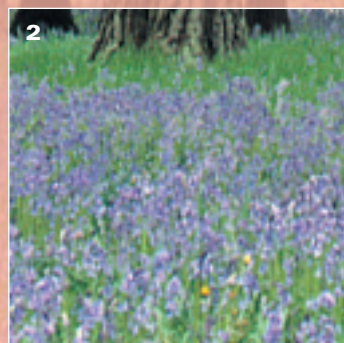
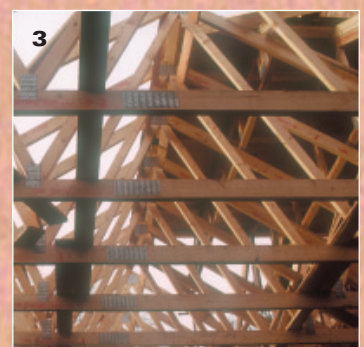
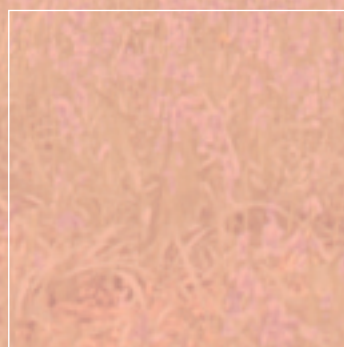


Appendices



- 1 A selection of Technical Publications produced during 2000–2001
- 2 Bluebells in mixed woodland
- 3 Homegrown timber in use in the building industry



Appendix 1

Forestry Commission Technical Publications

The following titles were published during the year ending 31 March 2001

Report

Forest Research annual report and accounts 1999–2000. (£16.30)

Miscellaneous

Forest Research – world class research for sustainable benefits. (Free)

The various series of technical publications listed below are published for the Forestry Commission by Policy and Practice Division. New titles are listed here as authors are predominantly from Forest Research. Authors outwith the Agency are indicated by an asterisk.

Bulletins

122 Agroforestry in the UK, edited by M. Hislop and J. Claridge. (£25)

123 Managing rides, roadsides and edge habitats in lowland forests, by R. Ferris and C. Carter. (£16)

Guideline Note (free)

1 Forests and peatland habitats, by G. Patterson* and R. Anderson.

Information Notes (free)

31 Climate change – implications for forestry in Britain, by M. Broadmeadow.

32 Plant communities and soil seedbanks in broadleaved–conifer mixtures on ancient woodland sites in lowland Britain, by R. Ferris and E. Simmons*.

33 Forest condition 1999, by D. Redfern, R. Boswell and J. Proudfoot.

34 An introduction to new landscape ecology research to enhance biodiversity in British forests, by R. Ferris, K. Purdy, J. Humphrey and C. Quine.

35 Natural regeneration in broadleaved woodlands: deer browsing and the establishment of advance regeneration, by R. Harmer and R. Gill.

36 The impact of deer on woodland biodiversity, by R. Gill.

37 Environmental monitoring in British forests, by D. Durrant.

Inventory Reports

National Inventory of Woodland and Trees. Scotland – Highland Region. Part 1 – Woodlands of 2 hectares and over. (£5)

National Inventory of Woodlands and Trees. Scotland – Western Isles. Part 1 – Woodlands of 2 hectares and over. (£5)

Practice Guide

Hazards from trees – a general guide, by D. Lonsdale. (£7)

Technical Papers

18 Perceptions, attitudes and preferences in forests and woodlands, by T.R. Lee*. (£15)

29 The potential for woodland on urban and industrial wasteland in England and Wales, by D. Perry* and J. Handley*. (£5)

31 Genetic variation and conservation of British native trees and shrubs – current knowledge and policy implications, by R. Ennos*, R. Worrell*, P. Arkle* and D. Malcolm*. (£5)

Appendix 2

Publications by Forest Research Staff

Anderson, A.R., Ray, D. and Pyatt, D.G. (2000)

Physical and hydrological impacts of blanket bog afforestation at Bad a'Cheo, Caithness: the first 5 years. *Forestry* **73** (5), 467–478.

[Andrews, J., Miller, G.] and Armstrong, H. (2000)

The effects of mammalian herbivores on natural regeneration of upland, native woodland. Scottish Natural Heritage, Battleby, Perth. (SNH Information and Advisory Note 115)

Armstrong, H.M. and Robertson, A. (2000)

Energetics of free-ranging large herbivores: when should costs affect foraging behaviour? *Canadian Journal of Zoology* **78** (9), 1604–1615.

[Beckett, K.P.,] Freer-Smith, P.H. [and Taylor, G.] (2000)

The capture of particulate pollution by trees at five contrasting urban sites. *Arboricultural Journal* **24** (2–3), 209–230.

[Bending, N.A.D.] and Moffat, A.J. (2000)

Wood residues used to amend coal minespoils for forest reclamation in Wales. In, *The forest alternative. Principles and practice of residuals use*, eds C.L. Henry, R.B. Harrison and R.K. Bastian, 225–229. College of Forest Resources, University of Washington, Seattle, Washington.

Brasier, C.M. and Kirk, S.A. (2000)

Survival of clones of NAN *Ophiostoma novo-ulmi* around its probable centre of appearance in North America. *Mycological Research* **104** (11), 1322–1332.

