

Foreword

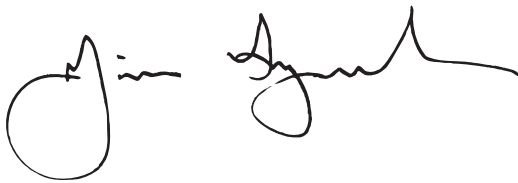
by Professor Jim Lynch, new Chief Executive

I have spent a career investigating the multiple interactions of soils, plants and micro-organisms in the context of agriculture and horticulture at research institutes of the BBSRC and various universities (Surrey, Kings College London, Oxford, Washington State and Oregon State). Before I joined Forest Research on 1 July 2003, I had been rather unfamiliar with the achievements of forestry research in the UK, even though I spent a period in the early 1980s teaching agriculture and forestry students in Oxford. It has been a revelation to me to learn of the quality of research in our agency, spreading over a broad range of natural and more recently social science disciplines, some of which are illustrated in this Annual Report of our activities. It also strikes me that so much of what we do can potentially have major impacts on the environment and society. It is my perception that fellow scientists, let alone politicians and the public at large, are not very aware of what we are doing. Clearly this must change and it will certainly be one of the first objectives in leading the agency.

Of course, I hope that our principal stakeholders, the forestry industry, are aware of our work and I trust that we are responsive to their needs. However for the industry to flourish there must be innovation, a need which is increasingly recognised by our main customer for research, the Forestry Group of the Forestry Commission. Our scientific team therefore needs not just to be responsive to the current needs of the industry, but also to present innovative options to promote the sustainability and growth of the industry. Although we already have partnerships with universities, research council institutes and governmental departments, I feel that the further development of these relationships should focus on synergistic approaches to achieve the innovation that we need.

Forestry is clearly important on the international stage, as emphasised so emphatically at the series of UN conferences on the environment started at the Rio Summit in 1992. For my own part I have served on the Organisation for Economic Cooperation and Development Management Committee on Biological Resource Management for Sustainable Agricultural Systems as Co-ordinator since 1989. It is only in the past year that we have directly recognised the importance of forestry as an integrated approach to managing the sustainability of the environment. In realising our own objectives for GB forestry, I believe that increased international co-operation will be crucial, by building on our existing activities, particularly with Europe and further afield.

I am very excited about the opportunities that Forest Research presents for our stakeholders, which certainly includes the public, and I look forward to acting as facilitator to lead our staff into realising the opportunities offered by the forestry industry and their own potential.



Jim Lynch



Professor Jim Lynch joined Forest Research as Chief Executive on 1 July 2003. Prior to that, for ten years, he had been Head of the 5*A School of Biomedical and Life Sciences at the University of Surrey, following a career in BBSRC. He graduated with a BTech from Loughborough University in Chemistry, followed by a PhD and DSc at Kings College London in Microbiology. He is a Fellow of the Royal Society of Chemistry, The Institute of Biology, The International Institute of Biotechnology and the Royal Society of Arts. In 1993 he won the UNESCO Microbiology prize.



About Forest Research

Forest Research is an agency of the Forestry Commission and is the leading UK organisation engaged in forestry and tree related research.

Aims and objectives

The aims and objectives of Forest Research (FR) are to assist the Forestry Commission in achieving its high-level objective.

On behalf of all three administrations, to take the lead in development and promotion of sustainable forest management and to support its achievement internationally.

FR's Aims

To support and enhance forestry and its role in sustainable development, by providing high-quality research and development in a well-run organisation.

FR's Objectives

- To inform and support forestry's contribution to the development and delivery of the policies of the UK government and the devolved administrations.
- To provide research, development and monitoring services relevant to UK forestry interests.
- To transfer knowledge actively and appropriately.

