly site-specific. The full report can be downloaded from **www.forestry.gov.uk/fr/ccf**

Carbon FAQs

Demand continues to grow for estimates of carbon within existing and potential forested areas. This interest has increased since the publication of the Read report, *Combating climate change – a role for UK forests*, in November 2009, which advocates an increase in forests. This year for example, Forest Research drew on its extensive information to answer two frequently asked questions: 'How much carbon is stored in wood in the form of timber?' and 'If we reduce our carbon dioxide footprint, how much wood does that represent?'

The answers depend on the tree species, but, taking Sitka spruce as an example, one cubic metre of timber equates to the emissions from running a typical petrol car for a year (11,000 miles). A 5-cm cube contains carbon equivalent to that emitted in generating national-grid electricity to boil a kettle of water, watch a 32" LCD TV for just under an hour, or fuel a moped for 1 mile. For more details, visit **www.forestry.gov.uk/carboninwood**

Developing clonal technologies

Cloning can improve the propagation and growth rates of desirable tree species. Working with conifers, Forest Research has been developing tissue-culture systems to increase stocks of scarce, high-quality tree material. We have cultured (grown) embryogenic tissue from a seed, and then used this culture to produce many more genetic copies or 'somatic embryos'. We are applying this technology to material selected by our breeding programme for Sitka spruce, to create many new tested, improved clones for mass planting.

During the past year, the production of somatic embryos has gone well and plantlets grown from somatic embryos should be ready for field trials by autumn 2011. Our future work on this project will focus on improving the success of transferring plantlets from sterile conditions to growing in soil, and on storing embryogenic tissue by freezing it in liquid nitrogen to prevent deterioration while field testing takes place. Information on these technologies and their development worldwide is summarised in reports from our international meeting on clonal forestry – see **www.forestry.gov.uk/clonalforestryworkshop**

Centre for Human and Ecological Sciences

We aim to research and develop the role of trees, woodlands and forests in society and within integrated sustainable landscapes. Our researchers achieve this by applying a broad range of skills from a proverbial A-to-Z of disciplines – from anthropology to zoology. Our inter-disciplinary capability provides a strong base for collaborations within Forest Research and with a broad cross-section of other research organisations and those working on land use. Here is a snapshot of four current projects.

Public attitudes to forests

What do people value about forests? In 2009, Forest Research investigated public perceptions and expectations of the 258,000-hectare English Public Forest Estate (PFE), on behalf of Forestry Commission England (FCE). The research consisted of a review of existing data, a national survey of 1775 adults, and ten group discussions.

We found that people value public forests and woods most highly for access, recreation, facilities and wildlife, while rating benefits of timber, soil, and water less highly. Many people expressed a profound sense of connection with trees and woodlands, and valued a wide range of forest types. There was widespread concern about perceived forest loss, and many people wanted to see the creation of new woodlands. Few people considered that private ownership would improve woodland management; most wished to maintain and increase woodlands in public ownership. For more information, visit **www.forestry.gov.uk/fr/pfesocialstudy**

Green networks and people

There is increasing policy interest in both greater integration of land uses and developing green infrastructure. Forest Research has pioneered the use of spatial analysis techniques for biodiversity conservation. In particular, our landscape ecologists are expert in using habitat networks as a focus for restoring and expanding habitats. By combining landscape ecology with social science this year, we have extended our approach to aid the planning and management of multi-functional green networks in urban and peri-urban situations.

Green networks can support not just biodiversity conservation but also increased participation in outdoor recreation for a range of social groups, the creation of health-promoting environments, and sustainable patterns

Courtesy Patricia and Angus MacDonald/Aerographica

of travel. This year, we have contributed to initiatives in these areas by applying our research to the practical planning of habitats and greenspace, through mapping, awareness-raising seminars, guidance materials and a customised spatial modelling approach to suit both master-planning and local development plans. For more details, go to **www.forestry.gov.uk/fr/greennetworks**

Management of wild boar

Wild boar populations have become established in British woodlands in the past decade, generating several management challenges. Meeting these requires better understanding of the boar populations, including how to monitor changes in range and numbers and how to assess impacts on woodland biodiversity. Forest Research ecologists are working on this in collaboration with The Food and Environment Research Agency (Fera), funded by the Department for Environment, Food and Rural Affairs (Defra) and the Forestry Commission.

We have collated information on the presence of wild boar through a network of forest managers and also developed the use of thermal imaging to estimate boar numbers. To improve population estimates, we have combined thermal-imaging results with GPS data on boar movements to test whether the boar are avoiding forest rides and roads. We have piloted methods of assessing impacts of boar behaviour, such as rooting, on ground layer vegetation, plant biodiversity, invertebrates and small mammal numbers. More information is available at **www.forestry.gov.uk/fr/mammaldamage**

Using scenarios in rural land-use planning

While people generally benefit from countryside activities, there are some associated risks, such as diseases transmitted from wild animals (e.g. Lyme Disease). As part of a Rural Economy and Land Use (RELU) programme, we are investigating how to assess and communicate these risks. We talked to land-based organisations to identify the types of outdoor activities that might occur on their land both now and in the future.

We developed four scenarios reflecting extensification or intensification of land use, and whether future recreation is likely to be dispersed or concentrated. We used the scenarios to consider possible changes in visitor use and management, vegetation and wildlife, in three different landscape settings ranging from peri-urban to remote rural locations. We will now use this information to examine the effect of media information, and the potential impact of a new disease. For more information, see **www.forestry.gov.uk/fr/animaldiseaserisks**

Innovation and new markets – unlocking the value of our intellectual property

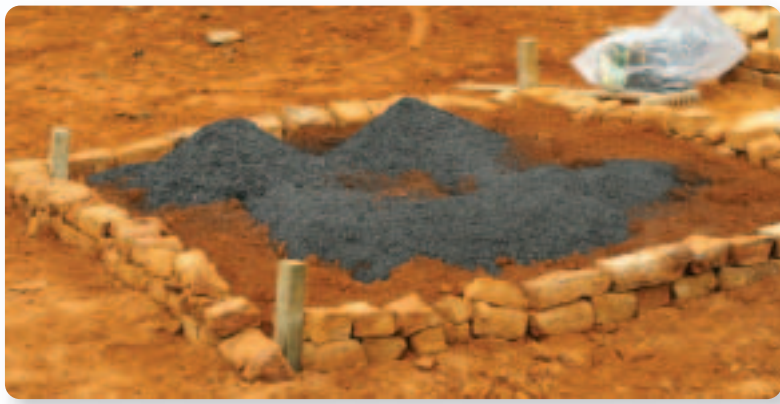
Commercial viability and relevance to the forestry sector are key strategic principles for Forest Research. The Innovation and New Markets (INM) initiative, working throughout the Forestry Commission, aims to identify new ideas and innovations that have commercial potential and turn them into viable business activities. The project is led by Forest Research and funded by two successive rounds of Public Sector Research Exploitation funds from the Department of Business Innovations and Skills (DBIS)[1].

So far, the INM initiative has provided direct assistance and financial support to help commercialise a variety of new projects within the Forestry Commission. Forest Research's specialist team of innovation experts is leading the initiative, helping to identify existing projects that have commercial potential. The team has also been very successful in identifying best-fit partners to share the risks and rewards of a venture. A variety of business models has been used to develop these relationships.

To date the INM project has awarded proof of concept funds to 10 projects, spending a total of £334,000 on commercialisation activities during 2009–10. Three examples of recent projects supported by the Innovation and New Markets initiative are as follows.

C-Cure Solutions Limited

C-Cure Solutions Limited is a spin-out company, formed in collaboration with the University of Surrey, which provides land remediation services using specialist charcoal products. The charcoals, developed by scientists at both the University and Forest Research, have proven to be efficient and effective cleaning agents that can remove heavy metals and organic pollutants.



In the case of heavy metals, the specially designed charcoals work by binding the metals up within the soil so that they are prevented from leaching into ground waters and are no longer available for plant uptake. In this way the metals are stabilised rather than removed, but the effect is that the soil is detoxified. Unlike conventional 'stabilisation' treatments using lime or cement, this technology has the benefit of longer-lasting stability achieved without destroying the soil's ability to support plant growth. The addition of stable carbon to soil, in the form of charcoal, also means that the technique has a very low carbon footprint.

[1] Formerly the Department for Innovation, Universities and Skills.

Using acoustic techniques to determine timber quality

Acoustic tools provide a non-destructive method of predicting the physical and mechanical properties of timber and wood-based materials. They work by measuring the propagation of stress waves through wood, which gives an accurate determination of timber strength. The ongoing development of a joint venture with a commercial partner in New Zealand is giving FR access to crucial intellectual property and know-how to enable the integration of such a system into harvester heads, allowing real-time measurements to be taken at time of felling. This will allow timber to be segregated in the forest based on its mechanical properties.

As a result of securing some proof of concept funding from the Genomia Fund, a prototype system that grades log quality in relation to prospective end use is currently being evaluated in a commercial harvesting operation in the West of Scotland.

Sustainable timber bridge design

The Forestry Commission, through many years of ensuring good access into the estate for forest operations, has developed a new construction method for timber bridges. The innovative technique makes use of lamination technology and, since it uses shorter lengths of timber, the option is more sustainable and less expensive than conventional bridge solutions. The techniques can be used to create bridges for almost any situation. Forest Research's innovation team has supported the Forestry Commission's civil engineers to develop a business plan and undertake a market assessment in preparation for the commercial development of this novel technology.

Overall, the progress to date has been very good and several new project proposals are currently under consideration for 2010. With input from HM Treasury and in conjunction with the Environment Agency, we have established a training and awareness programme to develop the skills needed by colleagues throughout Forest Research and the Environment Agency to prepare business cases for potential projects. During the year, three commercialisation workshops were held and several more are planned for 2010–11. With commercialisation firmly on the Forestry Commission's agenda, the INM project is set to continue its success in supporting the development of innovative new technologies and services.

Publications and events

Forest Research publishes a wide range of material, from corporate reports and plans, to brochures, project summaries and technical reports. In addition, our researchers publish peer-reviewed articles in scientific journals and produce books through external publishing houses.

Forestry Commission technical publications

The following titles were published during the year ending 31 March 2010.

Published by Forest Research

To obtain copies of FR publications, email: library@forestry.gsi.gov.uk or visit **www.forestry.gov.uk/fr/publications**

Corporate publications

Forest Research annual report and accounts 2008–2009 (£19.15)

Forest Research corporate plan 2010–2011 (online publication, free)

Forest Research – Much more than trees, corporate brochure (printed and online, free)

Trees and forests in British society – Ten years of social science. An eight-page booklet with highlights from the past ten years of social science research at FR, published March 2010 (printed and online, free)

Newsletters, booklets and leaflets

FR News. Forest Research's quarterly newsletter, giving details of recent projects and developments (online publication, free)
www.forestry.gov.uk/fr/frnews

Ecotype. Biodiversity and conservation newsletter (online publication, free)
www.forestry.gov.uk/fr/ecotype

Growing places. Social and Economic Research Group newsletter (printed and online publication, free)
www.forestry.gov.uk/fr/growingplaces

Path News. Pathology bulletin (online publication, free)
www.forestry.gov.uk/fr/pathnews

Social research project summaries produced by FR's Social and Economic Research Group (online publications, free):

Active England evaluation

Growing Places: a study of social change in The National Forest

A decision framework for public involvement in forest design planning

Offenders and Nature schemes: using conservation and forest management in rehabilitation

A valuation of the economic and social contribution of forestry for people in Scotland

Carbon valuation, discounting and risk management

Sustainability impact assessment: tools for environmental, social and economic effects of multifunctional land use in European regions (SENSOR)

The 'Faith Woodland' project in Maulden Woods: an evaluation

Assessing and communicating animal disease risks for countryside users

Collaborative frameworks in land management: a case study of wild deer management in Britain

The management of roe deer in peri-urban Scotland

A review of TreeGeneration: the urban forestry project for north-east Wales

RECOAL: Reintegration of coal ash disposal sites and mitigation of pollution in the West Balkan area

Wood you believe it? Children's and young people's perceptions of climate change

Public benefits from private forests and woodland in England: classifying private woodland owners

Carbon additionality

Social research and the Forestry Commission: perceptions and applications

Published by the Forestry Commission

The publications listed below have been written by Forest Research staff for the Forestry Commission. For more details or to order an FC publication, visit the Forestry Commission online publications catalogue at **www.forestry.gov.uk/publications**

Research Notes (free)

Green, S. and Ray, D. (2009)
FCRN004. *Potential impacts of drought and disease on forestry in Scotland.* 8pp.

Macdonald, E., Moore, J., Connolly, T. and Gardiner, B.A. (2009)
FCRN005. *Developing methods for assessing Scots pine timber quality.* 8pp.

Research Reports

Edwards, D., Elliott, A., Hislop, M., Martin, S., Morris, J., O'Brien, L., Peace, A., Sarajevs, V., Serrand, M. and Valatin, G. (2009)
FCRR101. *A valuation of the economic and social contribution of forestry for people in Scotland.* 206pp. £19.50.

Technical Note (free)

Mochan, S., Moore, J. and Connolly, T. (2009)
FCTN018. *Using acoustic tools in forestry and the wood supply chain.* 6pp.

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Challenging the old conventions. Becoming more proactive and customer focused – those are just two changes facing Forest Research under new Chief Executive Dr James Pendlebury as the industry gets to grips with major issues such as climate change. (Interview). *Chartered Forester*, Winter 2008, 16–17.

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Under cover for climate change. Victoria Stokes and Gary Kerr summarise the Forest Research report commissioned by Forestry Commission Scotland to answer the question 'What evidence exists to support the use of Continuous Cover Forestry as part of the strategy to adapt Scotland's forests to the risks of climate change?' *Chartered Forester*, Spring 2010, 14–15.

Webber, J.F. (2009)
Seek and destroy. Eradication or containment are the principal methods employed to deal with *Phytophthora* pathogens that affect trees in Great Britain. Dr Joan Webber, principal pathologist with the Forestry Commission's Forest Research arm, presents an overview and update on the status of the pathogens' advance and management. *Horticulturist* **18** (4), 5–7.

White, G., Mayle, B.A. (2010)
Squirrel control. SWA member Geoffrey White asks what measures are being taken to combat grey squirrels. FC's reply: Brenda Mayle, who heads the Vertebrate Management Group at Forest Research responds to the comments. *Smallwoods*, Spring 2010, 16–17.

Williams, H.V. (2008)
The heat is on for future timber. Assessing timber quality in an age of climate change is the plan of a new research programme, says Dr Hugh Williams, Forest Research. *Chartered Forester*, Winter 2008, 11.

Williams, H.V. (2008)
Spreading their wings. Forest Research is investing more than a quarter of its total research budget (circa £10.3 million in the financial year 2008/09) directly on climate change programmes. Dr Hugh Williams, Forest Research explains. *Chartered Forester*, Winter 2008, 12–13.