Broadmeadow, M.S.J. and Jackson, S.B. (2000)

Growth responses of *Quercus petraea*, *Fraxinus excelsior* and *Pinus sylvestris* to elevated carbon dioxide, ozone and water supply. *New Phytologist* **146** (3), 437–451.

Brüchert, R., [Becker, G. and Speck, T.] (2000)

The mechanics of Norway spruce (*Picea abies* (L.) Karst): mechanical properties of standing trees from different thinning regimes. In, *Wind and other abiotic risks to forests*, eds H. Peltola, B.A. Gardiner, S. Kellomaki, T. Kolstrom, R. Lassig, J. Moore, C.P. Quine and J.-C. Ruel. *Forest Ecology and Management Special Issue* **135** (1–3), 45–62.

[Cooke, D.E.L., Dreth, A., Duncan, J.M., Wagels, G. and] Brasier, C.M. (2000)

A molecular phylogeny of *Phytophthora* and related oomycetes. *Fungal Genetics and Biology* **30** (1), 17–32.

[Coutts, M.P., Nielsen, C.N.N.] and Nicoll, B.N. (2000)

The development of symmetry, rigidity and anchorage in the structural root system of conifers. In, *The supporting roots of trees and woody plants: form, function and physiology*, ed. A. Stokes, 3–17. Kluwer Academic Publishers. (Developments in Plant and Soil Sciences 87)

Dunham, R.A. [and Cameron, A.D.] (2000)

Crown, stem and wood properties of wind-damaged and undamaged Sitka spruce. In, *Wind and other abiotic risks to forests*, eds H. Peltola, B.A. Gardiner, S. Kellomaki, T. Kolstrom, R. Lassig, J. Moore, C.P. Quine and J.-C. Ruel. *Forest Ecology and Management Special Issue* **135** (1–3), 45–62.

Edwards, C. and Mason, W.L.

Long-term structure and vegetation changes in a native pinewood reserve in northern Scotland. In, *Long-term studies in British woodland*, eds K. Kirby and M.D. Morecroft, 32–40. English Nature, Peterborough. (English Nature Science 34)

Evans, H.F. (2001)

Biological interactions and disturbance: invertebrates. In, *The forests handbook*, vol. 1: *An overview of forest science*, ed. J. Evans, 128–153. Blackwell Science, Oxford.

Evans, H.F. (2001)

Management of pest threats.

In, *The forests handbook*, vol. 2: *Applying forest science for sustainable management*, ed. J. Evans, 172–201. Blackwell Science, Oxford.

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The role of niche availability as a factor determining the diversity and abundance of invertebrates on Scots pine, *Pinus sylvestris*. In, *Silviculture and biodiversity of Scots pine forest in Europe. Proceedings of the final meeting of a Concerted Action (FAIR CT-95-1447) funded by the European Union under the Fourth Framework Programme, CENEAN-Valsain*, Spain, June 1999. Investigacion Agraria: Sistemas y Recursos Forestales Fuera de Serie 1–2000, eds W.L. Mason, R. Alia, G.I. Forrest, A.F.M. Olsthoorn and K. Sjoberg, 273–295. Instituto Nacional de Investigacion y Tecnologia Agraria y Alimentaria, Spain.

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Risks associated with measures to enhance biodiversity in European Scots pine forests. In, *Silviculture and biodiversity of Scots pine forest in Europe. Proceedings of the final meeting of a Concerted Action (FAIR CT-95-1447) funded by the European Union under the Fourth Framework Programme, CENEAN-Valsain*, Spain, June 1999. Investigacion Agraria: Sistemas y Recursos Forestales Fuera de Serie 1–2000, eds W.L. Mason, R. Alia, G.I. Forrest, A.F.M. Olsthoorn and K. Sjoberg, 255–272. Instituto Nacional de Investigacion y Tecnologia Agraria y Alimentaria, Spain.

Ferris, R., Peace, A.J. [and Newton, A.C.] (2000)

Macrofungal communities of lowland Scots pine (*Pinus sylvestris* L.) and Norway spruce (*Picea abies* (L.) Karsten.) plantations in England: relationships with site factors and stand structure. *Forest Ecology and Management* **131**(1–3), 255–267.

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Relationships between vegetation, site type and stand structure in coniferous plantations in Britain. *Forest Ecology and Management* **136** (1–3), 35–51.

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Genetic markers: tools for identifying and characterising Scots pine populations. In, *Silviculture and biodiversity of Scots pine forest in Europe. Proceedings of the final meeting of a Concerted Action (FAIR CT-95-1447) funded by the European Union under the Fourth Framework Programme, CENEAN-Valsain*, Spain, June 1999. Investigacion Agraria: Sistemas y Recursos Forestales Fuera de Serie 1–2000, eds W.L. Mason, R. Alia, G.I. Forrest, A.F.M. Olsthoorn and K. Sjoberg, 67–88. Instituto Nacional de Investigacion y Tecnologia Agraria y Alimentaria, Spain.

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Environmental stresses to forests. In, *The forests handbook*, vol. 1: *An overview of forest science*, ed. J. Evans, 282–300. Blackwell Science, Oxford.

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Management of forests to reduce the risk of abiotic damage: a review with particular reference to the effects of strong winds. In, *Wind and other abiotic risks to forests*, eds H. Peltola, B.A. Gardiner, S. Kellomaki, T. Kolstrom, R. Lassig, J. Moore, C.P. Quine and J.-C. Ruel. *Forest Ecology and Management Special Issue* **135** (1–3), 261–277.

