

Publications

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 2009.

Published by Forest Research

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

www.forestresearch.gov.uk/publications

Corporate publications

Forest Research annual report and accounts 2007–2008 (£18.55)

Forest Research corporate plan 2009–2012 (online publication, free)

Newsletters

FR News (formerly *FR Eye*). Forest Research's quarterly newsletter, giving details of recent projects and developments (online publication, free)

www.forestresearch.gov.uk/frnews

Ecotype. Biodiversity and conservation newsletter of Ecology Division (online publication, free)

www.forestresearch.gov.uk/ecotype

Growing places. Social and Economic Research Group newsletter from Environmental and Human Sciences Division (printed and online publication, free)

www.forestresearch.gov.uk/growingplaces

Path News. Pathology bulletin of Tree Health Division (online publication, free)

www.forestresearch.gov.uk/pathnews

Booklets and leaflets

Forest Research: Climate Change projects. A four-page summary of climate change research at FR, published September 2008 (online publication, free)

Problems on plane trees

Pathology Advisory Note 7

Kath Tubby and David Rose

Policy into practice. Employment for ex-offenders: an innovative approach

Claudia Carter and David West*

Planning for lowland habitat networks in Scotland: a landscape-scale approach

Darren Moseley and Mike Smith

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

Leisure landscapes: exploring the role of forestry in tourism

The impact of trees on the well-being of residents on two inner-London social housing estates

The Chopwell Wood Health Project

Hill Holt Wood: social enterprise and community woodland

Forests for recreation and nature tourism – European COST Action E33

Forest School: a marvellous opportunity to learn

Evaluating Cydcoed – have community-managed woodlands provided social and economic benefit?

New pathways for health and well-being in Scotland: research to understand and overcome barriers to accessing woodlands

West Midlands woodland and health pilot evaluation

Environmental volunteering: motivations, benefits and barriers

Woodland owners' attitudes to public access provision in south-east England

*Author outwith the agency.

New Forest Rural Pathfinder project: stakeholder involvement in the New Forest

Consultation and community involvement in forest planning: research in Cranborne Chase and North Dorset

Perspectives on forests and trees: a view from Vermont

People's experiences of woodlands in north-west and south-east England

Wood products from sustainably managed woodlands: review of consumer awareness and best marketing practice

Exploring disabled people's perceptions and use of forest recreation goods, facilities and services in Scotland, England and Wales

Assessing the contribution of forestry grants to equal access for disabled people to recreation goods, facilities and services in Scottish woodlands

Enhancing the forest sector's contribution to equal access for disabled people to recreation goods, facilities and services in Scottish forests

Forestry carbon offsets: methods and approaches

Wild Harvests – Social, cultural and economic values of non-timber forest products

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)

FCRN001 *The Environmental Change Network at Alice Holt Research Forest*

Sue Benham

FCRN002 *Red band needle blight of conifers in Britain*

Anna Brown

FCRN003 *Benefits of improved Sitka spruce: volume and quality of timber*

Shaun Mochan, Steve Lee and Barry Gardiner

FCRN102 *The economic and social contribution of forestry for people in Scotland*

David Edwards, Jake Morris, Liz O'Brien, Vadims Sarajevs and Gregory Valatin

FCRN301 *Impacts of climate change on forestry in Wales*

Duncan Ray

FCRN301(W) *Effeithiau newid yn yr hinsawdd ar goedwigaeth yng Nghymru*

Duncan Ray

(Welsh language version of FCRN301)

External publications

Where publications are available electronically, website links are provided.

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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

Programmes funded by the Forestry Commission

Project leaders' names are given for each programme.

Biometrics, Surveys and Statistics Division

Modelling and forecasting forest resources

Robert Matthews

Improve methods, models and systems for forecasting growth and yield of forests.

Forest mensuration systems

Robert Matthews

Develop and promote systems and instruments for the efficient and accurate measurement of trees and timber to support industry and national/international standards.

Develop and maintain the national network of permanent and temporary periodic growth and yield plots to support measurement, growth and yield studies.

National Inventory of Woodland and Trees (NIWT)

Mark Lawrence

Undertake the Forestry Commission's National Inventory of Woodland and Trees, assessing woodland cover and providing national statistics on forest systems. Create the digital woodland map for Britain. Promote the use of GIS and remote sensing technology to provide spatially referenced data on the woodland cover of Britain and its changes.

Remote sensing

Juan Suarez

Evaluate and promote the potential of remote sensing technologies for operational use in the management of British forests.

Biomass Development

Ian Tubby

Provide best practice guidance to the public and industry, together with information on all aspects of biomass fuels and associated conversion technologies via the Biomass Energy Centre: www.biomassenergycentre.org.uk

Ecology Division

Indicators for assessing and monitoring biodiversity and ecosystems

Duncan Ray and Mike Smith

Identify potential biodiversity indicators, develop and test monitoring methods and disseminate findings.