Events

During the year staff from across Forest Research took part in a number of national and international conferences, seminars and meetings, sharing their knowledge, disseminating best practice and furthering collaboration with other organisations and people. A selection of key events from the year is highlighted below. Further details, and a full list, can be found on the Forest Research website: www.forestry.gov.uk/fr/events

Forest Research directly organised fourteen events to support the forest industry. Topics included disease and pest management, with a series of training days on *Hylobius* management and three more-general forest health days. Broader research updates were provided at the Northern Research Station, near Edinburgh, and at Aviemore. More-specific events were organised on continuous cover forestry in Sitka spruce, growing broadleaves for quality hardwood timber and on the resource availability and market potential of Scots pine in north Scotland. In addition to these daylong events, Forest Research also ran a winter seminar series at the Northern Research Station presented by our own scientists and visiting speakers, and covering topics such as short-rotation forestry, the Glasgow and Clyde Valley partnership, remote sensing and Scottish Government policy on renewables. It is worth noting that all our technical events and seminars are recognised as counting towards Continuous Professional Development (CPD) by the Institute of Chartered Foresters.

Forest Research also organised two large conferences. A three-day workshop under the auspices of the EU-funded TreeBreedEx project discussed the state of play of clonal forestry currently being practised around the world and investigated the possibilities for Europe. Forest Research also co-sponsored the three-day 'Ecological networks: science and practice' conference with the International Association for Landscape Ecology.

This year we held events for the general public at the new Royal Botanic Garden Edinburgh's Real Life Science Lab, as part of the Edinburgh International Science Festival. These events, attended by over 1,500 members of the public, aimed to deliver science messages based around the International Year of Biodiversity.

Many events involve collaboration or partnerships with other organisations, for example Natural England and the Scottish Environment Protection Agency (SEPA). In particular, Forest Research has strong links with the Institute of Chartered Foresters and was heavily involved with their 2009 National Study Tour examining silviculture in a changing climate. FR also supported the Royal Forestry Society field visits to south-east and south-west Wales and a more focused field visit and outdoor presentation on Chronic Oak Decline in the Forest of Dean.

Research programmes and contracts

Forest Research carries out a wide range of research programmes, encompassing topics from across the spectrum of forestry and related environmental subjects. Our work aims to support and enhance forestry and its role in sustainable development. This year's programmes are listed as follows.

Major research programmes undertaken by Forest Research

Project leaders' names are given for each programme.

Programmes funded by the Forestry Commission

Bio-energy development
Ian Tubby
Provide best practice guidance to woodland owners and industry. Provide advice and relevant information to policy-makers, developers, local authorities and the public on all aspects of biomass fuels and associated conversion technologies via the Biomass Energy Centre (www.biomassenergycentre.org.uk). Investigate systems and methods for harvesting, extracting, handling and processing woodfuel to improve financial and environmental sustainability.

Changing physical environment
Tom Nisbet
Support the development and implementation of sustainable forest management with respect to the protection of soil and water. In particular, address the effects of forestry on soil carbon, the impact of climate change on soil functions, the effects of forestry on water quality and quantity, the role of forests in sustainable flood management, and the use of woodland to control diffuse pollution.

Climate change adaptation
James Morison
A multi-disciplinary programme to assess the adaptation requirements and possibilities for forests in the UK. Using scenarios of climate change, forest management and land use and institutional structures/decision making processes, the assessment is considering the multiple functions of forests. It is developing the necessary integrated tools to assess adaptation strategies and to feed into future national adaptation programmes.

Emerging pests and pathogens
Anna Brown
Monitor the distribution, rate of spread, severity and impact of three recently introduced and expanding pathogens, *Dothistroma septosporum* (red band needle blight), *Phytophthora ramorum* (sudden oak death) and *Phytophthora kernoviae*. Investigate their biology and epidemiology, determine the suitability of different management strategies and provide rapid dissemination of the results to advise government, landowners and managers and other stakeholders.

Forest resource modelling and forecasting
Robert Matthews
Improve methods, models and systems for forecasting growth and yield of forests. Develop and promote systems and instruments for the efficient and accurate measurement of trees and timber to support industry. Develop and maintain the national network of growth and yield plots to support measurement, growth and yield studies. Calibrate the MOSES model to address the complex stands that are being created in Britain by Continuous Cover Forestry systems.

Forestry and carbon (GHG) management
James Morison
Examine and quantify the consequences of different forest management practices and operations, including the contribution of forest products and bioenergy in the forestry sector GHG balance. Also covers national and international reporting of carbon stocks and GHG balances and sets standards for forest carbon assessment methods. Develop tools and knowledge resources, underpinned by fundamental field-based research.

Genetic improvement
Steve Lee
Assess genetically determined traits in conifers (principally Sitka spruce, Scots pine, and larch) and broadleaved species (initially oak and ash). Select and breed from individuals with desirable properties. Supply seed from improved families to the nursery sector. Develop advanced breeding technologies, including tissue culture and cryopreservation. Advance techniques for marker-aided selection.

Habitat management
Ralph Harmer
Investigate the development of native woodlands and their constituent communities in relation to their age, composition, location and management and on the restoration of priority open habitats. Effort will be focused upon habitat development in newly created woodlands, responses of existing woodland habitats to management, and restoration of plantations on ancient woodland sites (PAWS).

Integrated forest monitoring (including research forests)
Andy Moffat
Bring together important monitoring platforms in FR to deliver a more integrated data service for scientists and policy makers. Determine the role of climate change and air pollution in forest condition and growth through long-term intensive environmental monitoring in forest ecosystems. Provide data under the Convention on Transboundary Air Pollution for the calculation and mapping of critical loads.

Knowledge management for biodiversity and ecosystem services
Duncan Ray
Develop spatial planning tools to consider key elements of landscape ecology and cultural heritage. Use landscape genetics to validate ecological principles. Assess the impact of new methods of forest management upon biodiversity, and develop methods of summarising and incorporating complex and diverse knowledge in decision-supporting tools.

Pests and pathogens under environmental change
Nigel Straw
Investigate the implications of alternative silvicultural systems in relation to insect abundance and diversity, especially for key pest species. Use model systems to predict the impact of changing climate including the influence of voltinism in *Hylobius abietis*, the interaction between drought stress and fungal disease of trees, and the changing susceptibility of oak to broadleaved pests and pathogens influenced by climate.

Physical properties of stands, trees and timber
Barry Gardiner
Investigate the impact of silvicultural practices on timber quality in conifers, especially spruce, with current focus on site factors (e.g. exposure, fertility) at both individual and stand level. Evaluate and promote the potential of remote sensing technologies for operational use in the management of British forests. Research to reduce wind damage to British forests using a GIS-based model for predicting the probability of windthrow in Sitka spruce forests.

Social and economic research
Anna Lawrence
Examine how trees, woods and forests contribute to well-being, how diversity and equality can be incorporated in accessibility and access, how woodlands can contribute to community development, how governance is embodied in the decision-making processes of sustainable forest management, and how economic tools can be developed to value the benefits of woodlands, including carbon sequestration.

Species and gene conservation
Joan Cottrell
Develop an understanding of genetic variation and gene flow in native tree species, and assess the level of adaptive variation in field trials. Use molecular methods to investigate the ecology of a range of priority and problem species. Provide knowledge to support the protection and encouragement of woodland species identified as priorities within the UK Biodiversity Action Plan.

Stand management and harvesting
Gary Kerr
Understand how to manipulate woodlands to transform even-aged stands to continuous cover forests (CCF). Improve the predictability of natural regeneration during transformation and CCF. Produce practical recommendations for respacing dense regeneration. Produce a wind risk model that can be applied to any stand structure. Evaluate the role of CCF in mitigating the effects of climate change. Provide information and advice for forest managers and policy makers.

Tree health regulatory support
Joan Webber
Co-ordination and implementation of surveys in relation to retention of EU Protected Zone status for named bark beetle pests. The use of Pest Risk Analysis techniques to determine risks from named non-indigenous pests and pathogens. Provide an advisory service to determine the causes of ill health in trees, their management and control. Disseminate the information to all interested parties through outreach activities.

Urban greenspace
Tony Hutchings
Demonstrate the value of urban greenspace to society and how green infrastructure can mitigate against the impacts of climate change. Lead the development of an Urban Regeneration and Greenspace Partnership to co-ordinate development and implementation of a common research strategy and provide a dissemination portal for green infrastructure. Improve establishment methods and management practices for urban woodland on disturbed (brownfield) sites.

Vertebrate management
Brenda Mayle
Scope the potential for impact of alien and invasive vertebrates. Develop techniques and materials for cost-effective protection of trees and woodland biodiversity from mammal damage, particularly by grey squirrels. Provide a sustainable basis for deer management in UK woodlands by investigating models of impacts and damage, population dynamics of deer, deer density assessment and grazing management.

Regeneration and sustainable silviculture
Ian Willoughby
Improve the success of woodland regeneration from seeds. Understand the underlying processes of regeneration most likely to be affected by predicted changes in climate. Identify methods of reducing herbicide inputs. Advise on pesticide use and minimisation. Support the delivery of sustainable regeneration systems. Provide expert support for re-registration of fungicides. Investigate alternative biological control agents for *Heterobasidion annosum*, the cause of conifer root and butt rot disease.

Technical development of woodland operations
Michael Wall
Promote sustainable forest management by developing, evaluating and promoting safe and efficient equipment and methods of work; topics include establishment, maintenance, integrated forest management, ecosystem management, harvesting and transport. Maintain output information. Provide advice on forest operations to both managers and other research staff. Respond to emerging forest operations issues by analysing situations and providing options to address them.

External income

Programmes part-funded by the European Commission

COMFOR
Ian Murgatroyd
Tools and methods to help solve the common problems of occupational health and performance in European forest operations, tested by small and medium enterprises (SMEs). FP6 project involving 21 partner organisations in 10 countries.
www.enfe.net/comfor.htm

Developing the Scots Pine resource
Elspeth Macdonald
Timber quality assessment and forecasting to support the development and utilisation of Scots pine timber for sustainable rural enterprises. Interreg Northern Periphery Programme project with six partners across northern Europe.
www.pineinfo.eu

EFI Storms Project
Barry Gardiner
A project funded by DG Environment to investigate storm damage to forests as part of EU initiative on forest protection. Eight European partners.
http://w3.pierroton.inra.fr/IEFC/bdd/storm/storm_liste.php

EFORWOOD
Bill Mason
Sustainability impact analysis of the European forestry wood chain under different scenarios and developing decision support tools to help evaluate changes in practice and market fluctuations. FP6 project involving 38 partner organisations in 21 countries.
www.eforwood.com

FORESTCLIM
Tom Nisbet
Transnational forestry management strategies in response to regional climate change impacts. INTERREG IVB North West Europe project involving five countries and 21 partners.
www.forestclim.eu

FUTMON
Andy Moffat
Further development and implementation of an EU-level Forest Monitoring System. LIFE+ project to ensure pan-European monitoring systems meet EU policy needs. Participants from 24 EU Member States.
www.futmon.org

MOTIVE (MOdels for AdapTIVE Forest Management)
Bruce Nicoll
This project will provide methods and tools to assist forest policy development and adaptive management in a changing climate. FP7 project with 20 European partners.
http://motive-project.net/index.php

MultiFor
Nadia Barsoum
Developing a joint cross-border strategy to understand the climate change responses, multifunctional value and adaptation capacity of forest ecosystems commonly found in south England and north-east France. Interreg IVA 'Two seas' programme project with nine partners.
www.forestry.gov.uk/fr/multifor

Northern ToSIA
Barry Gardiner
Analysing the sustainability impact of forest management practices in selected forests in northern Europe with a focus on Scots pine. Interreg Northern Periphery Programme project with five partners across northern Europe.
www.northerntosia.org/portal

NOVELTREE
Steve Lee
Using cutting-edge techniques to find DNA-markers linked to economically important traits and then demonstrating how these can be used to improve the efficiencies of tree breeding. FP7 large-scale integrated project involving 15 institutes.
www.noveltree.eu

REINFFORCE
Richard Jinks
Adapting Atlantic forests in Europe to predicted climate change including the potential role of different tree species and the risk from novel pests and pathogens. Interreg IVB Atlantic Arc project involving 12 organisations from Portugal, Spain, France and the UK.
http://reinfforce.iefc.net

TREEBREEDEX
Steve Lee
Integrated information on tree breeding. Linking information on tree breeding programmes across major European countries to share genetic material, data and information for species that cross country boundaries. FP6 project involving 28 institutes across Europe.
http://treebreedex.eu/

Programmes funded by other organisations

Forest Research carries out work for a variety of public and private sector clients. This list highlights some of these recent projects.

Aberystwyth University, Institute of Biological, Environment and Rural Sciences (IBERS)[1]
Ian Tubby
Development of sustainable heat and power fuelled by biomass from short-rotation coppice in Wales.

Centre for Ecology and Hydrology (CEH)
Robert Matthews
Inventory and projections of UK emissions by sources and removals by sinks due to Land Use, Land-Use Change and Forestry (LULUCF).

COFORD
Duncan Ray
CLIMADAPT: Development of an Ecological Site Classification (ESC) for Ireland. Assessment of species suitability in Ireland, and the impact of IPCC climate change scenarios on forest stands and forest ecosystems using ESC.

Department for Business, Innovation and Skills (BIS)
Tony Hutchings
CHARCOAL: The use of biologically enhanced charcoal for *in-situ* remediation of contaminated land.

Chris Mort
Innovation and New Markets (INM): working with the Northern Ireland Forest Service and the Forestry Commission to develop the wider economic benefits of forestry and assist the development of new products, services and technologies.

Department for Environment, Food and Rural Affairs (Defra)
Tom Nisbet
Slowing the flow at Pickering: project aimed at demonstrating how the integrated application of best land management practices can reduce flood risk.

Hugh Evans
Hedgerow project: determine the number of trees that need planting per year to maintain the hedgerow tree population. A literature review to highlight ecological value of hedgerow trees for invertebrates.

Roger Trout
Edible dormouse (Glis): investigation of alleged populations outside the Chilterns stronghold and developing means to control populations.

Kevin Watts
Development of an indicator of landscape connectivity for implementation using Countryside Survey data from CEH as part of UK level biodiversity reporting.

Defra/Communities and Local Government (CLG)/ Homes and Communities Agency (HCA)/ Natural England
Tony Hutchings
Benefits of green infrastructure. A report and critical review of the most important ecosystem services provided by greenspaces in urban areas.

Defra/Forestry Commission
Brenda Mayle
In collaboration with the Food and Environment Research Agency (Fera), develop approaches to evaluate and mitigate the environmental impact of wild boar in woodland, in particular using thermal imaging for population estimation and evaluation of impacts on dormice, plants and insects.

Engineering and Physical Sciences Research Council (EPSRC)
Tony Hutchings
PURE: an investigation, in association with the University of Surrey, into pollutants in the urban environment and the mitigating effects of green infrastructure.