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The mechanical adaptation of trees to environmental influences. In, *Plant biomechanics 2000. Proceedings of 3rd plant biomechanics conference, Freiburg-Badenweiler, 27 Aug–2 Sep 2000*, eds H.-C. Spatz and T. Speck, 71–82. Thieme Verlag, New York.

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Regeneration of phenotypically normal English elm (*Ulmus procera*) plantlets following transformation with an *Agrobacterium tumefaciens* binary vector. *Tree Physiology* **20** (13), 901–913.

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A century of vegetation change at Broadbalk Wilderness. In, *Long-term studies in British woodland*, eds K. Kirby and M.D. Morecroft, 41–47. English Nature, Peterborough. (English Nature Science 34)

[Kint, V., Lust, N.,] Ferris, R. [and Olsthoorn, A.F.M.] (2000)

Quantification of forest stand structure applied to Scots pine (*Pinus sylvestris* L.) forests. In, *Silviculture and biodiversity of Scots pine forest in Europe. Proceedings of the final meeting of a Concerted Action (FAIR CT-95-1447) funded by the European Union under the Fourth Framework Programme, CENEAN-Valsain, Spain, June 1999.* Investigacion Agraria: Sistemas y Recursos Forestales Fuera de Serie 1–2000, eds W.L. Mason, R. Alia, G.I. Forrest, A.F.M. Olsthoorn and K. Sjoberg, 147–163. Instituto Nacional de Investigacion y Tecnologia Agraria y Alimentaria, Spain.

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Testing a process-based model of tree seedling growth by manipulating CO₂ and nutrient uptake. *Tree Physiology* **20** (15), 993–1005.

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Moffat, A.J. [and Bending, N.A.D.] (2000)

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[Moore, J. and] Quine, C.P. (2000)

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The potential for the remediation of contaminated land using biomass production and organic waste recycling. In *Contaminated soil 2000. Proceedings of 7th International FZK/TNO Conference on Contaminated Soil, 18–22 September 2000, Leipzig, Germany, 1097–1098*. Thomas Telford, London.

[Ozanne, C.M.P., Speight, M.R., Hambler, C. and] Evans, H.F. (2000)

Isolated trees and forest patches: patterns in canopy arthropod abundance and diversity in *Pinus sylvestris* (Scots pine). *Forest Ecology and Management* **137** (1–3), 53–63.

Parker, E.J. [and Claridge, J.] (1999)

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The electrical resistance of red and roe deer bodies: influence on the severity of shock sensation felt from electric fences. *Quarterly Journal of Forestry* **95** (1), 49–55.

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Estimation of mean wind climate and probability of strong winds for wind risk assessment. *Forestry* **73** (3), 247–258.

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[Spatz, H.-C. and] Brüchert, F. (2000)

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Appendix 3

Major Research Programmes Funded by the Forestry Commission*

Entomology Branch

Plant health

Hugh Evans, Nick Fielding and Christine Tilbury

Research into the risks from indigenous and non-indigenous forest insect species. 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 contingency options for potential pests. Research into alternatives to methyl bromide as a quarantine and remedial treatment against exotic pests (part EU-funded).

Restocking pests

Stuart Heritage

Research into the effective use of chemical pesticides for control of restocking pests, notably *Hylobius abietis*. Research into and development of insect parasitic nematodes for biological control of larval stages in stumps and provide direct intervention options within the Integrated Forest Management programme being developed in the Branch.

Impact of insects on tree growth

Nigel Straw

Investigate quantitative relationships between insect population pressure and the growth of trees attacked by those insects. An important aim is to separate the direct effects of damage from other biotic and abiotic variables that might mask the impacts of pest insects. The target species is green spruce aphid, *Elatobium abietinum*, which severely defoliates both Norway and Sitka spruces.

Integrated Forest Management

David Wainhouse, Roger Moore and Hugh Evans

Develop the concepts and science of Integrated Forest Management (IFM) to underpin sustainable forestry with particular emphasis on reductions in chemical pesticides. Study the population dynamics of *Hylobius abietis* and use the data to develop decision support systems for management of the restocking problem. Investigate the variability in quality of both stumps and transplants in relation to performance of *H. abietis* and use the data to refine management options within the IFM programme. Develop a decision support system for sustainable reduction of *H. abietis* populations towards the acceptable damage threshold predicted by the population dynamics models.

Mechanisms of tree resistance to insect attack

David Wainhouse

Investigate mechanisms of resistance of young conifers to the pine weevil. Determine the relative importance of genetic and environmental factors in resistance expression. Develop an Integrated Pest Management (IPM) approach for control of pine weevil.

Advisory services

Christine Tilbury

Provide identification services for both pest and beneficial insects and provide advice on pest management and control.

Environmental Research Branch

Soil sustainability

Fiona Kennedy

Research to identify and evaluate the potential impacts of both forest management and air pollution on soil status and dynamics. Develop and advise upon sustainable practices.

*Note: Further details can be found in the *Catalogue of Forestry Commission Research* on the Commission's website <http://www.forestry.gov.uk>

Reclamation of man-made sites for forestry

Andy Moffat, Kirsten Foot and Tony Hutchings

Improve methods of establishing woodland and management practices on disturbed (brown field) sites, taking into account changes in forestry and land-use policy, planting opportunity, environmental impacts, mining practices and technology. Develop best practice guidelines.