Priority species and their conservation

Alice Broome

Conduct research to support the protection and encouragement of woodland species identified as priorities within the UK Biodiversity Action Plan.

Landscape ecology and spatial planning

Kevin Watts

Improve understanding of how biodiversity responds to management at the landscape scale, and translate this into practical management guidance for forest design.

Ecological site classification for climate change

Duncan Ray

Develop ecological site classification (ESC) to accommodate climate change projections and enable it to be implemented at a range of spatial scales.

Decision support for forest ecology

Duncan Ray

Develop decision-supporting tools for biodiversity and in particular produce a knowledge base for forest managers wishing to understand the significance of Habitats and Rare, Priority and Protected Species (HaRPPs).

Impact of large herbivores on woodlands

Helen Armstrong and Robin Gill

Provide a sustainable basis for deer management in UK woodlands by investigating and developing new techniques and models of impacts and damage, population dynamics of deer, deer density assessment and grazing management.

Reducing the impact of alien and invasive vertebrates

Brenda Mayle and Roger Trout

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.

Genetic conservation

Joan Cottrell and Jason Hubert

Study the genetic variation and gene flow in natural populations. Assess the level of adaptive variation in the field trials of populations of native species. Apply molecular methods to a range of research questions.

Scientific support for Forest Reproductive Material Regulations

Sam Samuel

Devise methods for inspection of material proposed for registration. Maintain the National Register of Basic Material.

Priority native woodland habitats

Ralph Harmer and Steven Hendry

Examine methods for managing, restoring, regenerating and extending priority woodland habitats.

Management (and restoration) of Priority open habitats

Russell Anderson

Investigate and provide guidance on the restoration and management of open ground habitats.

Environmental and Human Sciences Division

Soil sustainability

Elena Vanguelova

Research to identify and evaluate the potential impacts of forest management, air pollution and climate change on soil status, functions and dynamics. Provide expert advice and develop guidance on best management practices for the protection of forest soil sustainability.

Land regeneration and urban greenspace

Tony Hutchings

Improve establishment methods and management practices for woodland and other green uses in urban and on disturbed (brownfield) sites, taking into account changes in forestry and land-use policy, planting opportunity, environmental and socio-economic impacts, climate change, contamination, and waste minimisation and utilisation. Provide expert advice and develop best practice guidance on land regeneration issues.

Forest hydrology

Tom Nisbet

Study the impacts of forests and forestry management practices on water quality and quantity. Develop and assess guidance on best management practice for the protection of the freshwater environment within forests. Provide expert advice on forestry-water issues.

Intensive forest monitoring and evaluation of forest ecosystems

Nadia Barsoum

Determine the role of climate change and air pollution in forest condition and growth through long-term intensive environmental monitoring in forest ecosystems, in compliance with EC regulations. Provide data under the Convention on Transboundary Air Pollution for the calculation and mapping of critical loads.

Climate change impacts on forest function

James Morison

Monitor the effects of climate change and analyse trends in forest function through environmental monitoring (e.g. the Environmental Change Network, International Phenology Garden), other experimental work and predict the likely future impacts through modelling studies using climate change scenarios. Maintain a long-term carbon dioxide flux monitoring station in lowland oak woodland in the UK, and investigate the effect of management operations.

Forestry as an instrument for mitigating climate change

Sirwan Yamulki and Robert Matthews

Evaluate and demonstrate mitigation options based on measurement and management of forest and wood-processing sector carbon and greenhouse gas (CO₂, CH₄ and N₂O) emissions and dynamics. Produce calculation tools and knowledge resources on forest carbon and greenhouse gas balances for end-users. Measure and model greenhouse gas fluxes from selected forest systems, and under different management options.

Cultural heritage and the historic environment

Peter Crow

Develop methods, tools and guidance to aid the day-to-day management of historic environment features such as archaeological evidence, veteran trees and historic woodlands/landscapes.

Social Research

Anna Lawrence

Examine relationships between communities and woodlands in support of FC policies on sustainable forest management. Work concentrates on community involvement, publicly held values, health and well-being, sustainability indicators, impact assessment, recreation, access and rural development. There is an increasing focus on decision-making processes, planning and partnerships, and how science is communicated to policy-makers and practitioners.

Economic Research

Gregory Valatin

Investigate the economics of sustainable forest management, including climate change mitigation and adaptation, and the potential for adopting economic instruments in forest policy. Provide economic advice to other research programmes.

Fire vandalism pilot study in Wales

Andy Moffat and Jake Morris

Examine the physical and social drivers behind wildfire occurrence in the South Wales Valleys, evaluate existing mechanisms to reduce arson and seek to identify new ways to mitigate this problem.