Environment Agency
Robert Matthews
BEAT2: in partnership with AEA and North Energy Associates, producing lifecycle greenhouse gas emissions data for the use of UK and international forestry to produce heat and power.

EPSRC/Leeds University
Robert Matthews
SUPERGEN: The production of different types of biomass and their behaviour in thermal conversion processes, with particular emphasis on the interaction and interface between production and conversion.

[1] Formerly Institute of Grassland and Environmental Research (IGER).

Fife Coast and Countryside Trust
Darren Moseley
Identifying the thematic and spatial priorities for developing an Integrated Habitat Network (IHN) in Fife and opportunities to enhance and expand the IHN through strategic land allocation areas.

Imperial College
Joan Webber
Memory and prediction in plant disease management. Lessons learnt from Dutch elm disease, applied to assessing the threat from sudden oak death in Britain.

James Jones & Sons Ltd
Shaun Mochan
Testing and grading analysis of timber.

Leverhulme Trust
Clive Brasier
Dutch elm disease. Assessing new hybridisation events involving the two sub-species of the Dutch elm disease pathogens (*Ophiostoma novo-ulmi*) now present in Europe.

National Forest Company
Nadia Barsoum
Develop, implement and monitor climate change adaptation provenance trial.

Natural England
Sandra Denman
Distribution and impact of Acute Oak Decline (AOD). Training course for NE regional managers on identification and basic site survey. Detailed survey and mapping of AOD sites as part of investigating the spatial relationships between symptomatic and non-symptomatic trees.

Natural Environment Research Council (NERC)
Robert Matthews
QUEST forestry demonstrator project for climate mitigation.

Robert Matthews
QUEST QUATERMASS: This project, led by Dr Jeremy Woods of Imperial College London, seeks to estimate the potential of terrestrial ecosystems to mitigate climate change.

Rural Economy and Land Use Programme (RELU)
Chris Quine
Assessing and communicating animal disease risks for countryside users.

Liz O'Brien
Collaborative frameworks in land management: a case study on integrated deer management.

Scion, New Zealand Forest Research Institute
Joan Webber
Biocontrol of Dutch elm disease with fungal viruses. Analysis and testing of fungal viruses for their potential to control the Dutch elm disease pathogen (*Ophiostoma novo-ulmi*) in New Zealand.

Scottish Forestry Alliance Biodiversity Group
Mike Smith
Method development, data collection and analysis to provide biodiversity monitoring for new native woodlands established on Scottish Forestry Alliance sites, funded by BP Exploration Operating Co. Ltd.

Scottish Government
Helen Armstrong
Measuring deer health and welfare. In collaboration with the Macaulay Institute, develop and test a protocol for the monitoring of the health and welfare of red deer in Scotland.

Scottish Natural Heritage (SNH)
Russell Anderson
Monitor cattle grazing as vegetation management to improve conditions for Black Grouse, with a focus on vegetation structure and diversity and food availability for chicks during their insectivorous phase.

Duncan Ray
Network species library. Meeting the data needs of ecological modelling by establishing a 'species trait library' relevant to the needs of spatial landscape planning, ecological modelling and land management decision making in Scotland.

SNH/The Royal Society for the Protection of Birds (RSPB)
Russell Anderson
A joint working group (FC, FR, RSPB and SNH) examining evidence on how forestry impacts on interest features of Flow Country designated sites and recommending measures to negate impacts.

Southampton University
Mark Oram
Management of poplar trials; maintenance of collections of poplar clonal material growing in stool beds.

South West Woodland Renaissance
Mark Oram
Completing a woodland inventory and production forecast for productive conifer woodlands within SW England, highlighting potential constraints to resource availability.

The Food and Environment Research Agency (Fera)
Joan Webber
Diagnosis of samples from trees suspected of infection by quarantine pathogens *Phytophthora ramorum* and *P. kernoviae*, in support of the Fera-led Phytophthora Programme.

Joan Webber
Epidemiology of quarantine pathogen *P. ramorum*, currently infecting Japanese larch in the West Country.

Joan Webber
Epidemiology of quarantine pathogen *Phytophthora kernoviae* which poses a threat to *Vaccinium* in ancient semi-natural woodland (ASNW).

United States Department of Agriculture Forest Service
Joan Webber
Studies on *Phytophthora ramorum* and *P. kernoviae* to evaluate infection behaviour and the inoculum behaviour of *P. ramorum* and the role of both in asymptomatic infection.

Joan Webber
Zoospore infection of bark. Assessment of the comparative susceptibility of a range of broadleaf and conifer hosts exposed to natural inoculum levels of *Phytophthora ramorum* and *P. kernoviae*.

Research contracts awarded by Forest Research

Environment Agency (Wales)
Effects of forestry on surface water acidification.

Fountain Forestry
Water monitoring in Halladale.

INNVENTIA AB (formerly STFI-PACKFORSK)
Analysis of microfibril angle and other cellular properties of Sitka spruce trees.

University of Bristol
Landscape history of Savernake Forest.

University of Durham
Modelling the impact of land management measures in Pickering Beck and River Seven catchments on flood risk.

University of Glamorgan
Elaboration of a methodology to identify larch stands in western Britain.

Research programmes and contracts

People

Permanent and fixed-term staff as at 31 March 2010.

Chief Executive
Dr James Pendlebury,
BSc, PhD, MIWSc

Chief Scientist
Professor Peter Freer-Smith,
BSc, PhD, DSc

Head of Alice Holt Research Station
Hugh Williams, BA, MSc, FICFor, PhD

Head of Northern Research Station
Chris Quine, MA, MSc, FICFor, PhD

Head of Unit, Wales (Aberystwyth)
Hugh Evans, BSc, DPhil, FRES

Chief Executive's Office
Carl Foster
Claire Holmes
Helena Ladbury
Andrew Price,[1] BSc

Centre for Forestry and Climate Change

Andy Moffat, BSc, PhD, DSc, MICFor
Head of Centre
Lorraine Adams, BSc
Richard Baden, BSc
Sue Benham, BSc, PGCE
François Bochereau, BSc, MSc
Clive Brasier, BSc, PhD, DSc, Research Fellow
Samantha Broadmeadow, BSc, MSc
Anna Brown, BSc, PhD
Andy Brunt
Helen Cariss, BSc, PhD
Eric Casella, BSc, MSc, MSc, PhD
Sylvia Cowdry
Sandra Denman, BSc, MSc, PhD
Kieron Doick, BSc, MRes, PhD
Edward Eaton, BA, MSc
Sarah Green, BSc, PhD
Tony Hutchings, MSc
Daegan Inward, BSc, MSc, PhD
Andrew Jeeves
Lynn Jordan
Susan Kirk
Vicki Lawrence
Bridget Laue, BA, PhD
Grace MacAskill
Simon Marrington
Finlay McAllister, BA, BSc
Roger Moore, BSc, PhD
Alberto Morales, BSc, PhD
James Morison, BSc, PhD
Martin Mullett, BSc, MSc
Jacqui Neal, BSc
Tom Nisbet, BSc, PhD
Lyn Pearce
Mike Perks, BSc, MSc, PhD
Richard Pilgrim, BSc
Rona Pitman, BSc, PhD
Lynn Rooney
David Rose, BA
Joan Rose
Marc Sayce
Nadeem Shah, BSc, MSc, PhD
Heather Steele, BSc
Nigel Straw, BSc, PhD, FRES
Paul Taylor, MA, MSc, MPhil
Huw Thomas, BSc, MSc
Christine Tilbury, BSc
Kath Tubby, MSc, DPhil, MA (Oxon)
Elena Vanguelova, BSc, MSc, PhD
David Wainhouse, BSc, MSc, PhD, FRES
Joan Webber, BSc, PhD
Matthew Wilkinson, BSc, MSc
David Williams, BSc, PhD
Georgios Xenakis, BSc, MSc, PhD
Sirwan Yamulki, BSc, MSc, PhD

[1] Seconded from Centre for Forest Resources and Management.

Centre for Forest Resources and Management

Helen McKay, BSc, PhD, MICF, CEnv, *Head of Centre*
Lyn Ackroyd
Hazel Andrew
Catia Arcangeli, MSc, PhD
John Armstrong
Cathleen Baldwin
Stephen Bathgate, BSc, BSc, PGDip, MSc
Sue Bellis
Alexander Bowran
Mary Caldwell
David Clark
Lee Cooper
Nicola Corney
Joy Cornwell
Steve Coventry
Ian Craig
Owen Davies, BSc, PhD
James Duff
Janet Dutch, BSc, PhD,
Dai Evans
Trevor Fenning, BSc, PhD
Nick Fielding
John Fonweban, BSc, MSc, PhD
Barry Gardiner, BSc, PhD, FRMetS
Colin Gordon
Richard Hailstones
Sophie Hale, BSc, PhD
Alan Harrison, BSc, MSc
Paul Henshall, BSc
Geoff Hogan, BSc, DPhil
Madge Holmes
Hamish Howell
Steve Howells
Duncan Ireland, BSc
Patricia Jackson
Philip James, BSc
Tom Jenkins, BSc, BSc, FICFor
Richard Jinks, BSc, PhD
Bill J. Jones
Christine Johnstone
Richard Keddle
Andrew Kennedy, BSc
Gary Kerr, BSc, PhD, FICFor, CEnv
Ian Keywood
John Lakey
Steve Lee, BSc, PhD, MICFor
Elspeth MacDonald, BSc, MSc
Ewan Mackie, BSc, MSc
Martin Mackinnon, BSc
Alistair MacLeod
Simon Maskrey
Bill Mason, BA, BSc, DSc, MICFor
Robert Matthews, BSc, MSc
Fraser McBirnie
Stuart McBirnie
Shelagh McCartan, BSc, MSc, PhD
Colin McEvoy,[2] BA
Shaun Mochan, MSc
Ian Murgatroyd
Calum Murray
Bruce Nicoll, BSc, PhD
Sharon O'Hare
Stephen O'Kane
Alan Ockenden
Margaret O'Donnell
Mark Oram, BSc, MSc
Bill Page
Jim Page
Matt Parratt, BSc
Stefania Pizzirani, BA, MSc
Andrew Price,[3] BSc
John Price
Tony Price
Joyce Rammell, BSc
Tim Randle, BSc
Bill Rayner
Anthony Reeves
Liz Richardson
William Riddick
Will Rolls, BSc
Stephanie Roux, MSc
Colin Saunders
Jean Saunders
Gary Servant, BSc
Pauline Simson, BSc
Colin Smart
Victoria Stokes, BSc, MSc, PhD, MICFor
Juan Suárez-Minguez, BSc, MSc
Rob Sykes
Jake Thompson, BSc
Will Thompson, BSc
Ian Tubby, BSc
Paul Turner
Christopher Vials, BSc
Tyrone Waldron
Michael Wall, BSc
Harry Watson
Dave Watterson
Steven Whall
Miriam White, HND, BSc, MSc
Alistair Whybrow, BSc
Duncan Williams
Ian Willoughby, BSc, MBA, FICFor
Christine Woods, BA

[2] Also with Operations Unit. [3] Seconded to Chief Executive's Office.

Centre for Human and Ecological Sciences

Chris Quine, MA, MSc, FICFor, PhD,
Head of Centre
Stuart A'Hara, BSc, MSc, PhD
Bianca Ambrose-Oji, BSc, MSc, PhD
Russell Anderson, MSc
Helen Armstrong, BSc, PhD
Nadia Barsoum, BSc, PhD
Rebecca Brassey, BSc, MSc
Alice Broome, BSc
Claudia Carter, BSc, MSc
Jordan Chetcuti, BSc
Tom Connolly, BSc, PhD
Robert Coope,[4] BSc
Joan Cottrell, BSc, PhD
Peter Crow, BSc, MSc
Norman Dandy, BSc, MA, PhD
Colin Edwards, BSc, MSc
David Edwards, BSc, MSc, MSc, PhD
Amy Eycott, BSc, PhD
Mark Ferryman
Robin Gill, BSc, MSc, PhD
Philip Handley, BSc, MSc
Ralph Harmer, BSc, PhD
Steven Hendry, BSc, PhD
Matthew Jollands,[5] BA, MA
Andrea Kiewitt, BSc, MSc, Dipl-Biol
Anna Lawrence, BA, MSc, PhD
Mariella Marzano, BA, MD, PhD
Brenda Mayle, MSc
Jake Morris, MA, PhD
Darren Moseley, BSc, PhD
Liz O'Brien, BSc, PhD
Andrew Peace, BSc
Michal Petr, BSc, MSc, MSc
Duncan Ray, BSc
Claire Sabin, BA
Sam Samuel, BSc, PhD
Vadims Sarajevs, MSc, MSc, PhD
Roz Shields
Louise Sing, BA, MSc
Mike Smith,[6] BSc
Amy Stewart, BA, MA, PhD
Philip Taylor, BSc, MSc
Roger Trout, BA, PhD
Gregory Valatin, MA, MPhil, PhD
Tytti Vanhalla, BSc, MSc, PhD
Kevin Watts, BSc, PhD

Operations Unit

Hugh Williams, BA, MSc, PhD, FICFor
Head of Unit
Martin Abrahams
Wayne Blackburn, BSc
Glenn Brearley
Ken Charles, FMS
Jon Davey
Joanne Davies, BSc
Keith Day, BEng
Jane Devlin, BSc, MSc
Anna Duckett
Alec Gaw, BSc
David Georghiou, BA
Wendy Groves
Evelyn Hall
Jason Hubert, BA, MSc, PhD, MICFor
Kirsten Hutchison, MA, DipEd, MSc
Chris Jones, BSc
Martin Jukes, CBiol, MIBiol
Esther Ker
Carol Knight
Timothy Knight, BSc
Belinda Kuenzli
Janet Lacey
Nimisha Limbachia
Carole Martin
Suzanne Martin, MA, PhD
Colin McEvoy,[7] BA
Jim McGivern
Alison Melvin, BA
Paul Morris
Christopher Mort, BSc, MPhil, LLB
Clive Muller
Catherine Oldham, BA, MA, DipLib, MCLIP
Steve Penny, BSc, MSc
Andrew Phillips
Corinne Russell
Heather Russell
Sally Simpson
Mike Smith[8]
Sandra Smith, ACMA
Shirley Spencer
John Strachan
Sally Taylor
Janet Turner
Anja Ueberjahn-Tritta, BSc, PhD
Ann Williams
Mike Young

[4] Seconded from Tay Forest District.
[5] Seconded from Forestry Commission Wales.
[6] Also with Operations.
[7] Also with Centre for Forest Resources and Management.
[8] Also with Centre for Human and Ecological Sciences.

PhD students linked with Forest Research as at 31 March 2010

(The supervisor's name is given alongside each student.)

