



Forest Research

Annex 1 to Memo No 11/17

Forest Research

Corporate Plan

2017-2018

The Research Agency of the
Forestry Commission

Contents

Our vision	3
Our role	3
Our objectives.....	3
Our priorities	3
FR Science Priority: Protect our trees and forests	4
Desired outcomes	4
Key actions	4
FR impact indicators	5
FR Science Priority: Enhance forest ecosystem & economic resilience and service provision	5
Desired outcome.....	5
Key actions	5
FR impact indicators	6
FR Science Priority: Ensure sustainable management and adaptation of our forests to climate change.....	6
Desired outcomes	6
Key actions	7
FR impact indicators	7
FR Science Priority: Publish Official Statistics and effect knowledge exchange.....	7
Desired outcome.....	8
Key actions	8
FR impact indicators	8
FR Business Priority: Grow our business	8
Desired outcomes	9
Key Actions.....	9
FR impact indicators	9
Appendix 1: Working to the Science and Innovation Strategy for Forestry in Great Britain	10
Appendix 2: Forest Research’s Business Plan.....	12

List of Tables

Table 1. Income and Expenditure 201x-201x.....	12
Table 2. Balance Sheet at 31 March 2017.....	12
Table 3. Cash Flow 201x-201x	13
Table 4. Trends in Staff Numbers (full time equivalents).....	13

(Note: page numbering to be checked)

FOREST RESEARCH CORPORATE PLAN 2017-2018

Our vision

To be recognised as one of Europe's leading providers of applied forest and tree-related science, forestry data services, policy evidence, technical development, specialist extension services and professional training.

Our role

Forest Research is the Research Agency of the Forestry Commission and Great Britain's principal organisation for forestry and tree-related research. Forest Research is internationally renowned for the provision of science, research, evidence, data and services in support of sustainable forestry. Forest Research works for many Government departments, all the Devolved Administrations, forestry and land management stakeholders, environmental non-Governmental organisations and the European Union, amongst others.

Our objectives

- To provide evidence and expertise to inform the development and delivery of UK, Welsh, Scottish and European forestry related policies
- To provide innovative applied research, development, monitoring, scientific services, forestry data services and professional training to UK, European and international forestry stakeholders
- To facilitate knowledge exchange directly, and/or in partnership with others, to UK, European and international audiences
- To be the preferred supplier to the UK, Scottish and Welsh governments for forestry science as a result of its quality of service, value for money and reputation with the sector
- To work in partnership with others to promote the development of the wider UK, Scottish and Welsh forest science and research capacity and capability in particular through staff recruitment, training and development

Our priorities

Our work is founded on the principle that research and evidence are central to both informed forest policy making and sustainable land management practices.

Forest Research's science and business priorities are to provide the science and evidence to:

- Protect our trees and forests
- Enhance forest ecosystem & economic resilience and service provision
- Ensure sustainable management and adaptation of our forests to climate change
- Publish Official Statistics and effect knowledge exchange
- Grow our business

Forest Research (FR) currently receives Forestry Commission support to deliver elements of the ministerially endorsed Science and Innovation Strategy for Forestry in Great Britain (SIS, 2014). The SIS influences and guides our activities – for example the SIS reaffirmed our research priorities, the importance we give to interdisciplinary research, working in partnership and effective knowledge exchange. FR has seven research programmes that deliver the SIS. The programmes are detailed in **Appendix 1**. FR also receives direct income from the country-based Forestry Commission teams to support the work of the Inventory, Forecasting and Operational Support (IFOS) team in providing key operational and forest data. The remaining income comes from a range of other clients such as Defra, the Welsh and Scottish governments, research partners, private sector companies and European Union customers. FR's Business Plan is detailed in **Appendix 2**.

FR Science Priority: Protect our trees and forests

Ensuring that trees and forests remain healthy and vigorous is vital to the long-term future of Britain's woodlands and forests. However, an increasing range of pests and diseases threaten tree health. These pests and diseases are, amongst others, Oak Processionary Moth, Acute Oak Decline, *Dothistroma* Needle Blight, *Phytophthora ramorum*, *Phytophthora austrocedrae*, *Cryphonectria parasitica*, *Hylobius* and *Chalara*. FR works closely with other research organisations, universities and forest owners to help deliver the evidence needs required by the UK and Devolved Administrations, and has an operational role in diagnosing suspected pests and diseases.

Under this science priority we will deliver parts of "Assessing resilience and sustainability of urban trees, woodlands and forests" (SIS Programme 1) that relate to defining resilience and its associated indicators and "Understanding tree health and threats to resilience" (SIS programme 2).

Desired outcomes

A woodland resource and structure with more resilience to pests and diseases, a sector that is better equipped to take decisions and manage disease and pest risks, especially to key commercial conifer and broadleaved species and a public that is more informed, engaged and involved in monitoring the health and wellbeing of trees and forests.