Forest Management Division

Sustainable establishment systems

Mike Perks

Integrated studies of the effect of nursery practice, seedling physiology, plant handling methods, site preparation and maintenance upon tree establishment and subsequent growth.

Timber properties

Barry Gardiner

Investigate the impact of silvicultural practices on timber quality in conifers, especially spruce. Main emphasis is on impact of site factors (e.g. exposure, fertility) on quality.

Restoration and management of upland native woodlands

Colin Edwards

Research into the structure, dynamics and silviculture of native woodland ecosystems in northern and western Britain to support restoration and extension for ecological and economic benefits. Emphasis is on Scots pine forests, birchwoods and the Atlantic oakwoods.

Continuous cover silviculture

Gary Kerr

Evaluate canopy structure manipulation to promote suitable microclimates for seedling establishment and facilitate natural regeneration to enable wider use of alternative silvicultural systems to patch clearfelling (continuous cover forestry).

Tree stability and climate

Bruce Nicoll

Research to reduce wind damage to British forests using a GIS-based windthrow risk model for predicting the probability of windthrow in Sitka spruce forests. Carry out studies of root development and architecture in support of the model.

Integrated forest vegetation management

Ian Willoughby

Investigate alternatives to conventional vegetation management for new planting and regenerating existing woodlands, including reducing synthetic chemical inputs and direct seeding.

Seeds, seedlings and sustainable silviculture

Peter Gosling and Richard Jinks

Improve tree seed quality and performance to reduce costs and increase reliability of direct seeding and natural regeneration.

Management of long-term experiments

Alan Harrison

Retention of long-term forest experiments; include maintenance, assessment and provision of data.

Modelling for mixed age and mixed species stands

Tom Jenkins

Evaluation of single tree growth models available in other countries that could be used to predict the growth of the mixed species and structure stands that are being created as a result of the greater use of Continuous Cover Forestry systems in British forestry. The work is carried out by a team comprising members of Biometrics and Forest Management Divisions.

Operational efficiency in a sustainable wood chain

Ian Murgatroyd

This programme covers the investigation of operational issues and the provision of solutions that will contribute to improved efficiencies within the forestry sector. Four main areas of investigation are: forest establishment and maintenance; harvesting and transport; low impact silvicultural systems and ecosystem management; and safety and ergonomics.

Native woodland survey of Scotland

Alistair Macleod

Fieldwork is being carried out by Technical Services Unit (TSU) on behalf of Forestry Commission Scotland. First comprehensive survey of the extent, location and condition of all native woodlands in Scotland.

Tree breeding for the future

Steve Lee and Jason Hubert

All aspects of tree breeding in conifer and broadleaves species including Sitka spruce, Scots pine, Corsican pine, Douglas fir, larch and oak, ash, sycamore, beech and birch. Advanced breeding technologies considered include tissue culture and cryopreservation plus the development of techniques for marker aided selection.

Silvicultural impacts on carbon

Mike Perks

Understanding how forest management practices influence the carbon stocks contained within forest soils is an important element in ensuring British forests contribute to the mitigation of predicted climate change. Research into the impact of establishment practices such as cultivation and weed control on the carbon cycle in forests in upland Britain.

Tree Health Division

Scientific Support for Phytosanitary Regulation

Hugh Evans

Research into the risks from indigenous and non-indigenous forest pests and pathogens. 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.

Impacts of pests under changing management

Nigel Straw

Investigate the implications of alternative silvicultural systems in relation to insect abundance and diversity, especially for key pest species. Study sites are located in several forests in Wales. This work builds on previous studies of quantitative relationships between insect populations and their impact on trees, particularly impact of green spruce aphid *Elatobium abietinum* on Sitka spruce.

Integrated Forest Management (*Hylobius*)

Roger Moore

Building on studies of the population dynamics of *Hylobius abietis*, decision support systems for management of the restocking problem are being developed. This enables the selective use of biological control to reduce populations of *H. abietis* to sub-economic levels through the managed application of insect parasitic nematodes for both the FC and private sectors.

Advice and scientific support for tree health

Joan Webber

Provide an advisory service to determine the causes of ill health in trees and provide advice and information on pest and pathogen identification, management and control. Disseminate the information to all interested parties through outreach activities such as Forest Health Days, workshops and seminars. Specific topics under detailed assessment include assessing the impacts of leaf miner and bleeding canker on the health of the horse chestnut tree.

Non-chemical protection

Katherine Tubby

Research the potential for biological and non-chemical control of tree diseases, with special emphasis on root and butt rot of conifers caused by the fungal pathogen *Heterobasidion annosum*. Integrate this information into effective approaches to management and control of tree diseases.

Red band needle blight

Anna Brown

Research and survey the extent, severity and rate of spread of red band needle blight (caused by *Dothistroma pini*) in the UK with particular reference to East Anglia Forest District. Determine the impact that this could have on tree mortality and timber yields of Corsican pine and the suitability of the different control measures.