Steven Adams (Barry Gardiner)
University of Glasgow
Impact of climate change on wood properties of Sitka spruce

Tom Adams (Colin Edwards)
University of Edinburgh
Modelling complexity in native pinewoods

Gail Atkinson (Kieron Doick)
University of Surrey
Land regeneration for greenspace establishment: balancing engineering, environmental and social considerations

Dave Auty (Barry Gardiner)
University of Aberdeen
Scots pine timber quality in Scotland

Kate Beauchamp (Barry Gardiner)
University of Edinburgh
The biology of heartwood formation and its influence on timber quality

Chloe Bellamy
(Brenda Mayle/Kevin Watts)
University of Leeds
How habitat characteristics and structure influence bat species distribution and community structure in the Lake District

Filipa Cox (Nadia Barsoum)
Imperial College London
Are there links between tree health and ectomycorrhizal fungal communities under changing environmental conditions?

Lilla D'Costa (Nigel Straw)
Royal Holloway
Adaption of native natural enemies to an invasive leaf miner

Theresa Hudton (Elena Vanguelova)
University of Exeter
Soil microbial population dynamics and function, and soil carbon fluxes within forest systems as influenced by climate change and increased atmospheric CO_2

Marc Jones (Barry Gardiner)
University of Surrey
Mobile large-scale *in-situ* Magnetic Resonance Imaging of water distribution in wood

Andrew Leslie (Mike Perks)
University of Edinburgh
Eucalypt Energy Forestry

Hamish Mackintosh (Gary Kerr)
University of Edinburgh
Developing the silviculture of continuous cover forestry: using the experience and data collected from the Glentress trial area

Helen Murray (Tom Nisbet)
University of Glasgow
The impact of the Whitelee Wind Farm development on the export of carbon and nutrients to catchment runoff

Emile Mwenge (Elena Vanguelova)
University of Reading
Nutrient budgets in British forest ecosystems

Jenny Owen (Russell Anderson)
University of Stirling
Determinants of field-layer vegetation in plantation restocks: consequences for black grouse conservation

Nalika Rajapaksha (Elena Vanguelova)
University of Lancaster
Soil fauna diversity under short rotation forestry – impacts and responses

Matti Salmela (Joan Cotterell)
University of Edinburgh
Adaptive variation in natural populations of Scots pine in Scotland

Helen Sneath (Tony Hutchings)
University of Surrey
The sustainability of charcoal as an ameliorant in soil remediation

Claire Stevenson (Kevin Watts)
University of Cumbria
Modelling ecological networks and dispersal in the grey squirrel *Sciurus Carolinensis*

James Stratford (Tony Hutchings)
University of Surrey
Use of charcoal for environmental improvements

Eleanor Swain
(Mike Perks/Elena Vanguelova)
University of Newcastle
Carbon turnover in forest and grassland soils – will global warming turn carbon sinks into sources?

Donna Taylor (Anna Lawrence)
University of Cumbria
The effects of woodfuel extraction on woodland birds and butterflies. Can grant funding simultaneously increase renewable energy supply and improve biodiversity?

Jenny Taylor (Mariella Marzano)
University of Oxford
Recreational forest use: developing an agent-based model of tick risk

Armand Tene (Duncan Ray)
University of Dublin
Tree species adaptation to climate change

Emma Thorpe (Elena Vanguelova)
University of Essex
Impact of nitrogen deposition on microbial diversity and function in relation to nitrogen/carbon cycling in different forest soils

Claire Twiddle (Chris Quine)
University of Exeter
Modelling the vegetation history of Inshriach Forest, Cairngorms

Leena Vihermaa (Barry Gardiner)
University of Glasgow
Tree growth influences on wood properties

Antia Villada (Elena Vanguelova)
University of Reading
Evaluation of trees species x soil type interactions for their potential for long term C sequestration

Naomi Vokes (Eric Casella)
University of York
The role of litter priming in deciduous forest soil carbon dynamics

Accounts for the year ended 31 March 2010

Annual Report for the year ended 31 March 2010

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.

Management commentary

2. Status

Forest Research became an Executive Agency of the Forestry Commission on 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.

Forest Research remains part of the Forestry Commission, which is a cross border Government Department responsible for forestry throughout Great Britain. The relationship between Forest Research, the Forestry Commissioners and Forestry Ministers is described in the Framework Document, revised and published in September 2003.

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.

With effect from 1 April 2008, the Forestry Commission's Estimate is incorporated as a separate Request for Resource (RfR) within the Defra Estimate. The Forestry Commission Estimate comprises sub-heads A and B with the net funding of Forest Research, as a Great Britain entity, included in sub-head B.

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 and www.forestry.gov.uk/forestresearch respectively).

4. Relationships with stakeholders

As most aspects of forestry are devolved activities, strong relationships between the wider Forestry Commission and the devolved administrations are critical. In particular, the recent publication of the Forestry Commission's revised Science and Innovation Strategy has provided a new focus for some of Forest Research's activities in its role as the Commission's main research provider. Forest Research will also continue to retain three Research Liaison Officers, in England, Scotland and Wales, to support the process of research commissioning and dissemination on an ongoing basis.

As an applied research institute, Forest Research's relationships with the forestry and land management sectors are very important. Forest Research maintains effective contact with these sectors through direct work for, or dialogue and project partnership with, individuals, companies, trade associations and professional bodies. We also provide an annual suite of targeted seminars, workshops and continuing professional development (CPD) events and host

stands or presentations at major events such as the Royal Welsh Show. Our newsletter *FR News* published quarterly is well received by external stakeholders and typifies our outward facing approach to our work and communications. To supplement these activities we intend to launch a new, Forest Research branded, peer-reviewed, e-monograph publication in 2010-11 that will give in-depth analysis of specific topics and issues; keeping stakeholders more closely up-to-date with developments than is possible using conventional peer-reviewed science journals.

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 in the main body of the Annual Report and Accounts.

Current and future development and performance

6. Operating review

The publication and Ministerial launch of the Read report, *Combating Climate Change – A Role for UK Forests*, in November 2009 was a significant event during the year and involved a number of Forest Research staff as steering group members, editors and authors. The report has been well received by the scientific community, the forest industry and environmental stakeholders, and is now framing the policy advice and direction of the science Forest Research will need to provide to help the sector respond and adapt to the challenges posed by climate change.

The need for scientific evidence to support the development and delivery of country-specific forestry policies is increasing. This year has seen a particularly large increase in the incidence of pests and pathogens affecting forest and urban trees. This has meant that the demand for our pathological and entomological expertise has been at an all time high and our staff have risen admirably to the challenge of providing the research advice and operational guidance needed by both public and private sector growers and managers.

This link to policy and operational needs continues to be maintained by the Programme Advisory Groups (PAGs) and associated Research Management Strategy Board (RSMB), the systems by which the Forestry Commission collectively specifies its research needs. Indeed this system is continuing to develop and undergo some refinement in order to consolidate and reduce the transactional costs involved.

Forest Research has developed and implemented a new Agency-wide financial reporting system including electronic time recording, a first for the Forestry Commission as a department. Most importantly, Forest Research has now embedded its new three centre structure and the associated interdisciplinary working has helped Forest Research to earn an increased level of external income. As part of its strategy to improve the commercial exploitation of its intellectual property, Forest Research also launched its first ever spin out company, C-Cure Solutions Ltd, in conjunction with the University of Surrey. The company will operate in the area of land remediation.

Our work on improving efficiency and increasing our external income has resulted in a considerable reduction in our net deficit.

7. Financial review

Forest Research produced a net operating surplus of **£20,000** on its Operating Cost Statement, excluding exceptional items and the notional cost of capital, an improvement over the net operating deficit of £154,000 in 2008–09. A comparison of income and expenditure with the previous year's results shows that:

- staff costs decreased by £212,000 (2.1%), resulting from a small net decrease in staff offset by the annual pay award effective from October 2009
- other management costs (excluding exceptional items) decreased by £68,000 (2.5%), mainly as a result of lower training costs (in 2008–09 costs included one-off PRINCE project management training) and losses on disposals as a result of a fixed asset cleansing exercise in 2008–09, offset by higher depreciation charges (resulting from the indexation of buildings)
- materials and services costs decreased by £226,000 (7.8%), resulting from employment of fewer contractors to meet contractual commitments, lower Central Service charges, and lower miscellaneous costs including legal expenses and conferences
- income from Forestry Commission customers decreased by £536,000 (4.0%), mainly as a result of Woodland Surveys staff transferring to Forestry Commission thereby reducing related income
- income from external customers increased by £204,000 (10.5%), largely as a result of higher Public Sector Research Exploitation (PSRE) income
- the notional cost of capital decreased by £42,000 (9.3%), as a result of lower average net current assets.

The net deficit for the year after the cost of capital charge of £411,000 and depreciation was £391,000, representing a cost recovery rate of 97.5%, compared with 89.4% in 2008–09. However, the net deficit for 2008–09, excluding early departure costs, represented a cost recovery rate of 96.2%.

After adjusting the total deficit for items not involving the movement of cash and for capital expenditure, bank account movements and income, the net cash inflow for the year was £442,000 (2008–09: £671,000), which was paid to the Forestry Commission.

Additions to fixed assets in the year were £580,000 (2008–09: £268,000). A grant from Department of Energy and Climate Change (DECC) for photovoltaic panels at Alice Holt financed £129,000 of this expenditure. A further £250,000 was spent on roof repairs at Alice Holt. Forest Research spent the remaining £201,000 on essential items but plans to increase capital expenditure in future years as resources permit.

8. Financial objective – Key Performance Indicators (KPIs)

Forest Research's primary financial objective set out in the Framework Document is to recover the full economic costs, including cost of capital, of its operations from the sale of services to customers. In 2009–10 the recovery rate was 97.5%, compared with 89.4% in 2008–09 when allowing for early departure costs and 96.2% once these exceptional items were excluded.

Performance against other operational, scientific and financial KPIs is reported in the main body of the Annual Report and Accounts. Forest Research achieved £2.1m of income from non-FC customers against the KPI target of £2.4m, however an additional £0.2m from DECC was received via the Forestry Commission.

9. Events since the balance sheet date

There were no significant post-balance sheet events to record (see note 29).

10. The future

As part of its Corporate Plan objectives for 2010–11, Forest Research will establish a new Advisory Committee for Forestry Research, promote and implement its own Science Strategy, develop its molecular biology and epidemiological capacity to address current and emerging tree health issues, scope the creation of a research forest in Wales, and continue to develop innovative products, services or spin out companies. Forest Research will also continue to participate and play its part in the Forestry Commission's corporate programmes, in particular Business Sustainability, Investors in People, and Equality and Diversity. In addition, our Alice Holt and Northern Research Stations will be submitted for ISO 14001 approval this year.

We also intend to continue to place considerable emphasis on staff development during 2010–11, in particular through our participation in the Forestry Commission's Management Development Programme and through an in-house programme of events for our science leaders and managers.

11. Supplier payment policy

In October 2008, Government organisations committed to improving the cash flow position of its suppliers by settling their accounts within 10 days wherever possible. The Forestry Commission and Forest Research recognise their roles in supporting local, rural economies and has a proven record of meeting its contractual payment terms. Forest Research also works closely with its local suppliers to ensure prompt payment of debt. Management recognised that the general economic climate could potentially have a detrimental effect on small and medium enterprises and considered whether further action could be taken to improve cash flows. However, as Forest Research has a flexible approach to payment terms in contracts and agreed terms that suit the supplier, no special measures were required. It was generally believed that suppliers who faced hardship would discuss the matter with contract managers and agreed solutions developed. While the above would not apply directly to larger companies, Forest Research believed that special measures would not be required because of existing levels of prompt payment.

Forest Research observes the principles of the Late Payment of Commercial Debts (Interest) Act 1998. Unless otherwise stated in the contract, we aim to pay within 30 days from the receipt of goods and services, or the presentation of a valid invoice, whichever is the later. An analysis for 2009–10 indicates that 100% of payments to suppliers, including those made using the Government Procurement Card, were paid within the due date. Arrangements for handling complaints on payment performance are notified to suppliers on orders. No interest was paid under the Late Payment of Commercial Debts (Interest) Act 1998.

12. Employment policies

Forest Research adheres to the Forestry Commission's employment policy and values and respects its staff by treating each member with respect and trust, and in doing so recognises that each person is different and can make a unique contribution to the work. The purpose of the employment policy is to demonstrate that it is an equal opportunity employer and the aim is to be fair to everybody. To do this the Forestry Commission and Forest Research ensure that no eligible job applicant or employee receives less favourable treatment on the grounds of their gender or gender re-assignment, ethnic origin, disability, age, nationality, national origin, sexual orientation, marital status, religion and religious or philosophical belief, and social class.

All employees, whether part-time, full-time or temporary, will be treated fairly and equally. Selection for employment, promotion or training or any other benefit will be on the basis of aptitude and ability. All employees will be helped and encouraged to develop their full potential and the talents and resources of the workforce will be fully utilised to maximise the efficiency of the organisation. No person shall be disadvantaged by conditions or requirements which cannot be shown to be justifiable.

The Forestry Commission and Forest Research also follow good employer practices aimed at ensuring that all staff work in an environment free from both illegal and unfair discrimination and harassment. Consolidated statements of the Commission's obligations with regard to equality of opportunity and diversity are shown in the Staff Handbook. Full details of these initiatives arising from our policies are also set out on the Human Resources intranet site.

The Forestry Commission and Forest Research will monitor the success of their policies by:

- Collecting and analysing data as appropriate.
- Regularly reviewing procedures (recruitment, performance management, promotion and pay) to ensure that they are free of unfair discrimination.
- Reporting the results of equality and diversity monitoring to the Human Resources Management Sub-Committee on an annual basis.
- Liaising closely with Cabinet Office and other Government Departments to ensure that we are keeping abreast of all changes in legislation and other developments.

Further information on the employment of persons with disabilities, the provision of information to, and consultation with, employees, and the promotion of equal opportunities is available on request from the Human Resources unit of the Forestry Commission.

13. Sickness absence

The Forestry Commission has one common 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 an internal employee support programme which is available 24 hours a day. The average number of working days lost to sickness absence in Forest Research in 2009–10 was 6.0 per employee (2008–09 5.7), which compares favourably with the average of 6.6 (2008–09 7.1) for the Forestry Commission.

14. Management

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

Rt. Hon. Hilary Benn MP	*Secretary of State (until May 2010)*
Caroline Spelman MP	*Secretary of State (from May 2010)*
Huw Irranca-Davies MP	*Parliamentary Under-Secretary of State (Natural and Marine Environment, Wildlife and Rural Affairs) (until May 2010)*
Jim Paice MP	*Minister of State for Agriculture and Food (from May 2010)*

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

James Pendlebury *	*Chief Executive*
Peter Freer-Smith *	*Chief Scientist*
Helen McKay	*Head of Centre for Forest Resources and Management*
Andy Moffat *	*Head of Centre for Forestry and Climate Change*
Chris Quine	*Head of Centre for Human and Ecological Sciences*
Hugh Williams	*Head of Operations*
Wilma Harper	*Head of Corporate and Forestry Support*

* These Board Members have related party interests which are disclosed in note 27.

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 Commissioners' Recruitment Code.

Further details on remuneration are set out in the Remuneration Report (page 50).