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.

Effects of air pollution on trees

Dave Durrant and Andy Moffat

Determine the role of 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

Mark Broadmeadow

Predict and model the impacts of environmental and climate change on tree growth by experimental work in open-top chambers and in forest stands. Identify interactions between forestry and a changing global environment (e.g. exchange of greenhouse gases).

Environmental change network

Sue Benham

Monitor and understand environmental change and its impact on terrestrial ecosystems. Manage one of the national network of terrestrial sites of the ECN network.

Archaeology

Peter Crow and Andy Moffat

Evaluate the impact of tree growth and forest operations on features of archaeological interest. Examine how forest practices can be manipulated to minimise the risk to archaeological features by practical research.

Mensuration Branch

Sample plots

Janet Methley and John Proudfoot

Develop and maintain national reserve of periodic growth and yield data to support measurement, growth and yield studies using a network of permanent and temporary sample plots. Current focus: contemporary silvicultural practices, uneven-aged planting mixtures, modern planting and harvesting systems, long-term environmental change monitoring.

Yield models

Robert Matthews

Improve methods and models for forecasting growth and yield of forests. Current focus: development of interactive stand-level yield model software, site:yield relationships, biomass yield models.

Measurement

Janet Methley

Develop and promote measurement systems and instruments for the accurate and efficient measurement of trees and timber to support industry, and national and international standards. Provide independent expert advice in cases of measurement dispute.

Core model

Sam Evans

Integrate modelling initiatives within Forest Research by developing a framework of existing and new models and relevant datasets. Taking growth

models as a starting point, the core model programme aims to provide modelling tools at appropriate scales of resolution to support and promote the implementation of multi-purpose sustainable forestry policy in the UK.

Pathology Branch

Tree disease and decay: diagnosis and provision of advice

David Rose and David Lonsdale

Diagnose disease in trees and provide advice and information on disease identification, management and control. Provide information on decay in standing trees, and on management of veteran trees.

Tree health monitoring

Steven Hendry

Monitor the health of the nation's trees and raise awareness of tree health issues.

Risks from altered pathogens

Clive Brasier

Investigate changes in pathogen behaviour and evaluate the potential impact of such changes.

Non-chemical protection

Joan Webber

Develop various approaches to biological control of tree diseases, with special emphasis on root rot pathogens, and the fungi that cause vascular wilts and stain and decay.

Fomes root and butt rot of conifers

Jim Pratt

Conduct research on root and butt rot of conifers caused by *Heterobasidion annosum* and investigate approaches to management and control.

Phytophthora diseases of trees

Clive Brasier and David Lonsdale

Investigate pathogenic *Phytophthora* species of alder and oak to determine their impact and the opportunities for management and control.

Silviculture (North) Branch

Forest nutrition and sustainability

Steve Smith

Investigate the influence of site fertility on tree productivity and how forest operations affect sustainability of forest site fertility, including nutrient cycling and tree growth response to fertiliser trials.

Plant quality and establishment

Steve Smith and Colin McEvoy

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

Silvicultural effects upon timber quality

Barry Gardiner and Shaun Mochan

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.

Silviculture of upland native woodlands

Richard Thompson and 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.

Alternative silvicultural systems in conifer forests

Bill Mason, Colin Edwards and Sophie Hale

Investigate natural regeneration processes in major conifer species to predict and manipulate the timing and density of natural seedling establishment. Evaluate canopy structure manipulation to promote regeneration as an alternative silvicultural system to patch clearfelling.

Stability of stands*Barry Gardiner, Bruce Nicoll and Juan Suárez*

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.

Shelter forestry*Max Hislop and Barry Gardiner*

Research into the design and management of woodlands for shelter and the development of techniques for assessing the potential benefit that they provide.

Social forestry*Max Hislop*

Research into the social values of forestry and the development of methodologies for the integration of these values into forest planning.

Silviculture and Seed Research Branch**Social forestry***Elizabeth O'Brien and Paul Tabbush*

Examine relationships between communities and woodlands in support of FC policies on sustainable forest management.

Poplars*Paul Tabbush*

Evaluate poplar clones with potential for timber production.

Alternative establishment systems*Ian Willoughby and Richard Jinks*

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

Energy coppice*Alan Armstrong*

Investigate dry matter yields of willow and poplar coppice grown for renewable energy.

Lowland native woods*Ralph Harmer*

Examine methods for managing, regenerating and extending lowland native woodlands.

Silvicultural systems*Gary Kerr*

Examine the potential for diversifying the range of silvicultural systems used in native woodlands.

Seed and seedling biology*Peter Gosling*

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

Technical Development Branch**Large-scale forestry harvesting***Colin Saunders*

Evaluate machinery and equipment, produce output guidance and investigate operational techniques relevant to large-scale forestry work in harvesting.

Large-scale ground preparation, seed sowing and planting*Steve Morgan, Andy Hall and Bill J. Jones*

Evaluate machinery and equipment, produce output guidance and investigate operational techniques relevant to large-scale forestry work in ground preparation, seed sowing and planting.

Farm and small-scale silviculture/harvesting and utilisation of small woodlands*Andy Hall, Martin Lipscombe and Dave Jones*

Develop methods and assess equipment, particularly with low environmental impact, suitable for use in small, generally broadleaved woodlands,

and suitable for use by farmers and small contracting firms. Evaluation and development of mechanised methods of broadleaf harvesting.