Risk assessment of invasive pathogens – *Phytophthora ramorum* and *P. kernoviae*

Joan Webber

Investigate the biology and epidemiology of the two new quarantine tree pathogens, *Phytophthora ramorum* and *P. kernoviae*, which infect tree species within the Fagaceae. Use information generated from this research in Pest Risk Analysis to determine the extent of the risk these pathogens pose to trees in the UK, their impact and opportunities for eradication and control.

Pests and pathogens in a changing climate

David Wainhouse

Use of model systems to predict the impact of changing climate. These include (1) the influence of voltinism in *Hylobius abietis* and its effect on geographical variation in pest status. This uses *H. abietis* as a model system to study the effects of climate change on insect pest generation time; (2) the interaction between drought stress and fungal disease of trees with particular reference to Sitka spruce in Scotland; and (3) the changing susceptibility of oak (*Quercus* spp.) to broadleaved pests and pathogens influenced by climate.

Programmes part-funded by the European Commission

TREEBREEDDEX: Integrated information on tree breeding. Linking information on tree breeding programmes across major European countries.

BIOSOIL: The largest single soil monitoring exercise implemented so far at an EU scale, the main aim is to establish an improved common European baseline of forest soils for environmental applications – carbon stock assessment, acidification, eutrophication and impacts of climatic change.

EUFORGEN: Collaboration between European countries to promote conservation and sustainable use of forest genetic resources.

EFORWOOD: 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.

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

STORMRISK: Development of STORM resistant landscapes through regional cooperation, adapted management and RISK communication. Working with partners in northern Europe to adapt existing decision support tools to help improve management practices.

COMFOR: Collective work science approach to solving the common problems of occupational health and performance in European forest operations SMEs.

FORESTCLIM: Transnational forestry management strategies in response to regional climate change impacts.

FUTMON: Further development and implementation of an EU-level Forest Monitoring System.

Northern Periphery Programme – Northern ToSIA: Carrying out a sustainability impact analysis of forest management practices in selected forests in northern Europe and understanding the interactions with needs of various stakeholder groups.

Northern Periphery Programme – Scots pine: Combining management, processing and end-users to demonstrate how to make best use of the Scots pine resource in northern Europe.

NOVELTREE: Evaluation and validation of advanced breeding strategies for major tree species in Europe.

REINFFORCE – Atlantic Coast: 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.

Research programmes and contracts

Programmes funded by other organisations

BP Exploration Operating Co. Ltd

Scottish Forestry Alliance Biodiversity Group. Method development, data collection and analysis to provide biodiversity monitoring for new native woodlands established on Scottish Forestry Alliance sites.

Centre for Ecology and Hydrology (CEH)

Inventory and projections of UK emissions by sources and removals by sinks due to Land Use, Land-Use Change and Forestry (LULUCF).

Central Science Laboratory and Scottish Natural Heritage

Supporting a Defra-led project that aims to test and adapt fertility control agents for target species that have been developed in the US, and in particular work on the grey squirrel (*Sciurus carolinensis*).

COFORD

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 an ESC.

Deer Commission for Scotland

Management of Roe deer in peri-urban Scotland. Determine current attitudes of those who might manage peri-urban deer, i.e. private landowners and landholding organisations. Establish the distribution and scale of the peri-urban Roe deer population in the Central Belt.

A joint project with Macaulay Institute to develop and test a methodology for measuring deer health and welfare and how it responds to climate and land use changes.

Department for Business, Enterprise and Regulatory Reform (BERR) and Aspire Defence

The use of biologically enhanced charcoal for *in-situ* remediation of contaminated land.

Department for Environment, Food and Rural Affairs (Defra)

Assessment of the ecological value of hedgerow trees for invertebrates.

Habitat Connectivity – Developing an indicator for UK and country level reporting.

Phase 1 Pilot Study. A joint project with CEH to identify and test the most suitable and accepted methodology and data sources for the production of UK and country level indicators of functional habitat connectivity and provide recommendations for further development.

'Which landscape features affect species movement?' A systematic review in the context of climate change. A joint project with CEBC Bangor University to assess, through systematic review with expert consultation, the strength of the empirical evidence underpinning the development of functional habitat connectivity as an adaptation to climate change.

Defra/Forestry Commission

A joint project with The Food and Environment Research Agency (formerly Central Sciences Laboratory) to develop approaches to evaluate and mitigate the environmental impact of wild boar.

Department for Innovation, Universities and Skills (DIUS)

Public Sector Research Exploitation Fund, third round. A three-year capacity building project commenced in April 2006 to assist Forest Research to develop its innovation and commercialisation activities.