15. Pensions

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

16. Personal data related incidents

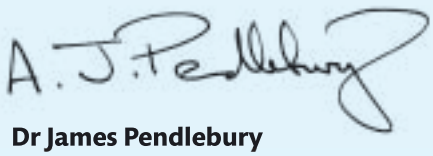
There were no protected personal data related incidents reported for Forest Research in 2009–10 or previous financial years. Forest Research will continue to monitor and assess its information risks in order to identify and address any weaknesses and ensure continued improvement of its systems. Further information on the handling of information risk is contained in the Statement on Internal Control, page 55.

17. Auditors

These accounts are prepared in accordance with a direction given by the Treasury in pursuance of Section 7 of the Government Resources and Accounts Act 2000. They are audited by the Comptroller and Auditor General. The fee for statutory audit services in respect of these accounts was £31,000. In addition, a fee of £3,000 was paid for the audit of IFRS shadow accounts for 2008–09. No further assurance or other non-audit services were provided.

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.



Dr James Pendlebury
Chief Executive and Accounting Officer
1 July 2010

Remuneration Report

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 Commissioners' Recruitment Code. Dr James Pendlebury was appointed as Chief Executive with effect from 16 June 2008.

Civil Service appointments are made in accordance with the Civil Service Commissioners' 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 reach the normal retiring age. Early termination, other than for misconduct, 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. No element of remuneration is specifically subject to performance conditions although pay progression can be affected and bonuses, if awarded, are based on performance.

Further information about the work of the Civil Service Commissioners can be found at **www.civilservicecommissioners.gov.uk**

Salary and pension entitlements (information subject to audit)

The salary and pension entitlements of the members of the Forest Research Executive Board were as follows.

Name	**2009–10**		2008–09	
	Salary £000	Benefits in kind (to the nearest £100)	Salary £000	Benefits in kind (to the nearest £100)
James Pendlebury (from 16 June 2008)	75–80	1,500	55–60 (full year equivalent 70–75)	900
Peter Freer-Smith	70–75	3,900	75–80	3,900
Helen Mckay	55–60	–	55–60	–
Andy Moffat	60–65	–	60–65	–
Chris Quine	60–65	–	60–65	–
Hugh Williams (from 1 September 2008)	50–55	–	25–30 (full year equivalent 45–50)	–

The salary and pension entitlements of Wilma Harper, an Executive Board member, are borne by the Forestry Commission as she is Head of Corporate Forestry and Support, Forestry Commission. Her salary for 2009–10 was £70,000–£75,000 (2008–09: £70,000–£75,000).

Salary

'Salary' includes basic salary, performance pay or bonus, overtime and any allowances subject to UK taxation.

Benefits in kind

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

Remuneration of non-executives

The non-executive members of the Audit and Risk Committee received the following remuneration for their services during the year ended 31 March 2010.

Name	£000
Victoria M. Edwards	1
David A. Evans	1

Pension benefits 2009–10 (information subject to audit)

Name	Accrued pension at age 60 at 31/3/10 and related lump sum (LS)	Real increase in pension and related lump sum (LS)	CETV at 31 March 2010	CETV at 31 March 2009*	Real increase (decrease) in CETV
	£000	£000	£000	£000	£000
James Pendlebury	5–10 plus 20–25 LS	0–2.5 plus 2.5–5 LS	147	114	24
Peter Freer-Smith	20–25 plus 70–75 LS	0–2.5 plus 2.5–5.0 LS	514	448	37
Helen McKay	20–25 plus 65–70 LS	0–2.5 plus 10–12.5 LS	478	375	72
Andy Moffat	20–25 plus 70–75 LS	0–2.5 plus 5–7.5 LS	539	470	39
Chris Quine	20–25 plus 65–70 LS	0–2.5 plus 5–7.5 LS	420	357	40
Hugh Williams	10–15 plus 5–10 LS	2.5–5 plus 0–2.5 LS	137	97	27

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

Civil Service pensions

Pension benefits are provided through the Civil Service pension arrangements. From 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 changes in the Retail Prices Index (RPI). 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 set at the rate of 1.5% of pensionable earnings for classic and 3.5% for premium, classic plus and nuvos. 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' 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 (but members may give up (commute) some of their pension to provide a lump sum). Classic plus is essentially a hybrid with benefits in respect of service before 1 October 2002 calculated broadly as for classic and benefits for service from October 2002 calculated 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 RPI. In all cases members may opt to give up (commute) pension for 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. Pension age is 60 for members of classic, premium and classic plus and 65 for members of nuvos.

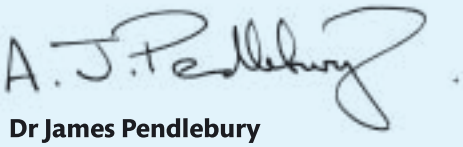
Further details about the Principal Civil Service Pension Scheme can be found at the website
www.civilservice-pensions.gov.uk

Cash Equivalent Transfer Values

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

Real increase in CETV

This reflects the increase in CETV effectively funded by the employer. It takes account of the increase in accrued pension due to inflation, contributions paid by the employee (including the value of any benefits transferred from another pension scheme or arrangement) and uses common market valuation factors for the start and end of the period.



Dr James Pendlebury
Chief Executive and Accounting Officer
1 July 2010

Statement of Accounting Officer's Responsibilities

Under Section 7 of the Government Resources and Accounts Act 2000 the Treasury has directed the Forestry Commission to prepare for each financial year a statement of accounts for Forest Research 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 Forestry Commission 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; and
- prepare the accounts on the going concern basis.

The Director General of the Forestry Commission, as Accounting Officer for the Forestry Commission, has designated the Chief Executive of Forest Research as the Accounting Officer for Forest Research. His 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.

Statement on Internal Control

1. Scope of responsibility

As Forest Research Accounting Officer and Chief Executive, I have responsibility for maintaining a sound system of internal control that supports the achievement of Forest Research policies, aims and objectives, whilst safeguarding the public funds and departmental assets for which I am personally responsible, in accordance with the responsibilities assigned to me in HM Treasury's *Managing Public Money*.

I am responsible for the day to day management of Forest Research, including the production of Forest Research's accounts and financial procedures and for Forest Research's performance and operation, in pursuit of the agreed objectives and targets.

Forest Research is an executive agency of the Forestry Commission. Forest Research's Framework Document sets out my responsibilities as Accounting Officer. I am accountable to parliament through the Accounting Officer for the Forestry Commission.

As Forest Research Chief Executive, I am a member of the Forestry Commission's Executive Board and am responsible, normally through the Director General, to the Forestry Commissioners for the management of Forest Research. 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.

2. The purpose of the system of internal control

The system of internal control is designed to manage risk to a reasonable level rather than to eliminate all risk of failure to achieve policies, aims and objectives. It 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 Forest Research'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 system of internal control has been in place in Forest Research for the year ended 31 March 2010 and up to the date of approval of the Annual Report and Accounts, and accords with Treasury guidance.

3. Capacity to handle risk

The Forestry Commission's risk management policy statement sets out why risk management is important; the procedures in place to manage risk; and the roles and responsibilities individuals have to ensure risks are managed effectively. The policy applies to Forest Research and was updated in March 2009 and is available to all staff via the intranet. A Forestry Commission-wide Risk Management Group co-ordinated the continued development of risk management within, and the sharing of best practice across, the Forestry Commission.

Forest Research now has formal ownership of its risk policy and associated management, although there will continue to be sharing of best practice and developments in risk management across the Forestry Commission.

Each Centre Head within Forest Research is responsible for ensuring the proper management of risks within their Centre, including embedding policymaking, planning and delivery.

4. The risk and control framework

The system of internal control incorporates risk management. The system encompasses a number of elements that together facilitate an effective and efficient operation, enabling Forest Research to respond to a variety of operational, financial and commercial risks. It includes regular reporting to Forest Research Executive Board, Forestry Commission Executive Board and, where necessary, to the Board of Commissioners.

Forest Research has an Audit and Risk Committee (ARC) to support the Accounting Officer and Agency Executive Board in their responsibilities for the effective management of risk, control and governance. Through its work the ARC provides independent assurance on these key activities within the direct control of Forest Research, which supports the achievement of its objectives. The ARC operates in accordance with the principles contained in HM Treasury's *Audit Committee Handbook*.

The ARC met three times during the financial year, in June 2009 and January and March 2010. In all cases they considered a range of reports from management, and from internal and external audit.

In the year to 31 March 2010, Forest Research carried out further work on its risk register. There has been a review of risks noted in the register, and their associated scoring. The Executive Board and the ARC have periodically reviewed and commented on the register throughout the year. The Forest Research Business Continuity Plan (BCP) has been reviewed and updated during the year. The inclement weather conditions in late 2009 and early 2010 tested the effectiveness of the BCP.

BCPs covering the shared services of Human Resources, Information Services and Finance are still under development. A private risk management consultant has been contracted to help to undertake a business impact analysis, the outcome of which will help Forestry Commission management establish the resource requirements and costs of the recovery options. The development of shared service BCPs will be completed in 2010–11.

5. Protecting information in government

Forest Research's approach to information assurance is set by the Forestry Commission, as it manages shared systems and services. In comparison with other government departments, the Forestry Commission's information systems hold a relatively small number of records and the volume of sensitive information requiring a protective marking is relatively low.

The Director of Finance, as the Forestry Commission's principal Senior Information Risk Owner (SIRO), chairs the Information Security Management Forum (ISMF). It co-ordinates and controls the implementation of information security across the Forestry Commission. It met on 10 occasions during the year. The work of the ISMF is supported on a day to day basis by the Departmental Security Officer and the IT Security Officer. The SIRO produces an annual assessment of risk management across the Forestry Commission.

Governance arrangements have been strengthened during the year with the appointment of a SIRO in Forest Research. The Forest Research SIRO attended six of the ISMF meetings during 2009–10 (with a deputy attending three others) and provides a direct link on information assurance matters between the ISMF and the Forest Research Executive Board. The ARC has also received updates on information assurance during the year.

A network of Information Asset Owners (IAOs) exists who have direct responsibility for the assets under their control. IAOs have been identified for our key corporate systems and our local information stores.

Following the encryption of all Forest Research laptops, the ISMF approved a policy on protecting sensitive information on removable media. The ISMF also approved the purchase of encrypted USB memory sticks for issue in 2010 which all members of staff are required to use when taking sensitive or personal information out the office.

All Forest Research staff have now successfully completed the National School for Government (NSG) online training package Level 1, Protecting Information.

To aid continuous improvement, the Forestry Commission, on behalf of Forest Research undertook a self-assessment against the Government's Information Assurance Maturity Model (IAMM). The self-assessment identified a number of areas of risk where Forestry Commission will concentrate efforts in the coming year, which will impact on Forest Research. The areas include:

- Improvements to business continuity and disaster recovery systems within the central shared services, where new equipment has been procured to improve some of the more critical back-up and recovery arrangements.
- Improvement to system access controls. Information Systems will review and document the current procedures for handling requests to ensure secure management of data.
- Further documentation of processes and procedures leading to less dependency on key staff. Robust plans will be developed for each area and resources found to carry out the work.

Although this is of concern, we have suffered only one major systems failure, which occurred centrally in shared services at the Forestry Commission in 2008–09. While our Information Services (IS) took immediate action to prevent a re-occurrence, further work is still required to address key areas of vulnerability. IS has now developed a longer term strategy to re-establish quality information services and technology. By the end of the financial year, we had made funds available to IS to start a significant investment programme in the ICT infrastructure to reduce the business risk from system failure. The work is described in the IS Infrastructure Proposal document, which overall has a 2–3 year incremental delivery timescale, subject to sufficient resources being available. New equipment recently purchased will allow IS to improve some of the more critical back-up and recovery arrangements as quickly as possible.

Further work is still required to establish an overall project plan encompassing all three of the key risk areas. This will be taken forward under the lead of Director Finance GB in his role as SIRO and as a member of the ICT Service Board.

There is a Forestry Commission reporting system to capture all security incidents which are investigated in accordance with Cabinet Office and Information Commissioners guidance. There have been no reportable incidents of personal information data loss during the year.

6. Review of effectiveness

As Forest Research Accounting Officer, I have responsibility for reviewing the effectiveness of the system of internal control. My review is informed by the executive managers within Forest Research who have responsibility for the development and maintenance of the internal control framework; the work of the internal auditors, who submit reports to the ARC which include the Head of Internal Audit's independent and objective opinion on the adequacy and effectiveness of the systems of internal control together with recommendations for improvement; and comments made by the external auditors in their management letter and other reports. Plans to address weaknesses and ensure continuous improvement of the system are in place. In 2008–09 I reported five areas requiring particular attention during 2009–10; progress has been made but there are still some weaknesses to be addressed during 2010–11:

- One of Forest Research's objectives is to breakeven but it has sustained a deficit each year since 2007–08. Forest Research was restructured with effect from 2 April 2009 and a number of staff departed under an early retirement/severance scheme, which would reduce costs over time with the aim of achieving breakeven position. However, the impact of the 2009 Pay Award largely eliminated the cost savings of staff reductions. The main risk to Forest Research is the failure to secure new contracts and generate additional external income to enable it to breakeven. Sources of external income will be closely monitored and new opportunities scrutinised to maximise external income.

- In order to manage its business and deliver on its strategy, Forest Research requires effective management information systems. Following an earlier review of information needs, a new time recording system was implemented during 2008–09. Although the system was signed off as fit for purpose early in 2009, there were further problems concerning data input and output, which were not resolved until late 2009. This hampered Forest Research's ability to produce financial reports on project-based accounting, during the year, however financial control was managed at organisation level. During 2010–11 project-based accounting and reporting will be bedded in to improve financial control and monitoring.

- The strategic review of the risk register was concluded and the register is regularly reviewed by the Executive Board and the ARC. The Forest Research Business Continuity Plan was refreshed during the year and will be enhanced further during 2010–11 to include all relevant parts of the business.

- Forest Research is reliant on Shared Services for many of its Human Resources, Information Services and Finance requirements. The governance and funding of these services, and their links to country and Forest Research based support functions, is under review to ensure that they can meet the needs of their customers through an annual review process.

- The Forestry Commission and Forest Research had found it difficult to meet the timetable for the introduction of International Financial Reporting Standards (IFRS). However, the trigger points for 2009–10 were met and all outstanding matters were completed. Forest Research received an unqualified audit opinion on the IFRS shadow accounts for 2008–09.

The ARC reviews its own effectiveness, using the NAO's *Self-Assessment Checklist*; the first review was undertaken in autumn 2009. The ARC considered the findings and agreed to implement the following priority issues in 2010:

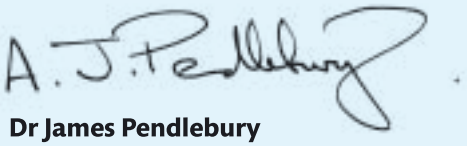
- Appraisals of committee members
- Presentation of Annual Report from ARC to the Forest Research Executive Board
- Issue draft minutes on a more timely basis.