Forestry operations on derelict and reclaimed land

Bill J. Jones

Undertake focused research into the cost-effectiveness of restoration techniques, with an emphasis on system and cost advice on techniques recommended by scientists.

Wood for energy

Andy Hall and Steve Morgan

Develop methods for using short rotation coppice, single-stemmed short rotation forestry, forestry residues and existing undermanaged woodlands for small-scale heating and small- or large-scale electricity generation.

Chemical weeding

Bill J. Jones

Evaluate equipment, application techniques and safety.

Health and Safety

Bill J. Jones, Colin Saunders and Dave Jones

Undertake research into various aspects of Health and Safety with particular emphasis on health issues such as ergonomics of harvesting machinery and hand-arm vibration using powered hand tools.

Tree Improvement Branch

Selection and testing of conifers

Steve Lee

Undertake plus-tree selection, progeny testing. Breeding/production populations. Demonstration of realised gain. Development of techniques for marker aided selection. Species: Sitka spruce, Scots pine, Corsican pine, Douglas fir, larch.

Breeding and production of conifers

Steve Lee

Clonal archives: conservation, advanced breeding material. Improved seed: controlled pollination, seed orchards.

Improvement of broadleaves

Ned Cundall

Selection/testing of selections at population, family and clonal level. Species: oak, ash, sycamore, beech, birch.

Origin and provenance of conifers

Sam Samuel

Identification of suitable origins of conifer species. Key species: Sitka spruce, Douglas fir.

Biochemical and molecular study of genetic variation

Ian Forrest and Joan Cottrell

Study of genetic variation and gene flow in natural populations.

***In vitro* propagation and phase-change biotechnologies**

Allan John

Investigate tissue culture systems for multiplication of Sitka spruce and hybrid larch.

Forest Reproductive Material Regulations

Sam Samuel

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

Woodland Ecology Branch

Assessing biodiversity in managed forests

Richard Ferris

Determine the biodiversity status of plantation forests, develop practical assessment methodologies and identify potential biodiversity indicators.

Forest habitat management

Jonathan Humphrey, Russell Anderson and Helen Armstrong

Investigate and provide guidance on the management of upland forest habitats, including wooded and open ground, for the conservation and enhancement of biodiversity.

Species Action Plans

Alice Broome

Undertake research in support of Forestry Commission commitments to the species Biodiversity Action Plans and provide advice on appropriate management of woodland habitats for these species.

Landscape ecology

Richard Ferris, Jonathan Humphrey and Chris Quine

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 and decision support systems

Duncan Ray

Research, build and test models that predict the effect of forest management on forest ecology, and develop decision-making tools for ecological site classification and forest biodiversity.

Squirrel management

Brenda Mayle

Develop cost-effective means of managing the impact of grey squirrels on timber production. Work to secure the future of the red squirrel as a component of the British woodland fauna.

Deer population ecology and management

Robin Gill, Helen Armstrong and Brenda Mayle

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

Tree protection

Roger Trout

Develop techniques and materials for cost-effective protection of trees and woodlands from vertebrate damage.

Woodland Surveys Branch

National inventory of woodland and trees

Steve Smith

Undertake the FC national survey of woodlands and trees, assessing the woodland cover. Update key statistics on forest type, species, age-class, management and ownership.

Inventory GIS development

Graham Bull

Create the digital woodland map for Britain. Develop the use of GIS for providing spatially referenced data on the woodland cover of Great Britain.

Private sector production forecast

Justin Gilbert

Develop and produce the private sector production forecast incorporating new woodland data from the national inventory.

Appendix 4

Research Contracts Awarded by Forest Research

Avon Vegetation Research

Forestry herbicide evaluation.

Centre for Ecology & Hydrology

Seedling growth modelling.

Environment Agency (Wales)

Effects of forestry on surface water acidification.

Fountain Forestry

Water monitoring, Halladale.

Freshwater Fisheries Laboratory

Effects of riparian forest clearance on fish populations.

Imperial College, London

Control of decay in utility poles.
Development of a biological control agent for Dutch elm disease.

Lancaster University

Detection and monitoring of the effects of ozone pollution on deciduous forest physiology: remote sensing as a predictive tool.

Macaulay Land Use Research Institute

Sustainability of afforestation development, Halladale.

Mountain Environments

Investigation of the long-term effects of forest management on upland catchments (Balquhider).

Scottish Environment Protection Agency

Effects of forestry on freshwater fauna.

University of Aberdeen/University of Durham

Population dynamics in a predator-prey system.

University of Abertay, Dundee

Cryopreservation of Sitka spruce tissues.

University of Birmingham

Woody debris in forest aquatic habitats.

University of Durham

Habitat-predator-prey relationships, Kielder.

University of Leeds

Atmospheric boundary layer over forests.
Chemical transport in forests.

University of Reading

Tree root response to acidification.
Soil variability.

University of Southampton

Water and fine sediment transport in rivers with wooded floodplains.

University of Sussex

Biochemical mechanisms for plants to act as sinks for atmospheric pollutants.
Drought tolerance in poplars.

University of Ulster

Feeding ecology of the large pine weevil.
Impact of defoliating insects on forests.

University of Wales

Endophytic establishment of wood-degrading fungi.