Public Sector Research Exploitation Fund, fourth round. An Innovation And New Markets Project commenced in April 2008. Forest Research is working with the Northern Ireland Forest Service and the wider Forestry Commission to develop the wider economic benefits of forestry and assist the development of new markets.

Economic and Social Research Council (ESRC)/University of Leeds

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.

Engineering and Physical Sciences Research Council (EPSRC)/University of Surrey

Pollutants in the urban environment.

ESRC/University of Sheffield

Rivers project.

Forestry Commission Scotland/Scottish Natural Heritage

Production of a toolbox of methods for assessing grazing impacts, including development of a qualitative method for assessing herbivore impacts on woodlands and monitoring of a pilot grazing grant scheme.

Herefordshire Nature Trust

Woolhope Dome Resource Assessment. Development and field testing of a rapid method to estimate the standing biomass in woodlands that have not been thinned for many decades. The aim is to use these estimates to recommend sustainable woodfuel removals.

Institute of Grassland and Environmental Research

Development of sustainable heat and power fuelled by biomass from short rotation coppice in Wales.

Natural Environment Research Council (NERC)

QUEST forestry demonstrator. Deliver the scientific basis for project verification methods and project design principles and guidelines that assure that forestry-based mitigation projects have maximum benefits for climate, social concerns and the environment, including biodiversity, water resources and soils.

QUEST QUATERMASS. This project, which is led by Dr Jeremy Woods of Imperial College London, will estimate the potential of terrestrial ecosystems to mitigate climate change.

PR Energy Power

Phytosanitary treatment of conifer woodchips to eliminate the risk from invertebrate pests.

Renfrewshire County Council

The use of integrated habitat networks to identify key areas for habitat restoration for the eight unitary authorities within the Glasgow and Clyde Valley (GCV) Green Network area.

Rural Economy and Land Use Programme (RELU)

A case study on integrated deer management.

Assessing and communicating animal disease risks for countryside users. An inter-disciplinary project investigating how to assess and communicate risks of zoonotic diseases, such as Lyme disease. The project involves ecologists and social scientists from FR, zoologists at the University of Oxford and psychologists at the University of Surrey.

Lessons from Dutch elm disease for assessing the threat from sudden oak death in Britain.

Scottish Natural Heritage (SNH)

Minard cattle grazing trial: Monitoring of cattle grazing as vegetation management to improve conditions for Black Grouse.

Meeting the data needs of ecological modelling: establishing a 'species trait library'. Design, establish and begin to populate an open-access internet-based repository of species and habitat data relevant to the needs of spatial landscape planning, ecological modelling and land management decision making in Scotland.

Carry out survey of stand structure and develop a management plan to provide favourable conditions in Cuilvona and Craigmore Woods.

South East England Regional Development Agency (SEEDA)

Grant to assist the establishment of the Rural Research and Strategy Partnership. This Partnership aims to support and stimulate interdisciplinary research between Forest Research, the Universities of Brighton, Reading, Surrey and Sussex and the University for the Creative Arts. It focuses on topics important for rural sustainability.

South West Woodland Renaissance

South West woodland resource assessment: carry out woodland inventory and production forecasting for productive conifer woodlands within the SW region of England. Highlight potential constraints to resource availability and analyse production forecast results against existing and potential timber markets.

United States Department of Agriculture (USDA)

Studies on *Phytophthora ramorum* and *P. kernoviae* to evaluate infection behaviour.

Studies on the inoculum behaviour of *Phytophthora ramorum* and its role in asymptomatic infection.

Research contracts awarded by Forest Research

Environment Agency (Wales)

Effects of forestry on surface water acidification.

Fountain Forestry

Water monitoring, Halladale.

STFI-PACKFORSK

Analysis of microfibril angle and other cellular properties of Sitka spruce trees.

University of Aberdeen

Woodland quality analysis of natural regenerated Sitka spruce. Support for an MSc project seeing whether the timber of naturally regenerated trees differs materially from that from known planted stands.

University of Bristol

Landscape history of Saverlake Forest.

University of Edinburgh

Impacts of ultraviolet-B radiation on leaf decomposition in forest trees.

Competitive interactions between fungi colonising Scots pine needles.

University of Gloucestershire

Cydcoed Evaluation Project: Exploring the market and non-market values of Cydcoed intervention.

University of Newcastle

Carbon turnover in forest and grassland soils – will global warming turn carbon sinks into sources?

University of Ulster

Impact of defoliating insects in a changing forest environment.

University of York

The role of biotic interactions in determining species' responses to climate warming.

People and locations

Permanent and fixed-term staff as at 31 March 2009.