Other issues will be addressed over a longer timescale.

The Head of Internal Audit has prepared an annual report and assurance statement to me as Forest Research 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 provides assurance that material risks to the achievement of objectives are adequately managed. However, the Head of Internal Audit has highlighted that insufficient progress on some key business continuity planning and information assurance work has led to a limited opinion in respect of these items. Action for dealing with this is covered under the paragraphs above headed 'the risk and control framework' and 'Protecting information in government'.

7. Significant internal control problems

There were no significant problems to report.



Dr James Pendlebury
Chief Executive and Agency Accounting Officer
1 July 2010

Forest Research Agency

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

I certify that I have audited the financial statements of the Forest Research Agency for the year ended 31 March 2010 under the Government Resources and Accounts Act 2000. These comprise the Operating Cost Statement, the Statement of Financial Position, the Statement of Cash Flows, the Statement of 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 Chief Executive, Accounting Officer and Auditor
As explained more fully in the Statement of Accounting Officer's Responsibilities, the Chief Executive as Accounting Officer is responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view. My responsibility is to audit the financial statements in accordance with applicable law and 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 the Agency's circumstances and have been consistently applied and adequately disclosed; the reasonableness of significant accounting estimates made by the Agency; and the overall presentation of the financial statements.

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

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

Opinion on the financial statements
In my opinion:

- the financial statements give a true and fair view of the state of the Agency's affairs as at 31 March 2010, and of the net deficit, changes in taxpayers' equity and cash flows 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 Annual Report for the financial year for which the financial statements are prepared, is consistent with the financial statements.

Matters on which I report by exception

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

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

Report

I have no observations to make on these financial statements.

Amyas C. E. Morse
Comptroller and Auditor General
8 July 2010

National Audit Office
157–197 Buckingham Palace Road
Victoria
London SW1W 9SS

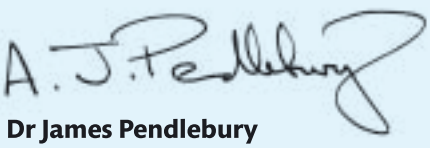
Operating Cost Statement for the year ended 31 March 2010

	Notes	2009–10 £000	2008–09 £000
Income			
Income from research, development and survey services			
Forestry Commission customers	4	**12,879**	13,415
Non-Forestry Commission Customers			
European Union	5	**420**	450
Other	5	**1,728**	1,494
Total Income		**15,027**	15,359
Expenditure			
Staff costs	6	**9,639**	9,851
Other management costs			
Other management costs excluding exceptional restructuring early departure costs		**2,702**	2,770
Exceptional restructuring early departure costs		**-**	1,220
Total other management costs	7	**2,702**	3,990
Materials and services	8	**2,666**	2,892
Total expenditure		**15,007**	16,733
Operating Surplus/ (Deficit)		**20**	(1,374)
Notional cost of capital	9	**(411)**	(453)
Net (deficit) for the year		**(391)**	(1,827)
Net (deficit) transferred to General Fund		**(391)**	(1,827)

The notes on pages 67 to 98 form part of these accounts.

Statement of Financial Position as at 31 March 2010

	Notes	31 March 2010 £000	31 March 2009 £000	1 April 2008 £000
Non-current assets				
Property, Plant and Equipment	10	**13,499**	12,169	14,152
Intangible assets	11	**121**	142	159
Financial assets	12	**25**	-	-
Trade and other receivables	13	**51**	58	44
		13,696	12,369	14,355
Current assets				
Inventories	14	**3**	3	3
Trade and other receivables	13	**905**	1,299	1,872
Cash and cash equivalents	15	**22**	454	275
		930	1,756	2,150
Total assets		**14,626**	14,125	16,505
Current liabilities				
Provisions	17	**(164)**	(719)	(32)
Trade and other payables	16	**(1,711)**	(1,691)	(1,810)
		(1,875)	(2,410)	(1,842)
Non-current assets plus net current assets		**12,751**	11,715	14,663
Non-current liabilities				
Provisions	17	**(431)**	(579)	(71)
		12,320	11,136	14,592
Taxpayers' Equity				
General Fund	18	**3,914**	4,395	6,461
Revaluation Reserve	19	**8,277**	6,741	8,131
Government Grant Reserve	20	**129**	-	-
		12,320	11,136	14,592



Dr James Pendlebury
Chief Executive and Agency Accounting Officer
1 July 2010

The notes on pages 67 to 98 form part of these accounts.

Statement of Cash Flows for the year ended 31 March 2010

	Notes	2009–10 £000	2008–09 £000
Net cash inflow / (outflow) from operating activities			
Net deficit for the year		**(391)**	(1,827)
Adjustments for non-cash transactions			
Depreciation	7	**727**	658
Amortisation	7	**60**	59
Timing between accrual and cash VAT		**(3)**	(4)
Non-cash inter-country transfers		**(63)**	(5)
Loss on disposal of property, plant and equipment	7	**27**	143
Loss on disposal of intangible assets	7	**-**	6
Notional cost of capital	9	**411**	453
Movements in provisions	17	**68**	1,229
Decrease/(increase) in inventories	14	**-**	-
Decrease/(increase) in trade and other receivables	13	**401**	559
(Decrease)/increase in trade and other payables	16	**20**	(119)
Movements in payables relating to items not passing through the operating cost statement		**-**	144
Movements in receivables relating to items not passing through the operating cost statement	12	**(25)**	-
Use of provisions	17	**(771)**	(34)
Net cash inflow from operating activities		**461**	1,262
Cash flows from investing activities			
Purchase of property, plant and equipment	10	**(559)**	(361)
Purchase of intangible assets	11	**(21)**	(51)
Government grants towards capital expenditure	10	**129**	-
Net cash outflow from investing activities		**(451)**	(412)
Cash flows from financing activities			
Net cash transfer (to)/from Forestry Commission		**(442)**	(671)
Net financing		**(442)**	(671)
Net increase/(decrease) in cash and cash equivalents in the period		**(432)**	179
Cash and cash equivalents at the beginning of the period		**454**	275
Cash and cash equivalents at the end of the period		**22**	454

The notes on pages 67 to 98 form part of these accounts.

Statement of Changes in Taxpayers' Equity for the year ended 31 March 2010

	Notes	General Fund £000	Revaluation Reserve £000	Government Grant Reserve £000	Total Reserves £000
Balance at 31 March 2008		6,461	8,131	-	14,592
Prior period error under IAS 8	1.20	(23)	(83)	-	(106)
Restated balance at 1 April 2008		6,438	8,048	-	14,486
Changes in taxpayers' equity for 2008–09					
Net gain/(loss) on revaluation of property, plant and equipment		-	(1,277)	-	(1,277)
Net gain/(loss) on revaluation of intangible assets		-	(2)	-	(2)
Non-cash charges: notional cost of capital		453	-	-	453
Non-cash charges: timing between accrual and cash VAT		(4)	-	-	(4)
Non-cash charges: inter-country transfers		(5)	-	-	(5)
Transfer of property, plant and equipment from/(to) other Forestry Bodies		(17)	-	-	(17)
Transfer from Revaluation Reserve		28	(28)	-	-
Net deficit for the year		(1,827)	-	-	(1,827)
Total recognised income and expense for 2008–09		(1,372)	(1,307)	-	(2,679)
Cash surplus to Forestry Commission		(671)	-	-	(671)
Balance at 31 March 2009		4,395	6,741	-	11,136

Continued on page 66

Statement of Changes in Taxpayers' Equity for the year ended 31 March 2010 (continued)

	Notes	General Fund £000	Revaluation Reserve £000	Government Grant Reserve £000	Total Reserves £000
Balance at 31 March 2009		**4,395**	**6,741**	**-**	**11,136**
Changes in taxpayers' equity for 2009–10					
Net gain/(loss) on revaluation of property, plant and equipment	19	**-**	**1,518**	**-**	**1,518**
Net gain/(loss) on revaluation of intangible assets	19	**-**	**18**	**-**	**18**
Non-cash charges: notional cost of capital	18	**411**	**-**	**-**	**411**
Non-cash charges: timing between accrual and cash VAT	18	**(3)**	**-**	**-**	**(3)**
Non-cash charges: inter-country transfers	18	**(64)**	**-**	**-**	**(64)**
Transfer of property, plant and equipment from/(to) other Forestry Bodies	18	**8**	**-**	**-**	**8**
Government Grant for capital	-	**-**	**-**	**129**	**129**
Net deficit for the year	18	**(391)**	**-**	**-**	**(391)**
Total recognised income and expense for 2009–10		**(39)**	**1,536**	**129**	**1,626**
Cash surplus to Forestry Commission	18	**(442)**	**-**	**-**	**(442)**
Balance at 31 March 2010		**3,914**	**8,277**	**129**	**12,320**

The notes on pages 67 to 98 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 2009–10 *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 which is judged to be most appropriate to the particular circumstances of Forest Research for the purpose of giving a true and fair view has been selected. The particular policies selected by Forest Research are described below. They have been applied consistently in dealing with items considered material in relation to the accounts.

The preparation of financial statements in conformity with IFRS requires the use of certain critical accounting estimates. It also requires management to exercise its judgement in the process of applying the accounting policies. 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.

All IFRSs, Interpretations and Amendments to published Standards effective at 31 March 2010, have been adopted for the first time in these financial statements, taking into account the specific interpretations and adaptations within the FReM. The following IFRSs, Interpretations and amendments applicable to Forest Research have been issued but are not yet effective and have not been adopted early by Forest Research:

IAS 24 Related Party Disclosures (effective 1 January 2011) – The amendment provides exemption for full disclosure of transactions with state-controlled entities and is not expected to impact on the current exemption within the FReM. IAS 24 also extends the definition of related party to include relationships where joint control exists.

IAS 17 Leases – Although this is not adopted, there is potential for an existing operating lease for land to be reclassified as a finance lease, but as the lease has a relatively short unexpired term, there is unlikely to be a material impact on the financial statements. The outstanding liability as at 31 March 2010 was £14,000.

There has also been a major change to the FReM for 2010–11. Chapter 11 Income and Expenditure removes the Cost of Capital charge from the accounts which will result in lower gross expenditure for Forest Research. The Cost of Capital charge in 2009–10 was £411,000, which if excluded would have resulted in Forest Research making a surplus of £20,000 rather than a deficit of £391,000.

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 Operating Cost Statement is net of VAT. The Forestry Commission accounts for VAT on a Great Britain basis with any VAT due to or from HM Revenue and Customs at the year end included in the Forestry Commission Great Britain/England accounts as a debtor or creditor in the Statement of Financial Position. Irrecoverable VAT is charged to the Operating Cost Statement 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 value-added tax, 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 Operating Cost Statement.

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 dependant's benefits. Forest Research accounts for the PCSPS scheme 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 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.

Performance pay

As at 31 March, Forest Research recognised a liability and an expense for performance-related pay. Non-consolidated, non-pensionable bonuses are paid to staff whose work performance was assessed as being a 'Top Performer' in accordance with the Commission's performance management system. The bonus amount is at a standard amount depending on the employee's grade and is pro rated for part-time staff.

The Forestry Commission's Senior Pay Committee determines performance pay for staff in the Senior Staff Grade. The Committee comprises the Chairman, Director General, Director Scotland, Director England and three other non-executive commissioners. Forest Research's Chief Executive and Chief Scientist are Senior Staff Grades. Remaining Forest Research Board members receive annual salaries paid in accordance with the standard Forestry Commission Staff Pay Agreement negotiated through collective bargaining and the recognised Trade Unions. Their performance is monitored and reviewed through the Performance Monitoring System (PMS) of the Forestry Commission. Increases in salary and performance bonus, if awarded, are based on their manager's assessment of their performance.

Except for staff in the Senior Staff Grade, the bonus system ceased with effect from the staff reporting year ending on 31 March 2009.

Short-term employee benefits

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

1.7 Capital charges

Charges reflecting the cost of capital utilised by Forest Research have been included in the Operating Cost Statement. The charge is calculated at the real rate set by HM Treasury (3.5%) (2008–09: 3.5%) on the average carrying amount of all assets less liabilities, except for cash balances held by the Office of the Paymaster General.

1.8 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 2009–10.

The normal threshold for the capitalisation of assets is £2,000, but all IT equipment costing £250 or more is capitalised as a pooled asset.

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 (1 April). 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. The work of internal staff is reviewed by Bidwells, 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 1 April 2008.

Revaluation gains and losses are recognised in the Operating Cost Statement 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 (1 April). 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 1 April 2008 and Bidwells, 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 2009 and 2010.

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 Operating Cost Statement during the financial period in which they are incurred.

Non-current assets held for sale
Non-current assets are reviewed regularly to ensure that they continue to contribute positively to policy and business objectives. Assets that no longer provide the required level of contribution are considered for disposal by senior management. Decisions to sell such assets, including surplus properties, take into account a number of factors including the social and environmental effects as well as marketability. Non-current assets are classified as assets held for sale when their carrying amount is to be recovered principally through a sale transaction and a sale within 12 months of the reporting date is considered to be highly probable. Non-current assets held for sale are stated at the lower of carrying amount and fair value less costs to sell.

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 hardware is shown at fair value less accumulated depreciation. Information technology (IT) values are restated to current value each year using indices provided by the Office for National Statistics. The normal threshold for capitalisation of assets is £2,000, but all IT equipment costing £250 or more is capitalised as a pooled asset.

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 in equity; all other decreases are charged to the Operating Cost Statement. Each year the difference between depreciation based on the revalued carrying amount of the asset charged to the Operating Cost Statement and depreciation based on the asset's original cost is transferred from revaluation reserve to general fund.

1.9 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	- over 1 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 Operating Cost Statement.

When revalued assets are sold, the amounts included in the revaluation reserve are transferred to the general fund.

1.10 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.

(a) 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 their estimated useful lives of 5 to 15 years.

Costs associated with maintaining computer software programmes are recognised as an expense as incurred. Development costs that are directly attributable to the design and testing of identifiable and unique software products controlled by Forest Research are recognised as intangible assets when the following criteria are met:

- it is technically feasible to complete the software product so that it will be available for use;
- management intends to complete the software product and use or sell it;
- there is an ability to use or sell the software product;
- it can be demonstrated how the software product will generate probable future economic benefits;
- adequate technical, financial and other resources to complete the development and to use or sell the software product are available; and
- the expenditure attributable to the software product during its development can be reliably measured.

Directly attributable costs that are capitalised as part of the software product include the software development employee costs and an appropriate portion of relevant overheads.

Other development expenditures that do not meet these criteria are recognised as an expense as incurred. Development costs previously recognised as an expense are not recognised as an asset in a subsequent period.

Computer software development costs recognised as assets are subsequently revalued to depreciated replacement cost and amortised over their estimated useful lives of five to seven years.

1.11 Impairment of non-financial assets

Assets that are 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.