Appendix 5

Contract Work Undertaken by Forest Research for External Customers

(some projects may also be part-funded by FC customers)

Anglia WoodNet

Mobile sawmilling guide.
Coppice working methods.

British Biogen

Woodfuel chipping.
Woodfuel moisture content measurement.

Cranfield University

Biomass production of landfill.

Department of the Environment, Transport and the Regions

Monitoring the health of non-woodland trees.
Potential for woodland establishment on landfill sites.

Department of the Environment, Transport and the Regions /Aspinwall & Company

Effectiveness of provisions for the aftercare of mineral workings.

Department of the Environment, Transport and the Regions/Loughborough University

Trees and drought in lowland England.

Department of the Environment, Transport and the Regions/Natural Environment Research Council

Cause–effect relationships for pollutant inputs to UK woodland ecosystems.

Department of the Environment, Transport and the Regions//Wye College

The use of soil-forming materials in the reclamation of older mineral workings and other reclamation schemes.

Editorial update Following the June 2001 General Election, work for Department of the Environment, Transport and Regions (DETR) and Ministry of Agriculture, Fisheries and Food (MAFF) is now covered by the new Department for the Environment, Food and Rural Affairs (DEFRA) and Department of Transport, Land and the Regions (DTLR).

Department of Trade and Industry

Carbon budget factsheet.
Yield models for energy coppice of poplar and willow.

English Nature

Reversal of woodland fragmentation.

Environment Agency

Soil quality indicators.
Phytophthora disease of alder.

European Commission

Alternatives to methyl bromide for quarantine treatment.
Bark and wood boring insects in living trees.
Control of decay.
Demonstration of sustainable forestry to protect water quality and aquatic biodiversity.
Forest condition surveys.
Gene flow in oaks.
Improving protection and resistance of forests to the spruce aphid.
Intensive monitoring of forest ecosystems.
Larch wood chain.
Native black poplar genetic resources in Europe.
Natural regeneration of oak.
Phytophthora in European oak decline.
The use of excavator base machines in forestry.
The use of excavators and backhoe loaders in forestry.
Upgrading the Level II protocol for physiological modelling of cause–effect relationships: a pilot study.

EC/Highland Birchwoods

Conservation of native oakwoods.

EC/Potsdam Institute for Climate, Germany

Quantifying forest ecosystem dynamics in northern Europe.

EC/Scottish Natural Heritage

Restoration of wet woods.

Health and Safety Executive

Mobile elevated working platforms.

Highland Birchwoods

Small scale harvesting workshop.

ITE

Terrestrial effects of acid pollutants.

UK emissions by sources.

Joint Nature Conservation Committee

Red squirrel conservation.

Kemira Fertilisers

Slow release fertilisers for cell-grown seedlings.

Leverhulme Trust/University of Ulster

Novel methods for quantifying the impact of defoliating insects in forests.

Macfarlane Smith

Vertebrate repellents.

Marches Woodland Initiative

Development of a solar kiln.

Ministry of Agriculture, Fisheries and Food

Development of a site-specific yield model for ash in lowland England and Wales.

Provenance testing of broadleaved species in farm forestry.

Yield models for energy coppice of poplar and willow.

Natural Environment Research Council/Imperial College

Variation in the Dutch elm disease pathogens.

National Forest Company

Research and demonstration in the National Forest.

Raleigh International

Conservation of the huemul deer in Chile.

Scotland and Northern Ireland Forum for Environmental Research

A coupled soil–forest–atmosphere dynamic model for predicting evapotranspiration demands at the plot and landscape scales in the UK.

Effect of riparian forest management on the freshwater environment.

Scottish Forestry Trust/UK Forest Products Association/Tilhill Economic Forestry/Scottish Woodland Owners Association

Assessing log quality in Sitka spruce.

Scottish Natural Heritage

Seed vitality in the Mar Lodge pinewoods.

University of Viterbo, Italy

Modelling long-term growth of beech.

Appendix 6

Forest Research Staff as at 31 March 2001

Chief Executive

J. Dewar, B.Sc., M.I.C.For.

Personal Secretary

M. W. Holmes

Chief Research Officer

P. H. Freer-Smith, B.Sc., Ph.D.

Personal Secretary

C. A. Holmes

Branches based at Alice Holt

Administration Branch

K. N. Charles, F.M.S., *Personnel and Administration Officer, Head of Branch*

Central Services Section

S. J. Hutchings*

D. M. Payne

M. Sennet*

A. Smith*

M. L. Young

Personnel Section

M. G. Wheeler

W. B. Groves

J. R. Lacey

Typing Section

M. C. Peacock*, *Head of Section*

S. C. Stiles*

Finance Branch

A. J. Cornwell, F.C.M.A., *Head of Branch*

L. J. Caless

P. A. Filewood

C. Martin

J. M. Turner

Communications Branch

Library and Information Section

C. A. Oldham, B.A., M.A., Dip.Lib., A.L.A., *Head of Section and Librarian*

E. M. Harland, M.A., Dip.Lib., *Assistant Librarian*

K. A. Hutchison, M.A. (*at Northern Research Station*)

T. D. Smalley

Photography Section

G. L. Gate, *Head of Section*

G. R. Brearley (*at Northern Research Station*)

M. Trusler (*also with Central Services Section*)

J. Williams

Entomology Branch (with section at Northern Research Station)