Chief Executive

- Dr James Pendlebury, BSc, PhD, MIWSc

Research Director

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

Personal Secretaries

- Claire Holmes
- Helena Ladbury

Head of Northern Research Station

- Chris Quine, MA, MSc, FICFor, PhD

Head of Unit, Wales (Aberystwyth)

- Hugh Evans, BSc, DPhil, FRES,

Quality Assurance Manager

- Carl Foster

Business and Innovation

- Alison Melvin, BA
- Jane Devlin, BSc
- Anja Ueberjahn-Tritta, BSc, PhD

Human Resources and Administration

- Ken Charles, FMS, *HR and Administration Director*
- Wendy Groves
- Trudy Smith
- Janet Lacey
- Andrew Phillips
- Heather Russell
- Mandy Sennett
- Sally Simpson
- Amanda Smith
- Mike Wheeler
- Mike Young
- Martin Abrahams, *Head of Administration at NRS*
- Gerry Cockerell
- Evelyn Hall

Finance and IT

- Sandra Smith, ACMA, *Finance and IT Director*
- Laura Caless
- Carol Knight
- Timothy Knight, BSc
- Carole Martin
- Paul Morris
- Corinne Russell
- Janet Turner
- Ann Williams
- Wayne Blackburn, BSc, *Head of IT Services*
- Alec Gaw, BSc

Communications

- Xanthe Christophers, BSc, MSc, PGCE, PhD, *Communications Director*
- Joanne Davies, BSc
- George Gate
- David Georghiou, BA
- Eleanor Harland, MA, DipLib
- Catherine Oldham, BA, MA, DipLib, MCLIP
- Sally Taylor
- Hugh Williams, BA, MSc, PhD (Acting Communications Director)
- Glenn Brearley
- Kirsten Hutchison, MA, DipEd, MSc
- Steve Penny, BSc, MSc
- Chris Jones, BSc

Biometrics, Surveys and Statistics Division

- Helen McKay, BSc, PhD, MICF, CEnv, *Head of Division*
- Catia Arcangeli, MSc, PhD
- Eric Casella, MSc, PhD
- Joy Cornwell
- Ian Craig
- Paul Henshall, BSc
- Geoff Hogan, BSc, DPhil
- Ewan Mackie, BSc, MSc
- Robert Matthews, BSc, MSc
- Geoff Morgan, BSc, MSc, PhD
- Lyn Pearce
- Tim Randle, BSc
- Marc Sayce
- Paul Taylor, MA, MSc, MPhil
- Ian Tubby, BSc
- Miriam White, HND, BSc, MSc
- Christopher Vials, BSc
- Stephen Bathgate, BSc, BSc, PGDip, MSc
- Christine Brown, MSc
- Graham Bull
- Shona Cameron
- Lynn Connolly
- Tom Connolly, BSc, PhD
- Vera Correia
- Fauzia Davidson, BSc, MSc
- Justin Gilbert, BSc
- Celia Igreja Dias
- Mark Lawrence, BSc, MSc
- Linda Legge
- Andrew Peace, BSc
- Lynn Rooney
- Juan Suárez-Minguez, BSc, MSc
- Esther Whitton
- Adam Ward
- Mary Caldwell
- Tom Jenkins, BSc, BSc, FICFor

FR employs 280 staff, some of whom work part time, giving a total staff number of 260 full-time equivalents at 31 March 2009.

KEY: ■ Alice Holt ■ Northern Research Station ● Technical Development Office ● Field Station

Ecology Division

- Chris Quine, MA, MSc, FICFor, PhD,
Head of Division
- Stuart A'Hara, BSc, MSc, PhD
- Russell Anderson, MSc
- Helen Armstrong, BSc, PhD
- Rebecca Brassey, BSc, MSc
- Alice Broome, BSc
- Robert Coope, BSc
- Joan Cottrell, BSc, PhD
- Steven Hendry, BSc, PhD
- Jason Hubert, BA, MSc, DPhil, MICFor
- Darren Moseley, BSc, PhD
- Duncan Ray, BSc
- Sam Samuel, BSc, PhD
- Roz Shields
- Louise Sing, BA, MSc
- Mike Smith, BSc
- Shirley Spencer
(also with FMD and TSU)
- Tytti Vanhalla, BSc, MSc, PhD
- Georgios Xenakis BSc, MSc, PhD
- Amy Eycott, BSc, PhD
- Mark Ferryman
- Robin Gill, BSc, MSc, PhD
- Philip Handley, BSc, MSc
- Ralph Harmer, BSc, PhD
- Andrea Kiewitt, BSc, MSc, Dipl-Biol
- Brenda Mayle, MSc
- Shirley Stephens
- Roger Trout, BA, PhD
- Kevin Watts, BSc, PhD