Entrance to the Northern Research Station at Roslin



Alice Holt Lodge, Hampshire



Mixed oak and beech woodland in Buckinghamshire



Research funding

Much of FR's work is funded by the Forestry Commission with Forestry Group acting as purchaser of research and other services in support of forestry in Britain, including the particular needs of England, Scotland and Wales. Forest Enterprise was responsible for managing the FC estate during 2002–03, and purchased research, development and surveys specifically related to this estate. In recent years FR has successfully applied for external (non-FC) funding from 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 partnerships.

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 new knowledge and practical solutions based on high quality science. Our projects provide understanding, policy advice and guidelines on implementation of best practice (e.g. on forest hydrology, continuous cover forestry, timber quality, land reclamation to woodland, and restoration of native woodlands). Much of the research is directed at increasing the biodiversity, landscape and recreational benefits of woodlands. Protection of GB 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 organisations to ensure compliance with international agreements on the sustainable management of forests and related subjects. The Agency also carries out work on genetic conservation, tree improvement, seed testing, method studies, product evaluation, crop inventory, surveys (*The national inventory of woodland and trees*) and monitoring.

Resources

The Agency has two main research stations, Alice Holt Lodge in Hampshire and the Northern Research Station on the Bush Estate south of Edinburgh. The main office of Technical Development Branch is located at Ae in Dumfriesshire with subsidiary offices in the English Midlands and Wales. The Agency also has 10 field stations (the Technical Services) from which an extensive network of field trials, sample plots and monitoring sites is assessed. Contact information is given on the inside back cover. The Agency employs 280 staff, not including visiting scientists and sandwich students. FR has published a Corporate Plan for the period 2003–2006 and copies are available from the Library at Alice Holt Lodge.



Acting Chief Executive's Introduction

2002–03 Major achievements

The year 2002–03 has been unusual but highly successful for FR and it is a great pleasure for me to introduce this year's Report on Forest Research. The Forestry Devolution Review (FDR) was agreed and we moved into the current implementation phase; the second report of FR's first Quinquennial Review was presented to Ministers in October 2002; and FR had an interim Chief Executive. Additionally the second FC-wide staff survey was conducted, and reported a general improvement in scores across all categories. Inevitably it has been an exceptionally busy year and one in which there have been opportunities to influence the outcome of major decisions. As a result of the work which has been done FR has moved into 2003–04 and the implementation of review recommendations with confidence and enthusiasm.

Scots pine stand



Lowland beechwood in autumn



Ringing a young nightjar in Sherwood Forest as part of long-term monitoring and landscape ecology research.



As Acting Chief Executive, it is very pleasing to me that FR's achievements over this year have exceeded expectations. This is quantifiable through the achievements of our key targets which cover science quality, full cost recovery and customer satisfaction. These targets are only met through members of staff initiating and conducting high quality research, submitting papers and other outputs on time, working to budget and liaising effectively with colleagues and funders. In a year of significant change for the Forestry Commission and within FR, it is very clear that our success resulted from hard work, a positive approach and a refusal to be distracted from personal and team obligations. I have seen this dedication at first hand for a number of projects and the pages that follow in this report provide specific examples from across the range of FR's 2002–03 programme.

As always there have been a number of important external influences during 2002–03. There has been a continuing focus, indeed pressure, on forestry globally: pressure to achieve sustainable forest management, to

conserve forests as carbon sinks, and to conserve biodiversity and forest genetic resources. There are also international obligations to protect forests from new and established pests and diseases and to monitor forest condition. Against this background FR has to work closely with EU and other international colleagues. The EU has launched its 6th framework programme of research and development which offers an opportunity to maintain our good international collaborations. However the objective of the EU FP6 is to build capacity in Europe in order to consolidate Europe's position as one of a few major global research areas. The programme is likely to fund fewer, larger projects than previous FPs and these need to address directly the contents of the work programmes in which there is little mention of forestry. In response to these influences FR has developed a small number of high quality EU bids focused on key strategic issues and has worked closely with established and new partners in the UK and internationally.