1.12 Subsidiaries, associates and joint ventures

Investments held in subsidiaries, associates or joint ventures that are outside the departmental boundary and where Forest Research does not exercise in-year budgetary control are accounted for in accordance with paragraph 4.2.4 of the FReM. Where such an investment is in another public sector entity it is reported at historical cost less any impairment. Where an investment is in another entity it is accounted for as a financial asset following the requirements of IAS 39 (see financial asset policy at note 1.13). C-Cure Solutions Ltd is accounted for as a financial asset available-for-sale.

1.13 Financial assets

Classification

Forest Research classifies its financial assets in the following categories: at fair value through profit or loss, loans and receivables, and available for sale. The classification depends on the purpose for which the financial assets were acquired. Management determines the classification of its financial assets at initial recognition.

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

Financial assets at fair value through profit or loss comprise derivatives. Assets in this category are classified as current assets. Forest Research does not trade in derivatives and does not apply hedge accounting.

(b) Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. They are included in current assets, except for maturities greater than 12 months after the reporting date. These are classified as non-current assets. Loans and receivables comprise trade and other receivables and cash and cash equivalents in the Statement of Financial Position.

(c) Available-for-sale financial assets

Available-for-sale financial assets are non-derivatives that are either designated in this category or not classified in any of the other categories. They are included in non-current assets unless management intends to dispose of the investment within 12 months of the reporting date. Available-for-sale financial assets comprise investments.

Recognition and measurement
Financial assets are recognised when Forest Research becomes party to the contractual provisions of the financial instrument.

Financial assets are 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, and transaction costs are expensed in the income statement.

Financial assets carried at fair value through profit or loss are subsequently measured at fair value. Gains or losses arising from changes in the fair value are presented in the Operating Cost Statement.

(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 according to the original terms of the receivables. Significant financial difficulties of the debtor, probability that the debtor will enter bankruptcy or financial reorganisation, and default or delinquency in payments are considered indicators that the loan and receivable is impaired. The amount of the provision is the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the original effective interest rate. The carrying amount of the asset is reduced through the use of an allowance account, and the amount of the loss is recognised in the Operating Cost Statement. When a loan or receivable is uncollectible, it is written off against the allowance account. Subsequent recoveries of amounts previously written off are credited in the Operating Cost Statement.

(c) Available-for-sale financial assets
Available-for-sale financial assets are initially recognised and subsequently carried at fair value. Changes in the fair value of financial assets classified as available for sale are recognised in equity. When financial assets classified as available for sale are sold or impaired, the accumulated fair value adjustments recognised in equity are included in the Operating Cost Statement. Dividends on available-for-sale equity instruments are recognised in the Operating Cost Statement when Forest Research's right to receive payments is established.

The fair values of quoted investments are based on current bid prices. If the market for a financial asset is not active (and for unlisted securities), Forest Research establishes fair value by using valuation techniques. These include the use of recent arm's length transactions, reference to other instruments that are substantially the same, discounted cash flow analysis, and option pricing models, making maximum use of market inputs and relying as little as possible on entity-specific inputs.

Forest Research assesses at each reporting date whether there is objective evidence that a financial asset or a group of financial assets is impaired. In the case of equity securities classified as available for sale, a significant or prolonged decline in the fair value of the security below its cost is considered as an indicator that the securities are impaired. If any such evidence exists for available-for-sale financial assets, the cumulative loss – measured as the difference between the acquisition cost and the current fair value, less any impairment loss on that financial asset previously recognised in profit or loss – is removed from equity and recognised in the Operating Cost Statement. Impairment losses recognised in the Operating Cost Statement on equity instruments are not reversed through the income statement.

1.14 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.

(a) Financial liabilities at fair value through profit or loss
Financial liabilities at fair value through profit or loss comprise derivatives. Liabilities in this category are classified as current liabilities. Forest Research does not trade in derivatives and does not apply hedge accounting.

(b) Other financial liabilities
Other financial liabilities are included in current liabilities, except for maturities greater than 12 months after the reporting date. These are classified as non-current liabilities. Forest Research's other financial liabilities comprise trade and other payables in the Statement of Financial Position.

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 it is extinguished, that is 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, and transaction costs are expensed in the income statement.

Financial liabilities carried at fair value through profit or loss are subsequently measured at fair value. Gains or losses arising from changes in the fair value are presented in the Operating Cost Statement.

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

1.15 Inventories

Consumable materials and supplies are stated at the lower of current cost and net realisable value. Net realisable value is based on estimated selling prices, less further costs expected to be incurred to completion and disposal.

1.16 Cash and cash equivalents

Cash and cash equivalents includes cash in hand, deposits held at call with banks, cash balances held by the Office of the Paymaster General 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.

1.17 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 Operating Cost Statement.

1.18 Government grants receivable

Government grants in respect of capital expenditure are credited to a government grant reserve. Subsequent revaluations are also taken to this reserve. Each year, an amount equal to the depreciation charge on the asset is released from the government grant reserve to the operating cost statement. Where the grant contributes only part of the cost of the asset, only that proportion is released from the government grant reserve. Grants of a revenue nature are credited to income so as to match them with the expenditure to which they relate.

1.19 Contingent liabilities

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

1.20 Prior period error

A lease between Forest Research (lessee) and Edinburgh University (lessor) had been capitalised incorrectly from 1997. The property being leased by Forest Research had been treated as a fully owned asset and required removal from property, plant and equipment. Due to a lack of historic information in the financial records the adjustment in these accounts has been calculated and based on best available and estimated figures. The value of the adjustment has been agreed at a total capital value of £116,946 with an assumed original capital cost of £45,000.

This adjustment became material after a revaluation in 2008–09 and is therefore included in the accounts for this period only.

The financial statements have been adjusted as follows:

Property, plant and equipment

Full cost of asset £116,946 and cumulative depreciation of £11,129 removed from property, plant and equipment.

General fund

Full cost of asset £116,946 has been deducted from the general fund and the cumulative depreciation of £11,129 added back. Assumed revaluation since inception of £83,075 has also been added back to the general fund balance.

Revaluation reserve

Assumed revaluation since inception of £83,075 has been deducted from revaluation reserve.

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. 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 are as follows:

Intangible assets

Per IAS 38 Intangible Assets: an intangible asset arising from development shall be recognised if all of the following can be demonstrated by the entity:

- The technical feasibility of completing the intangible asset so that it will be available for use or sale.
- Its intention to complete the intangible asset and use or sell it.
- Its ability to use or sell the intangible asset.
- How the intangible asset will generate probable future economic benefits. Among other things, the entity can demonstrate the existence of a market for the output of the intangible asset itself, or if it is to be used internally, the usefulness of the intangible asset.
- The availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset.
- Its ability to measure the expenditure attributable to the intangible asset during its development.

To date it has been deemed that the development activities undertaken by Forest Research have not met these conditions and therefore no intangible assets relating to development have been recognised. This will continue to be reviewed on an on-going basis.

Note 3. First Time Adoption of IFRS

	General Fund £000	Revaluation Reserve £000
Taxpayers' equity at 1 April 2008 under UK GAAP	**7,086**	**8,131**
Adjustments for:		
IAS 19 Pay in lieu of untaken leave accrual 2007–08	(571)	-
IAS 19 Performance related pay bonus accrual 2007–08	(54)	-
Taxpayers' equity at 1 April 2008 under IFRS	**6,461**	**8,131**
Taxpayers' equity at 31 March 2009 under UK GAAP	**5,069**	**6,824**
Adjustments for:		
Prior period error under IAS 8	(23)	(83)
1 April 2008 IFRS adjustments	(625)	-
IAS 19 Pay in lieu of untaken leave accrual increase	(71)	-
IAS 19 Performance related pay bonus accrual decrease	45	-
Taxpayers' equity at 1 April 2009 under IFRS	**4,395**	**6,741**

	£000
Net operating deficit for 2008–09 under UK GAAP	**(1,822)**
Adjustments for:	
IAS 19 Pay in lieu of untaken leave accrual 2007–08 reversal	571
IAS 19 Pay in lieu of untaken leave accrual 2008–09	(642)
IAS 19 Performance related pay bonus accrual 2007–08 reversal	54
IAS 19 Performance related pay bonus accrual 2008–09	(9)
Notional cost of capital decrease	21
Net operating deficit for 2008–09 under IFRS	**(1,827)**

No cash equivalents were held by Forest Research at 31 March 2009 or 1 April 2008.

IFRS adjustments rationale

IAS 19 Pay in lieu of untaken leave accrual 2007–08 and 2008–09: in accordance with IAS 19 Employee Benefits, accruals have been made in respect of carried forward employee annual leave at 31 March 2008 and 31 March 2009.

IAS 19 Performance related pay bonus accrual 2007–08 and 2008–09: in accordance with IAS 19 Employee Benefits, accruals have been made in respect of unpaid performance related pay bonuses for the performance year at 31 March 2008 and 31 March 2009.

Notional cost of capital: the notional cost of capital has been recalculated based on IFRS net assets at 31 March 2009.

Note 4. 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. These charges amounted to £9.4 million. In addition to the annual research programme, Forest Research provides other research and survey services for Forest Enterprise and Forestry Commission on a full cost recovery basis.

Income from Forestry Commission customers consisted of:

	2009–10	2008–09
	£000	£000
Research, development and other services to:		
Forestry Commission	**11,187**	12,075
Forest Enterprise	**1,692**	1,340
	12,879	13,415

The decrease is mainly as a result of the Woodland Surveys staff transferring to the Forestry Commission thereby reducing related income.

Note 5. Foreign Exchange Gains and Losses

EU income includes nil (2008–09 £55,000) relating to gains on foreign exchange transactions. Other income includes a loss of £4,000 (2008–09 £30,000 gain) on foreign exchange transactions.

Note 6. Staff Costs and Numbers

6.1 Employee costs during the year amounted to:

			2009–10	2008–09
	Permanent staff	**Other staff**	**Total**	
	£000	**£000**	**£000**	£000
Wages and Salaries	**6,414**	**1,217**	**7,631**	7,736
Social Security Costs	**489**	**91**	**580**	585
Employer's Superannuation Costs	**1,245**	**162**	**1,407**	1,495
Agency Staff Costs	**–**	**21**	**21**	35
	8,148	**1,491**	**9,639**	9,851

Average number of employees (full-time equivalents)	**2009-10**	2008-09
Permanent staff	**207**	217
Others	**49**	45
Total staff	**256**	262

Staff were covered by the Principal Civil Service Pension Scheme (PCSPS) which 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 2007. Details can be found in the resource accounts of the Cabinet Office: Civil Superannuation (www.civilservice-pensions.gov.uk).

For 2009–10, employer's contributions of £1,407,461 were payable to the PCSPS (2008–09: £1,494,690) at one of four rates in the range 17.1% to 25.5% (2008–09: 17.1% to 25.5%) of pensionable pay, based on salary bands. The scheme actuary reviews employer contributions every four years following a full scheme valuation. The contribution rates reflect benefits accruing during 2009–10 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. No Agency staff have yet taken this option.

6.2 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 three individual members of staff at 31 March 2010 and 2009. The total outstanding value of all loans was £57,531 (2008–09: £63,308). Such loans are unsecured, interest free and typically repayable over 10 years, with an optional 2 year deferral period.

6.3 Early departure costs

During 2009–10 15 staff left under the restructuring programme announced in February 2009. In 2008–09 Forest Research made a provision of £1,220,000 for the future costs at present value of the early severance on compulsory terms. During 2009–10 the provision was increased by £67,000 to cover additional costs of the scheme. Funding of the cash costs due in 2010–11 of £164,000 will be covered by the Forestry Commission Great Britain.

Note 7. Other Management Costs

Other management costs are stated after charging:

	Notes	**2009–10** £000	2008–09 £000
Travel and subsistence		**574**	566
Building maintenance		**503**	446
Utilities		**318**	323
Training		**218**	254
Other expenditure		**67**	134
Auditors' remuneration*		**34**	28
Auditors' remuneration – other**		**3**	-
Computer supplies		**73**	85
Staff transfer expenses		**30**	59
Non-cash costs:			
Provisions – exceptional restructuring early departure costs:			
Provided in year	17	**-**	1,266
Unwinding of discount	17	**-**	(46)
Provisions – other early departure costs:			
Provided in year	17	**67**	36
Unwinding of discount	17	**1**	(27)
Depreciation of property, plant and equipment	10	**727**	658
Amortisation of intangible assets	11	**60**	59
Loss on disposal of property, plant and equipment	10	**27**	143
Loss on disposal of intangible assets	11	**-**	6
Total		**2,702**	3,990

* Auditors' remuneration for 2009–10 includes £31,000 for audit of these accounts and an additional £3,000 for the 2008–09 accounts.

** Auditors' remuneration – other for 2009–10 includes £3,000 for audit of IFRS shadow accounts for 2008–09.

Included within other management costs are charges from the Forestry Commission and Forest Enterprise amounting in total to £173,000 (2008–09: £191,000).

Note 8. Materials and Services

Materials and services are stated after charging:

	2009–10	2008–09
	£000	£000
Materials and supplies	**776**	796
Central services provided by Forestry Commission	**643**	713
Vehicle lease charges from Forestry Commission	**370**	393
Contractors	**508**	506
Commissioned research	**124**	142
Publications	**10**	22
Protective clothing	**17**	15
Miscellaneous expenditure	**218**	305
	2,666	2,892

Included within materials and services are charges from the Forestry Commission and Forest Enterprise amounting in total to £1,013,000 (2008–09: £1,106,000).

Charges are made to Forest Research from the Forestry Commission and Forest Enterprise, as appropriate, for assistance with field experiments, hire of vehicles, machinery and equipment and for personnel, business management, financial and other support services at Silvan House, Edinburgh.

Note 9. Cost of Capital

Notional cost of capital based on 3.5% (2008–09: 3.5%) of average total assets, less current liabilities employed in 2009–10 amounted to £411,000 (2008–09: £453,000).

Note 10. Tangible Fixed Assets

	Freehold Land	Buildings	Scientific Equipment	IT Equipment	Other Machinery and Equipment	Total
	£000	£000	£000	£000	£000	£000
Valuation:						
At 1 April 2009	2,038	10,097	2,046	643	865	15,689
Additions	-	375	158	24	2	559
Transfers	-	-	-	18	-	18
Disposals	-	-	(115)	(27)	(21)	(163)
Revaluation to current prices	-	1,731	62	51	6	1,850
At 31 March 2010	**2,038**	**12,203**	**2,151**	**709**	**852**	**17,953**
Depreciation:						
At 1 April 2009	-	1,761	1,025	443	291	3,520
Provided in year	-	366	194	97	70	727
Transfers	-	(4)	-	14	-	10
Disposals	-	-	(90)	(27)	(18)	(135)
Revaluation to current prices	-	273	27	30	2	332
At 31 March 2010	**-**	**2,396**	**1,156**	**557**	**345**	**4,454**
Net book value:						
At 31 March 2010	**2,038**	**9,807**	**995**	**152**	**507**	**13,499**
At 31 March 2009	2,038	8,336	1,021	200	574	12,169

Fixed assets were revalued as at 31 March 2010 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 £6.3 million and £3.0 million, respectively, at 31 March 2010.