H. F. Evans, B.Sc., D.Phil., F.R.E.S., *Head of Branch*

G. Green, B.Sc.*

M. R. Jukes, C.Biol., M.I.Biol.

J. T. Staley, B.Sc., M.Sc.

S. A. Stephens*

N. A. Straw, B.Sc., Ph.D., F.R.E.S.

C. A. Tilbury, B.Sc.

D. Wainhouse, M.Sc., Ph.D., F.R.E.S.

Environmental Research Branch

A. J. Moffat, B.Sc., Ph.D., *Head of Branch*

L. C. Adams, B.Sc.

S. E. Benham, B.Sc.

F. J. M. Bochereau, B.Sc., M.Sc.

S. B. Broadmeadow, B.Sc., M.Sc.

M. S. J. Broadmeadow, B.Sc., Ph.D.

S. R. Cowdry*

P. G. Crow, B.Sc.

D. W. H. Durrant, B.A.

K. J. Foot, Eng.D., M.Sc., B.Sc.

T. R. Hutchings, M.Sc.

F. M. Kennedy, B.Sc., Ph.D.

A. J. McIntyre, B.Sc.

T. R. Nisbet, B.Sc., Ph.D.

R. M. Pitman, B.Sc., Ph.D.

E. Ward, B.Sc., M.Sc., C.Chem., M.R.S.C.

C. E. Whitfield*

C. A. Woods (*also with Woodland Ecology Branch*)

* denotes part-time staff

Mensuration Branch

J. M. Methley, B.Sc., *Head of Branch*
 M. E. Baldwin, HND, B.Sc., M.Sc.
 J. M. Bell*
 E. Casella, M.Sc., Ph.D.
 I. R. Craig
 S. P. Evans, B.A., M.A., Ph.D., Ph.D., Professor
 P. A. Henshall, B.Sc.
 R. W. Matthews, B.Sc., M.Sc.
 J. C. Proudfoot
 T. J. Randle, B.Sc.

Pathology Branch (with section at Northern Research Station)

J. F. Webber, B.Sc., Ph.D., *Head of Branch*
 C. M. Brasier, B.Sc., Ph.D., D.Sc., Professor
 A. Jeeves
 S. A. Kirk
 C. A. Lishman*
 D. Lonsdale, B.Sc., Ph.D.
 D. R. Rose, B.A.
 J. Rose
 K. V. Thorpe, B.A., M.Sc., D. Phil.

Silviculture and Seed Research Branch

P. M. Tabbush, B.Sc., M.I.C.For., *Head of Branch*
 A. Armstrong, M.I.C.For.
 C. A. Baker, B.Sc.
 P. G. Gosling, B.Sc., Ph.D.
 R. Harmer, B.Sc., Ph.D.
 R. L. Jinks, B.Sc., Ph.D.
 G. Kerr, B.Sc., M.I.C.For.
 E. O'Brien, B.Sc.
 M. J. R. Parratt, B.Sc.
 I. Tubby, B.Sc.
 M. Robertson, B.Sc.
 I. Willoughby, B.Sc., M.B.A., M.I.C.For.
 A. Yeomans

Statistics and Computing Branch (with section at Northern Research Station)

B. J. Smyth, B.Sc., *Head of Branch*
 R. C. Boswell, B.Sc., M.I.S.
 C. A. V. Foden*
 L. M. Halsall, B.Sc.
 T. J. Houston, B.Sc., M.I.S.
 D. Jeffries, B.Sc.
 D. Johnson, B.Sc.
 T. Knight, B.Sc.
 P. E. Newell*
 A. J. Peace, B.Sc.
 L. P. Pearce*

Woodland Ecology Section**(of branch at the Northern Research Station)**

R. Ferris, B.Sc., Ph.D., *Head of Section*
 A. J. Brunt
 M. Ferryman
 R. M. A. Gill, B.Sc., M.Sc., Ph.D.
 B. A. Mayle, M.Sc.
 R. G. Trout, B.A., Ph.D.
 C. A. Woods (*also with Environmental Research Branch*)

Branches based at Northern Research Station**Administration**

M. Abrahams
 G. T. Cockerell
 E. Hall
 E. E. Ker
 S. F. Lamb*
 L. G. Legge*
 G. E. Mackintosh*
 R. G. L. Shields*

Entomology Section**(of branch at Alice Holt)**

S. G. Heritage, M.B.A., C.Biol., M.I.Biol.,
Head of Section
 R. Moore, B.Sc., Ph.D.

Pathology Section**(of branch at Alice Holt)**

J. E. Pratt, *Head of Section*
 S. J. Hendry, B.Sc., Ph.D.
 G. A. MacAskill
 H. Steele, B.Sc.*

Silviculture North Branch

W. L. Mason, B.A., B.Sc., M.I.C.For., *Head of Branch*
 C. Edwards
 B. A. Gardiner, B.Sc., Ph.D., F.R.Met.S., Professor
 S. E. Hale, B.Sc., Ph.D.
 A. M. Hislop, M.I.C.For.
 J. Hubert, B.Sc., Ph.D.
 C. McEvoy, B.A.
 S. J. Mochan
 B. C. Nicoll, B.Sc.
 S. A. Smith, B.Sc., M.I.C.For.
 J. C. Suárez-Minguez, B.Sc., M.Sc.
 R. N. Thompson

Statistics and Computing Section (of branch at Alice Holt)