Targets and achievements over the past five years

Performance measure		1998/99	1999/00	2000/01	2001/02	2002/03	
Customer satisfaction	Target	92%	95%	96%	96%	97%	TARGET MET
	Achieved	94%	96%	97%	97%	98%	
Peer-reviewed papers	Target	35	38	43	48	48	TARGET MET
	Achieved	40	43	48	48	48	
Unit cost/research day (unweighted) 96/97 = 100	Target	96	94	94	94	92	TARGET MET
	Achieved	94	86	82	81	79	
Unit cost of support services	Target	-	98	96	94	92	TARGET MET
	Achieved	100	95	92	86	84	
Cost recovery	Target	100%	100%	100%	99%	100%	TARGET MET
	Achieved	103%	100%	101%	100%	100%	



Quinquennial Review

Forest Research has completed its first five years as an agency and our first Quinquennial Review (FRQR) of performance and future objectives was concluded during 2002–03. This review included extensive consultation with stakeholders and it was pleasing to find strong support for FR's role, achievements to date and future. The review was particularly important not only as FR's first but also because it informed the Government's review of the role of the Forestry Commission post-devolution. It is a tribute to all FR staff that the review was so positive and that, based on the review, Ministers and the administrations in England, Scotland and Wales were able to endorse Forest Research as a GB agency of the Forestry Commission.

The first stage of the review concluded that there was a continuing need for the work of FR and that the best means of delivery was through an agency of the Forestry Commission – FR. The second stage report made a number of specific recommendations on the future aims, objectives, management and measurement of performance. In particular new approaches are recommended for the identification of research requirements, for the prioritisation of FR's research programmes and for the transfer of knowledge to forestry practitioners.

In these areas new arrangements which fit comfortably with the greater devolution of Forestry Commission activities to the three countries are now being implemented. A new *Framework Document* for Forest Research has been agreed, and the *Forest Research Corporate Plan 2003–2006* sets out in detail how we will meet our new aims over the next few years and describes the new performance targets for 2003/2004. (Copies of both publications are available from Alice Holt Library.) The aims and objectives set out on page 6 are those established in the new *Framework Document* which was formally effective from April 2003, but to which we have also addressed our efforts over the past year.

2002–03 Research highlights

This year's research highlights are presented by interdisciplinary theme. This reflects the way in which we have increasingly been working and also follows a steer on FR's Report on Forest Research provided in the Quinquennial Review. Eight reports by research theme follow here; themes similar to these will also be used on the new FR WebPages, and are team contributions intended to summarise the year's main findings, put them in the context of the overall programme and direct the reader to full accounts of the research. As in recent years this first section of the report is followed by six main articles which provide a comprehensive account of selected subjects where important issues have arisen and where major progress has been made.

FR currently has c.60 major research programmes (see page 91). It is interesting that an analysis of these conducted in May 2003 showed that some 24 began after 1998. This is a large proportion for research which supports forestry where rotation length and hence technical problems can remain current for significant periods – often decades. Many of our research programmes are thus new, or relatively new, and those which feature as major articles here are amongst those currently providing significant policy and practical advice. The main articles address pests and diseases, social forestry, managing the historic environment, genetic conservation of native trees, stem straightness in Sitka spruce and climate change. The redirection of FR's research in order to maximise its benefits is an ongoing task and, following FDR and the FRQR, along with Forestry Group, we have a newly established structure and procedure to achieve this. These new procedures will in particular take into account the research needs of England, Scotland and Wales.