Environmental and Human Sciences Division

- Professor Andy Moffat, BSc, PhD, DSc,
Head of Division
- Lorraine Adams, BSc
- Nadia Barsoum, BSc, PhD
- Sue Benham, BSc
- François Bochereau, BSc, MSc
- Samantha Broadmeadow, BSc, MSc
- Andy Brunt
- Claudia Carter, BSc, MSc
- Sylvia Cowdry
- Peter Crow, BSc, MSc
- Norman Dandy, BSc, MA, PhD
- Kieron Doick, BSc, MRes, PhD
- Tony Hutchings, MSc
- Lynn Jordan
- Anna Lawrence, BA, MSc, PhD
- Vicki Lawrence
- Alberto Morales, BSc, PhD
- James Morison, BSc, PhD
- Jake Morris, MA, PhD
- Jacqui Neal
- Tom Nisbet, BSc, PhD
- Liz O'Brien, BSc, PhD
- Richard Pilgrim, BSc
- Rona Pitman, BSc, PhD
- Danielle Sinnett, BSc, MSc
- Elena Vangelova, BSc, MSc, PhD
- Matthew Wilkinson, BSc, MSc
- Jeremy Wingate, BSc, MSc
- Sirwan Yamulki, BSc, MSc, PhD
- David Edwards, BSc, MSc, MSc, PhD
- Mariella Marzano, BA, MA, PhD
- Vadims Sarajevs, MSc, MSc, PhD
- Nadeem Shah, BSc, MSc, PhD
- Gregory Valatin, MA, MPhil, PhD
- Bianca Ambrose-Oji, BSc, MSc, PhD
- Huw Thomas, BSc, MSc

Forest Management Division Incorporating Technical Development

- Bill Mason, BA, BSc, DSc, MICFor,
Head of Division
- Cathleen Baldwin
- Colin Edwards, BSc, MRes
- Trevor Fenning, BSc, PhD
- John Fonweban, BSc, MSc, PhD
- Professor Barry Gardiner,
BSc, PhD, FRMetS
- Sophie Hale, BSc, PhD
- Alan Harrison, BSc, MSc
- Madge Holmes
- Steve Lee, BSc, PhD, MICFor
- Elspeth MacDonald, BSc, MSc
- Colin McEvoy, BA
- Shaun Mochan, MSc
- Bruce Nicoll, BSc, PhD
- Margaret O'Donnell
- Steven Osborne, BSc (also with TSU)
- Mike Perks, BSc, MSc, PhD
- Stefania Pizzirani, BA, MSc
- Shirley Spencer
(also with ED and TSU)
- Rob Sykes
- Peter Gosling, BSc, PhD
- Richard Jinks, BSc, PhD
- Gary Kerr, BSc, PhD, FICFor, CEnv
- Shelagh McCartan, BSc, MSc, PhD
- Matt Parratt, BSc
- Victoria Stokes, BSc, MSc, PhD
- Christine Woods, BA
- Ian Willoughby, BSc, MBA, FICFor

Technical Development Ae, Scotland

- Duncan Ireland, BSc
- Bill J. Jones
- Ian Murgatroyd
- Joyce Rammell, BSc
- Colin Saunders
- Jean Saunders

Delamere

- Stephanie Roux, MSc

Wales

- David Jones, EngTech, AMIAgrE
- Finlay McAllister, BA, BSc

Tree Health Division

- Joan Webber, BSc, PhD
Acting Head of Division
- Professor Clive Brasier,
BSc, PhD, DSc, Research Fellow
- Anna Brown, BSc, PhD
- Sandra Denman, BSc, MSc, PhD
- Daegan Inward, BSc, MSc, PhD
- Andrew Jeeves
- Martin Jukes, Cbiol, MIBiol
- Susan Kirk
- David Rose, BA
- Joan Rose
- Claire Sabin, BA
- Nigel Straw, BSc, PhD, FRES
- Christine Tilbury, BSc
- Kath Tubby, MSc, DPhil, MA (Oxon)
- David Wainhouse,
BSc, MSc, PhD, FRES
- David Williams, BSc, PhD
- Sarah Green, BSc, PhD
- Stuart Heritage, MBA, CBIol, MIBiol
- Grace MacAskill
- Roger Moore, BSc, PhD
- Heather Steele, BSc

Field Stations

Technical Services Unit

- Janet Dutch, BSc, PhD,
Head of Unit
- Esther Ker

NRS Engineering Services

- David Brooks,
Head of Engineering Services
- James Nicholl
- John Strachan

Inver

- Nick Evans (currently on
secondment with FE Scotland)
- Andrew Kennedy, BSc
- Bill Rayner
- Pauline Simson, BSc

Ae and Bush Nursery

- Dave Watterson,
Head of Stations

Ae

- James Duff
- Patrick Home Robertson, BSc
- Harry Watson
- James White

Bush Nursery

- David Clark, *Nursery Manager*
- John Armstrong
- Colin Gordon
- Hamish Howell

Newton and Lairg

- Alistair MacLeod, *Head of Stations*

Newton

- Hazel Andrew
- Sam Catchpole, BSc
- Julie Gardiner, BSc
- Philip James, BSc
- Martin Mackinnon, BSc
- Fraser McBirnie
- Stuart McBirnie
- Stephen O'Kane
- Gary Servant, BSc
- Colin Smart
- Will Thompson, BSc