R. W. Blackburn, B.Sc., *Head of Section*
 L. Connolly*
 T. Connolly, B.Sc., Ph.D.
 A. Gaw, B.Sc.*
 A. D. Milner, B.Sc., Ph.D.
 L. Rooney*

Tree Improvement Branch

C. J. A. Samuel, B.Sc., Ph.D., *Head of Branch*
 C. M. M. Baldwin
 J. E. Cottrell, B.Sc., Ph.D.
 E. P. Cundall, B.Sc., Ph.D.
 G. I. Forrest, B.Sc., Ph.D.
 A. John, B.Sc., Ph.D.
 S. J. Lee, B.Sc., Ph.D., M.I.C.For.
 M. A. O'Donnell*
 R. J. Sykes
 H. E. Tabbener, B.Sc.

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C. P. Quine, M.A., M.Sc., M.I.C.For., *Head of Branch*
 A. R. Anderson
 H. M. Armstrong, B.Sc., Ph.D.
 A. C. Broome, B.Sc.
 J. D. Clare, B.Sc., MSc.
 J. W. Humphrey, B.Sc., Ph.D.
 M. Plews (*also with Technical Support Unit North*)
 D. Ray, B.Sc.

Branch based at Ae Village**Technical Development Branch**

W. M. Jones, *Head of Branch*
 W. J. Jones
 S. Morgan
 J. D. Neil
 N. Nicholson*
 J. Rammell
 C. J. Saunders
 A. Wallace*

Midlands

A. Hall
 M. Jones
 M. A. Lipscombe
 P. Webster

Wales

D. H. Jones, Eng.Tech., A.M.I.Agr.E.

Branch based at Edinburgh HQ**Woodland Surveys Branch**

S. Smith, B.Sc., B.A., M.B.A., *Head of Branch*
 R. H. Beck
 G. D. Bull
 C. Brown
 J. R. Gilbert, B.Sc.
 S. Macintosh
 E. S. Whitton

Field Station Staff

Technical Support Unit (North)

K. A. Fielding, *Head of Branch*

Engineering Services

D. J. Brooks, *Head of Engineering Services*

J. A. Nicholl

J. E. Strachan

Bush and Perth

A. J. Harrison, B.Sc., *Head of Stations*

Bush

D. R. Anderson

J. H. Armstrong

D. C. Clark

G. M. Crozier

C. D. Gordon

J. T. Howell

M. Hunter

N. R. Innes

P. J. Love

S. P. Osborne, B.Sc.

A. Purves

S. Sloan

Perth

N. C. Evans

W. F. Rayner

Cairnbaan

D. R. Tracy, B.Sc., *Head of Station*

R. Nicoll

P. M. Simson, B.Sc.

E. M. Wilson, B.Sc.

J. Wilson

Kielder and Mabie

D. M. Watterson, *Head of Stations*

Kielder

T. C. O. Gray

M. Ryan

L. Thornton

I. J. Yoxall

Mabie

L. R. Carson

J. M. Duff

W. Kelly

H. MacLean

J. Sneddon*

H. Watson

J. White

Newton, Lairg and Inverness

A. W. MacLeod, *Head of Stations*

Newton

G. Bowden*

A. R. Cowie

J. Gittins

F. McAllister

F. McBirnie

H. MacKay

S. T. Murphy, B.Sc., M.Sc.

C. Smart

Lairg

A. J. Bowran

C. M. Murray

D. Williams

Inverness

P. J. Walling

Technical Support Unit (South)

N. C. Day, *Head of Branch*

Alice Holt

N. J. Tucker, *Head of Station*

M. J. S. Awdry

R. I. Bellis

S. N. Bellis

A. Bright

J. L. Budd

S. M. Coventry

L. M. Haydon

V. Lawrence

A. Martin

R. A. Nickerson

D. Nisbet

J. E. Page

W. Page

R. M. Panton

Alice Holt Workshop

J. Davey

M. F. Johnston

Exeter

D. G. Rogers, *Head of Station*

A. Ockenden

D. J. Parker

A. M. Reeves

P. Wooton

Fineshade

D. A. West, *Head of Station*

J. Lakey

E. M. Richardson

P. Turner

A. Whybrow

Shobdon

N. J. Fielding, *Head of Station*

N. Connor

J. Griffiths

B. J. Hanwell, B.Sc.

S.A. Hardiman*

D. M. Jones

J. P. Jones

J. J. Price

Talybont

C. D. Jones, B.Sc., *Head of Station*

L. Ackroyd*

M. J. Chappell

D. M. Evans

C. Foster

B. Jones

R. J. Keddle

T. A. Price

R. Sparks

G. K. Williams

Wykeham

D. Kerr, *Head of Station*

I. F. Blair

L. S. Cooper

A. J. Hill

P. A. Jackson*

W. Riddick

PhD students linked with Forest Research

A. Brown (Imperial College)

S. Brown (Leeds University)

L. Crawford (Imperial College)

H. Drewitt (Durham University)

S. Flint (Manchester Metropolitan University)

J. Forbes (Manchester University)

C. Hacker (Imperial College)

J. E. Hope (Stirling University)

R. Jefferies (Southampton University)

P. Loizou (Lancaster University)

T. Ogilvie (Edinburgh University)

K. Robinson (Southampton University)

S. Scozzafava (Stirling University)

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