As always there have been a number of circumstances which have influenced FR's work significantly during 2002–03. Among these have been the continuing concerns over *Phytophthora*

ramorum (the fungus responsible for Sudden Oak Death in California and Oregon), the proposed changes to the *Dendroctonus Micans* Control Areas which result from the new outbreaks which have occurred, the loss of permethrin for the control of *Hylobius abietis*, and the planning for the new inventory of woods and trees. Over the year there has been close working with other parts of the FC, for example with Country Services on implementation of the new EU Forest Reproductive Materials Regulations. The continuing strong interest of UK forestry in moving to a larger area of continuous cover, in natural regeneration, conservation of biodiversity, restoration of native woodlands, timber quality, deer control, and in public involvement in forestry, have resulted in sustained demand for applied forest science and joint working with FR. Sound research is also essential to create the evidence base for well-founded policies. Current influences are contributing to a sustainable rural economy, urban renewal and forest landscape restoration. I believe that, in addition, forestry's response to climate change, the potential of woodfuel, and continuing improvements in data archiving, use and access will be important influences on our research programmes over the next few years.

Advisory Committee on Forest Research

The Advisory Committee provides guidance to FR and to the FC's Forestry Group on the quality and direction of FR's research. During the year the Committee discussed the Quinquennial Review of Forest Research and provided guidance on the development of FR's new Science Strategy. They also appointed visiting groups to look at the silviculture and entomology research programmes during 2003. The Committee visited the North York Moors in September 2002 to look at various aspects of FR's work: continuous cover forestry; cold hardiness (being conducted in the EU project

called COLDtree); the control of *Hylobius*; long-term mixtures of birch and Scots pine; the regeneration of upland oakwoods.

We were sorry to hear of Rob Kempton's death in May 2003. Rob had been Director of BioSS since 1987, and also an enthusiastic and highly supportive member of the Committee since January 2000. He will be greatly missed.

Finance

Income in the year increased by 1% compared to the previous year. Within this a reduction in Forestry Commission income of £320,000 was offset by a significant increase in income from non-FC sources of £417,000 or 33%. Total expenditure was held within 0.3% of 2001–02 levels despite an increase of nearly 3% in staff costs.

The target net operating surplus for the year of £620,000 was exceeded by £8,000 resulting in a full cost recovery performance of 100.1% against the target of full cost recovery (100%).

Capital investment at £473,000 covered a wide range of scientific and technical equipment including, notably, state of the art ion chromatography and DNA sequencing facilities, as well as IT equipment and laboratory and office refurbishments. A continuing programme of capital investment in infrastructure, facilities and equipment is essential if we are to maintain the high quality and cost effectiveness of our research.

For the first time, the Agency took the lead co-ordination role in major EC research projects with the additional responsibility of managing the distribution of funds to partners across Europe. Some £1.4 million were successfully managed during the year.

People

The total number of staff employed by the Agency at year end excluding sandwich students and visiting scientists was 280 full-time equivalents.

Steve Petty, formerly of Woodland Ecology, was the first person to be awarded Research Associate status with Forest Research.

Jonathan Humphrey (Woodland Ecology) was appointed Chair of the British Ecological Society Forest Ecology Group; Sam Evans (Mensuration) received an Honorary Senior Fellowship at the School of Biological and Biomedical Sciences, University of Durham; Juan Suárez (Silviculture North) was elected to the Council of the Association of Geographic Laboratories of Europe (AGILE).

Several staff were awarded higher degrees: Paul Taylor (Mensuration) received an MPhil in Hydrology and Sedimentology from Lancaster University; Peter Crow (Environmental Research) received an MSc in Geoarchaeology from Reading University; Matthew Griffiths received an MSc in Geographical Information Systems from Leicester University; Shaun Mochan (Silviculture North) was awarded an MSc in Forest Science from Edinburgh University.

Laetitia Laine and Daniel Rose (FR funded students, supervised by Entomology Branch) were each awarded a PhD by Imperial College London; Laetitia for 'Biological studies on two European termite species: establishment risk in the UK' and Daniel for 'Novel automated control of *Hylobius abietis*'. Elena Vanguelova (supervised by Environmental Research Branch) achieved a PhD from Reading University for her work on 'Soil acidification and fine root response of Scots pine'. Richard Jeffries (also supervised by Environmental Research Branch) was awarded a PhD from Southampton University for 'Investigating water and fine sediment transport in rivers with wooded floodplains'.