Depreciation expenses of £727,000 (2008–09: £658,000) have been charged to other management costs in the Operating Cost Statement.

Forest Research received a grant from the Department of Energy and Climate Change of £129,000 for installation of photovoltaic panels at Alice Holt. The related expenditure has been included in additions to buildings (see note 1.18).

Note 11. Intangible Fixed Assets

	2009–10	2008–09
	£000	£000
Valuation		
Balance at 1 April	**312**	279
Additions	**21**	51
Disposals	**–**	(12)
Transfers	**–**	(3)
Revaluation	**31**	(3)
As at 31 March	**364**	312
Amortisation		
Opening balance	**170**	120
Depreciation in year	**60**	59
Disposals	**–**	(6)
Transfers	**–**	(2)
Revaluation	**13**	(1)
As at 31 March	**243**	170
Net book value	**121**	142

Intangible fixed assets relate wholly to purchased software.

Amortisation of £60,000 (2008–09: £59,000) has been charged to other management costs in the Operating Cost Statement.

Note 12. Financial Assets

	2009–10	2008–09
	£000	£000
Valuation		
Balance at 1 April	-	-
Additions at cost	**25**	-
As at 31 March	**25**	-

This relates to the investment in C-Cure Solutions Ltd, a spin-out company jointly launched with the University of Surrey during 2009–10, in the area of land remediation. The company has initial capital funding of £50,000, £25,000 from each partner, who each own 33.4% of the company and the inventors own the remaining 33.2%. C-Cure Solutions Ltd, has its registered office at 25 Wakehurst Place, Rustington, West Sussex, BN18 3NG.

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

Note 13. Receivables

13a. Analysis by type

	2009–10	2008–09	2007-08
	£000	£000	£000
Current			
EU Trade Receivables	**40**	145	295
Other Trade Receivables	**215**	279	438
Total Trade Receivables	**255**	424	733
House purchase loans to employees	**7**	5	7
Prepayments and accrued income	**643**	870	1,132
Total Current Receivables	**905**	1,299	1,872
Non-current			
House purchase loans	**51**	58	44
	956	1,357	1,916

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

All non-current receivables are due within 11 years from 31 March 2010.

As of 31 March 2010, £230,000 (2008–09: £181,000) were fully performing and not overdue or impaired and provided for.

As of 31 March 2010, trade receivables of £168,000 (2008–09: £243,000) were overdue but not impaired. These relate to a number of customers for whom there is no recent history of default. The ageing analysis of these trade receivables is as follows:

	2009–10	2008–09	2007-08
	£000	£000	£000
Less than one month	**94**	48	100
One to two months	**4**	13	37
Two to three months	**32**	182*	330*
More than three months	**38**		
	168	243	467

As of 31 March 2010, trade receivables of £nil (2008–09: £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:

	2009–10	2008–09	2007-08
Current	**£000**	£000	£000
UK Pound	**756**	560	807
Euro	**136**	719	1,058
US Dollar	**13**	20	7
	905	1,299	1,872
Non-current			
UK Pound	**51**	58	44
	956	1,357	1,916

* Figures for 2008–09 and 2007–08 could not be disaggregated further and relate to a period of more than two months.

13b. Intra-Government balances

	2009-10	2008-09	2007-08
	£000	£000	£000
Current			
Balances with other central government bodies	**111**	64	255
Balances with local authorities	**60**	-	27
Intra-Government balances	**171**	64	282
Balances with bodies external to government	**734**	1,235	1,590
	905	1,299	1,872
Non-current			
Balances with bodies external to government	**51**	58	44
	956	1,357	1,916

Note 14. Inventories

	2009-10	2008-09
	£000	£000
Inventories	**3**	3
	3	3

In previous years Work In Progress has been included with Inventories, but has now been reclassified as accrued income which is more appropriate as it relates to work on contracts not invoiced as at the end of the financial year.

Note 15. Cash and Cash Equivalents

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

	2009–10	2008–09	2007–08
	£000	£000	£000
Opening balance at 1 April	**454**	275	248
Net change in balances	**(432)**	179	27
Balance at 31 March	**22**	454	275

Forest Research had neither bank overdraft nor short-term investments as at 31 March of any of the three 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 16. Trade and Other Payables

	2009–10	2008–09	2007–08
	£000	£000	£000
Current			
Payments received on account	**842**	677	324
Trade payables	**143**	350	848
Taxation and social security costs	**41**	48	46
Accrued expenses and deferred income	**685**	616	592
	1,711	1,691	1,810

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

All payables are to bodies external to central or local government, with the exception of £1,000 for a public corporation and trading funds as at 31 March 2010. Funds held on behalf of partners in European Commission projects are treated as third-party assets and not recorded on the face of the accounts (see note 28). At 31 March 2010 the amount held in Forest Research bank accounts on behalf of partners was £301,048.02 (31 March 2009: £11,544.83).

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

	2009-10	2008-09	2007-08
	£000	£000	£000
Current			
UK Pound	**1,535**	1,637	1,619
Euro	**165**	48	156
US Dollar	**11**	-	1
Danish Krona	**-**	6	34
	1,711	1,691	1,810

Note 17. Provisions for Liabilities and Charges

	2009-10	2008-09
	£000	£000
Early departure costs		
Balance brought forward at 1 April	**1,298**	103
Provided in year	**67**	1,302
Utilised in year	**(771)**	(34)
Unwinding of discount	**1**	(73)
Balance carried forward at 31 March	**595**	1,298

Analysis of expected timing of discounted cash flows:

	Early departure costs
	£000
In the remainder of the Spending Review period to 31 March 2011	**164**
Between 1 April 2011 and 31 March 2016	**415**
Between 1 April 2016 and 31 March 2021	**16**
Balance at 31 March 2010	**595**

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

Note 18. General Fund

	2009–10	2008–09
	£000	£000
Balance brought forward	**4,395**	6,461
Prior period adjustment (IAS 8)	**-**	(23)
Adjusted balance brought forward	**4,395**	6,438
Movement in year		
Net (deficit) for year	**(391)**	(1,827)
Transfer from Revaluation Reserve	**-**	28
Transfer of fixed assets to (-)/from other Forestry Bodies	**8**	(17)
Cash surplus to (-)/deficit from Forestry Commission	**(442)**	(671)
Non-cash inter-country transfers	**(64)**	(5)
Timing between accrual and cash VAT	**(3)**	(4)
Notional cost of capital	**411**	453
Balance carried forward	**3,914**	4,395

The prior year correction relates to the Foresters House at the Northern Research Station, which is not owned by Forest Research and had been incorrectly capitalised in the accounts. The net book value of the building was £106,000 (see note 1.20).

Note 19. Revaluation Reserve

	2009–10	2008–09
	£000	£000
Balance brought forward	**6,741**	8,131
Prior period adjustment (IAS 8)	**-**	(83)
Adjusted balance brought forward	**6,741**	8,048
Revaluation surplus/(deficit) for the year		
Land and Buildings	**1,458**	(1,285)
Scientific equipment	**35**	10
IT	**21**	(3)
Other machinery and equipment	**4**	1
Intangible assets	**18**	(2)
	1,536	(1,279)
Transfer to general fund for backlog depreciation	**-**	(28)
Balance carried forward	**8,277**	6,741

The prior year adjustment relates to revaluation of the Foresters House at the Northern Research Station, which had been incorrectly capitalised in the accounts (see notes 18 and 1.20).

Note 20. Government Grant Reserve

	2009–10	2008–09
	£000	£000
Balance brought forward	**-**	-
Grant received in year	**129**	-
Balance carried forward	**129**	–

Note 21. Financial Instruments

21.1 Financial Instruments by category

	2009-10	2008-09	2007-08
		Loans and receivables	
	£000	£000	£000
Assets as per Statement of Financial Position			
Trade and other receivables (excluding prepayments)	**625**	1,110	1,732
Cash and cash equivalents	**22**	454	275
Total	**647**	1,564	2,007

	2009-10	2008-09	2007-08
		Other financial liabilities	
	£000	£000	£000
Liabilities as per Statement of Financial Position			
Trade and other payables excluding statutory liabilities (excluding payments received on account)	**828**	966	1,440
Total	**828**	966	1,440

21.2 Exposure to risk

Forest Research's activities expose it to a variety of financial risks:

- Credit risk – the possibility that other parties might fail to pay amounts due.
- Liquidity risk – the possibility that Forest Research might not have funds available to meet its commitments to make payments.

Because of the largely non-trading nature of its activities and the way in which government departments are financed, Forest Research is not exposed to the degree of financial risk faced by business entities.

Credit risk

Credit risk arises from cash and cash equivalents, deposits with banks and other institutions, as well as credit exposures to customers, including outstanding receivables and committed transactions.

Liquidity risk

Each financial year, the Forestry Commission makes provision for the use of resources by Forest Research for revenue and capital purposes. Each financial year, the Westminster Parliament makes provision for the use of resources by the Forestry Commission for revenue and capital purposes in the Consolidated Fund Act via the Department for Environment, Food and Rural Affairs (Defra) vote. Resources and accruing resources may be used only for the purposes specified and up to the amounts specified in the Consolidated Fund Act. The Act also specifies an overall cash authorisation to operate for the financial year. Forest Research is not therefore exposed to significant liquidity risks.

The table below analyses the financial liabilities into relevant maturity groupings based on the remaining period at the balance sheet to contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows. Balances due within 12 months equal their carrying balances as the impact of discounting is not significant.

	2009–10		2008–09		2007–08	
	Less than 1 year	**More than 1 year**	Less than 1 year	More than 1 year	Less than 1 year	More than 1 year
	£000	**£000**	£000	£000	£000	£000
Trade and other payables excluding statutory liabilities (excluding payments received on account)	**828**	**–**	966	–	1,440	–

Market risk

The Agency has no powers to borrow or invest surplus funds. Financial assets and liabilities are generated by day-to-day operational activities and are not held to manage the risks facing Forest Research in undertaking its activities. However, under the Regulatory Reform (Forestry) Order 2006, with Treasury approval, Forest Research may form or participate in the forming of a body corporate, invest in a body corporate and provide loans. The Agency may also exploit any intellectual property arising from research.

During 2009–10, Forest Research made an investment of £25,000 in C-Cure Solutions Ltd, a spin-out company jointly launched with the University of Surrey. The company has initial capital funding of £50,000, £25,000 from each partner, who each own 33.4% of the company and the inventors own the remaining 33.2%. The investment has been recorded at its cash cost.

(i) Cash flow and fair value 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.

(ii) 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 US Dollars.

EU contract income denominated in Euros and US Dollars forms only 3% of Forest Research's total income. Therefore fluctuations in exchange rates do not have a significant impact on Forest Research's financial position.

21.3 Capital risk management

The Agency's objectives when managing its capital structure are to maintain its ability to continue to provide benefits for stakeholders and to maintain an optimal capital structure to safeguard Taxpayers' Equity.

21.4 Fair value estimation

The carrying value less impairment provision of trade receivables and payables are assumed to approximate their fair value.

Note 22. Capital Commitments

There were no contracted capital commitments at 31 March 2010 (2008–09: £nil).

Note 23. Commitments Under Operating Leases

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

Obligations under operating leases comprise:

	2009–10	2008–09
Land:	**£000**	£000
Not later than one year	**2**	2
Later than one year and not later than five years	**10**	10
Later than five years	**2**	4
Total	**14**	16

	2009–10	2008–09
Buildings:	**£000**	£000
Not later than one year	**1**	1
Later than one year and not later than five years	**6**	6
Later than five years	**1**	2
Total	**8**	9

Note 24. Other Financial Commitments

There were no other financial commitments at 31 March 2010 (2008–09: £nil).

Note 25. Contingent Liabilities Disclosed under IAS 37

There was one contingent liability at 31 March 2010 in respect of actions by an employee (2008–09: one).

Note 26. Losses and Special Payments

	2009–10			2008–09
	Number	**£000**	Number	£000
Losses total	**-**	**-**	1	-*
Special payments total	**-**	**-**	2	49

*The loss was less than £1,000.

Note 27. 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 the Department for Environment, Food and Rural Affairs, who are regarded as related parties. In addition, Forest Research has had operational transactions with other Government Departments and other central Government bodies.

27a. Purchases of goods and services:

	2009–10	2008–09
	£000	£000
The University of Reading	**10**	4
The University of Southampton	**8**	4
Total	**18**	8

The above transactions, for course fees, student stipend, samples, amendments to an existing database, production of a new database and a related training course, occurred on an arm's length basis. These transactions are disclosed as Andy Moffat holds a visiting professorship at the University of Reading and Peter Freer-Smith holds a visiting professorship at the University of Southampton. There were no outstanding balances at 31 March 2010 (2008–09: £nil).

27b. Key management compensation

Key management personnel are deemed to be the members of the Executive Board of Forest Research. The compensation of such individuals whilst serving on the Executive Board (excluding Wilma Harper whose compensation is borne by the Forestry Commission Great Britain/England) was as follows:

	2009–10	2008–09
	£000	£000
Salaries and other short-term employee benefits	**422**	573
Post-employment benefits	**83**	122
Total	**505**	695

At 31 March 2010 there were no amounts owing to key management personnel (2008–09: £8,000).

Refer to the Remuneration Report (page 50) for further details of remuneration of Executive Board members.

27c. Loans to related parties

	2009–10	2008–09
	£000	£000
Loans to key management personnel		
Balance at 1 April	**28**	-
Loans repaid during year	**-**	-
Loans advanced during year	**-**	28
Balance at 31 March	**28**	28

The above balance relates to one member of key management personnel. House purchase loans to key management personnel are provided on the same terms and conditions as other Forestry Commission staff members. Such advances of salary are unsecured, interest free and typically repayable over 10 years, with an optional 2 year deferral period.

£nil provision has been made at 31 March 2010 (2008-09: £nil) in relation to the loans made to key management personnel.

27d. Transactions with C-Cure Solutions Ltd

	2009–10	2008–09
	£000	£000
C-Cure Solutions Ltd	**25**	-

The above transaction for investment in shares in C-Cure Solutions Ltd is disclosed as under the Agreement to form the company, James Pendlebury was appointed as the Forest Research Director of the company. See note 12 for more details.

	2009–10	2008–09
	£000	£000
Loans to other related parties		
Balance at 1 April	**–**	-
Loans advanced during year	**6**	-
Balance at 31 March	**6**	-

The above balance relates to a payment made by Forest Research on behalf of C-Cure Solutions Ltd for materials before the company had received funding from Forest Research and Surrey University. The balance will be repaid during the first quarter of 2010–11.

Note 28. Third-Party Assets

As a co-ordinator 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.

	2008–09	Gross inflows	Gross outflows	2009–10
	£000	£000	£000	£000
Monetary third-party assets – bank balances	12	301	(12)	**301**

Note 29. Events After 31 March 2010

These financial statements were authorised for issue on 8 July 2010 by Forest Research Accounting Officer.

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