Lairg

- Alexander Bowran
- Calum Murray
- Duncan Williams

Alice Holt and Exeter

- Mark Oram, BSc, MSc, *Head of Station*
- Jamie Awdry
- Bob Bellis
- Sue Bellis
- Tony Bright
- Steve Coventry
- Kate Harris
- Ian Keywood
- Jim Page
- Bill Page

Alice Holt Workshop

- Jon Davey
- Clive Muller

Exeter

- Alan Ockenden
- Anthony Reeves
- Barnaby Wylder

Fineshade, Thetford and Wykeham

- Liz Richardson, *Head of Stations*

Thetford

- John Lakey
- Paul Turner
- Alistair Whybrow, BSc
- Steven Whall

Wykeham

- Lee Cooper
- Nicola Corney
- Patricia Jackson
- William Riddick
- Jake Thompson, BSc

Shobdon and Talybont

- Nick Fielding, *Head of Stations*

Shobdon

- Sharon O'Hare
- Andrew Price, BSc
(seconded to CE's Office)
- John Price

Talybont

- Lyn Ackroyd
- Dai Evans
- Ben Griffin, BSc
(on special unpaid leave)
- Steve Howells
- Richard Keddle
- Michal Maniakowski, BSc
- Tony Price
- Tyrone Waldron

KEY: ■ Alice Holt ■ Northern Research Station ● Technical Development Office ● Field Station

PhD students linked with Forest Research as at 31 March 2009

Tom Adams

University of Edinburgh
Modelling complexity in native pinewoods

Gail Atkinson

University of Surrey
Land regeneration for greenspace establishment: balancing engineering, environmental and social considerations

Dave Auty

University of Aberdeen
Scots pine timber quality in Scotland

Matt Aylott

University of Southampton
Modelling climate change impacts on the availability of short rotation coppice

Kate Beauchamp

University of Edinburgh
The biology of heartwood formation and its influence on timber quality

Sophie Bertin

University of Edinburgh
Physiological ecology of understorey trees in alternative management systems

Freia Bladon

University of Ulster
The impact of defoliating insects in a changing forest environment

Vanesa Castan Broto

University of Surrey
Lay perspectives in coal ash pollution

Jo Clark

University of Wales, Bangor
Provenance selection for climate change

Filipa Cox

Imperial College London
Are there links between tree health and ectomycorrhizal fungal communities under changing environmental conditions?

Theresa Huston

University of Exeter
Soil microbial population dynamics and function, and soil carbon fluxes within forest systems as influenced by climate change and increased atmospheric CO₂

Clare Jones

University of Liverpool
An investigation into Holocene stand-scale forest dynamics of British woodlands

Stuart Kennedy

University of Aberdeen
Determining the genetic heritability of wood properties of Sitka spruce critical to timber strength

Hamish Mackintosh

University of Edinburgh
Developing the silviculture of continuous cover forestry: using the experience and data collected from the Glentress trial area

David Messenger

University of Edinburgh
Effect of UVB radiation on leaf litter decomposition

Helen Murray

University of Glasgow
The impact of the Whitelee Wind Farm development on the export of carbon and nutrients to catchment runoff

Philippa Reid

University of York
The role of biotic interactions in determining species' responses to climate warming

Sabrina Reignoux

University of Edinburgh
Molecular ecology of *Lophodermium* spp. on Scots pine

Matti Salmela

University of Edinburgh
Adaptive variation in natural populations of Scots pine in Scotland

Helen Sneath

University of Surrey
The sustainability of charcoal as an ameliorant in soil remediation

Claire Stevenson

University of Cumbria
Modelling ecological networks and dispersal in the grey squirrel *Sciurus Carolinensis*

James Stratford

University of Surrey
Use of charcoal for environmental improvements

Eleanor Swain

University of Newcastle
Carbon turnover in forest and grassland soils – will global warming turn carbon sinks into sources?

Armand Tene

University of Dublin
Tree species adaptation to climate change

Emma Thorpe

University of Essex
Impact of nitrogen deposition on microbial diversity and function in relation to nitrogen/carbon cycling in different forest soils

Claire Twiddle

University of Exeter
Modelling the vegetation history of Inshriach Forest, Cairngorms

Leena Vihermaa

University of Glasgow
Tree growth influences on wood properties

Naomi Vokes

University of York
The role of litter priming in deciduous forest soil carbon dynamics

Kirsten Wright

University of Reading
Investigation into best practice for the design and management of successful engineered wetland habitats on brownfield land