Professor Clive Brasier (Pathology) retired after 32 years of service, during which he made an outstanding contribution to our understanding of how tree pathogens behave and evolve, specialising particularly in Dutch elm disease and diseases caused by *Phytophthora*. In spring 2003 he was made fellow of the American Phytopathological Society. We are delighted that Clive has agreed to maintain an association with FR as an emeritus scientist at Alice Holt. Roger Boswell retired after 33 years of exceptional statistical support to many project leaders at Alice Holt, having co-authored over 40 publications and becoming Principal Statistician.

After more than 40 years with the Commission, John Budd (TSU South) retired in December 2002. For the last 12 years he worked at Headley Nursery running field trials. Jim Pratt MBE (Pathology) also retired after 42 years with the Commission, at both Alice Holt and Northern Research Station, working particularly on reducing chemical usage in forestry and on control of Fomes root and butt rot for which he is internationally renowned. Jim Dewar retired from the Forestry Commission in May 2002 after 33 years. Jim was FR's first Chief Executive after its constitution as an agency in 1997 and FR's success as an agency owes much to this energy and leadership.

New appointments to the Agency included: Dr Sandra Denman to work mainly on Phytophthoras; Victoria Stokes to work on environmental physiology; Dr Geoff Morgan to work as Principal Statistician at Alice Holt; Dr Stuart A'Hara to work initially on developing a molecular map of Sitka; David Georghiou to develop the FR website; Danielle Sinnett to work on land reclamation; Ewan Mackie to work on forest measurement systems; Christopher Vials to work as an analyst/programmer; Alexis Achim to work as a plant modeller.

Visitors and events

In April the Scottish National Inventory of Woodland and Trees was launched by the Scottish Deputy Minister for Environment and Rural Development.

Forestry Commissioners visited NRS in April; their visit included presentations on selected research programmes. The Queen's Jubilee celebrations were a summer highlight, and included a 'Queens and Punks' theme at NRS, and a 'Where were you in '52 or '77?' competition, woodland walks and a rocket display at Alice Holt. Autumn events included the Welsh Seminar: 'Establishing Quality and Native Woodlands' at Builth Wells in October.



Chinese delegates from the State Forestry Administration visiting NRS in August 2002.

A variety of seminars and conferences were held at the research stations and on forest sites; these included Deer Management, Intranet Introductions and Internet Next Steps, FC England Grants Briefing. FR was well represented at many UK and international conferences and meetings, with staff providing presentations and posters. These covered Forest Restoration (IUFRO), Health and Well-being, Capercaillie LIFE bid, ForestSAT, Clonal Forestry, Silviculture and Wood Quality Modelling, Continuous Cover Forestry, Pinewood Nematodes, Globalisation of Forest Pests, Global Warming and the Health of Trees, Managing Woodlands and their Mammals.

FR's short Research Update Seminars, held regularly at NRS and AH, have proved very popular and informative.

The Agency maintained its links nationally and internationally by hosting groups and individual visitors. These included students from Imperial College London and Maurwood College and Chinese visitors from the State Forestry Administration. In May Dr Ann Lynch from the US Forest Service in Arizona visited Alice Holt as part of a fact-finding tour to discuss spruce aphid in Radnor Forest.

Finally, I would like to thank FR for an excellent year, which I feel would have had a rather different outcome had it not been for the personal qualities of staff. I would also like to acknowledge the very significant contribution made by our collaborators particularly in UK and European forestry and science. The strength of our international links and the value placed on these are clear from the programmes listed on pages 91–96. I would also like to thank PPD (now part of the FC's Forestry Group) and FE, who have proved to be highly professional while also demanding of us, providing exactly the parent department/science provider relationship which is required to make FR's agency status as successful as it is.

Peter Freer-Smith

Acting Chief Executive, Forest Research