Key actions

- Complete the end of the Observatree (Phase 1) project, including an end of project conference and work to secure a future phase of the project and its legacy
- Carry out surveys, provide diagnostic services and monitoring across the country, as required under the EU Plant Health Directive to ensure that the UK retains Protected Zone status against regulated tree pests and diseases, and provide a report on these activities to the UK and EU statutory bodies

- Gather scientific information and evidence to assist with the management of damaging pests and diseases and the development of tree health policy, and ensure the dissemination of this information
- Report to Forest Services England on tree canopy cover in selected English towns and cities

FR impact indicators

- Up-to-date guidance on managing forests for pest and disease resilience
- International co-operation on pest and disease research and risk monitoring
- More detailed understanding of disease biology and epidemiology
- A well informed and evidenced risk register for trees

FR Science Priority: Enhance forest ecosystem & economic resilience and service provision

The changing climate and increasing global trade raise complex problems for the conservation of woodland biodiversity, the capacity of forests to adapt to climate change, the provision of environmental mitigation, and the susceptibility of trees and forests to pests and diseases. Ensuring that current and future woodlands can maintain or enhance the range of ecosystem and economic services they provide (such as biodiversity, recreation opportunities, timber, tourism and health benefits) is an important and demanding challenge. This area of activity includes using our hydrological expertise to help realise the potential contribution that woodlands bring to water quality, management and flood prevention.

Under this science priority we will deliver the remaining elements of "Assessing resilience and sustainability of urban trees, woodlands and forests" (SIS Programme 1) and "Valuing ecosystem services, forest governance and influencing behaviour" (SIS Programme 4).

Desired outcome

A woodland resource with the scale, design and structure to deliver important ecosystem services into the future. A sector that is better equipped and informed to take decisions over uncertain futures and implement appropriate design, planning and management systems.

Key actions

- Enhance our research and operational support to the development of the Action Oak partnership
- Extend our contribution to natural capital accounting, through leading a COST action programme on Payments for Ecosystem Services and participate in the "Forests and

Water Payments for Ecosystem Services” workshop at the IUFRO World Congress
September 2017

- Complete the Greensurge project and outputs including research dissemination and integration workshops with urban planners, managers and practitioners, leading to the production of guidelines on participatory governance of urban greenspace
- With support from the Genomia fund, develop and market ecological network analyses to planning authorities, developers and conservation agencies

FR impact indicators

- Quantification of, or indicators for, forest based ecosystem service provision and resilience
- Improvements in woodland biodiversity
- Availability and use of up-to-date guidance on forest ecosystem services and resilience

FR Science Priority: Ensure sustainable management and adaptation of our forests to climate change

The successful establishment of appropriate species and their sustainable management are vital if woodlands are to support the contribution of forestry and the wood processing industry to a growing economy. Furthermore, in response to both broader societal demands being placed on forests and increasing biotic and abiotic risks, the range of tree species and forest management systems is becoming more diverse. There is a consequent need, from both forest policy and operational perspectives, for greater understanding of the impact of these species and systems, and accurate models of current and future forest growth.

The work of the National Forest Inventory (NFI) and Statistics teams supports the provision of up-to-date information regarding trees and forests. The NFI is a multi-purpose programme that provides accurate, up-to-date information about the size, distribution, composition and condition of British forests and woodlands.

Under this science priority we will deliver “Delivering resilient forests in a changing climate” (SIS Programme 3), “Tree breeding and developing sustainable markets, forest products and services” (SIS programme 5) and “Forest resource assessment, greenhouse gas balance and modelling” SIS Programme 6).

Desired outcomes

A woodland resource that is suited to present needs and growing conditions bearing in mind the anticipated changes in climate, a sector that is informed about species choice, site

selection and sustainable management of the UK's woodland resource, and wider appreciation of the role trees and forests have in increasing environmental resilience.

Key actions

- Report to Defra on three year's evidence of the ash dieback field trials including the effect of seed source on survival
- Co-organise, with partners including the Forestry Commission, Forestry Commission Scotland, the World Wide Fund for Nature and Confor, the IUFRO New Generation Plantations meeting in June 2017
- Hold a workshop for forest managers and policy advisors on recent research into the greenhouse gas balance of productive forestry on peaty soils
- Survey 1,500 hectares of forest land for the National Forest Inventory

FR impact indicators

- Up-to-date information and decision support systems on species choice and silvicultural techniques that reflect anticipated climate and disease conditions
- Availability and uptake of methods that enable accurate assessment and monitoring of forest resources at both GB and national levels
- Availability and use of models to forecast the carbon impacts of forest management, products and utilisation at a GB and European scale

FR Science Priority: Publish Official Statistics and effect knowledge exchange

We are committed to ensuring that all our work continues to be relevant, available to, and understood by all those who need and use it. FR has a wide network of users and customers with whom we communicate and share our knowledge. We will continue to publish and disseminate our work to Government, research and professional networks, publish in peer-reviewed journals and open access sources, issue engaging and timely press releases and organise and participate in events with the forest sector. Under this science priority we will deliver "Integrating research for policy and practice to deliver resilient forests" (SIS Programme 7) and the knowledge exchange components of the other six SIS Programmes.

FR will, with others, play an important part in the updating of the UK Forestry Standard (UKFS). The UKFS is the reference standard for sustainable forest management in the UK. The UKFS, supported by its series of guidelines, outlines the context for forestry in the UK, sets out the approach of the UK government to sustainable forest management, defines standards and requirements, and provides a basis for regulation and monitoring.

Desired outcome

An engaged, informed and more diverse range of users of our information, including but not restricted to, the forestry sector.

Key actions

- Contribute to the delivery of partner's events including the Institute of Chartered Foresters Conference (a focus on urban trees and woodlands, April 2017); Royal Welsh Show (July 2017); International Union of Forest Research Organization Conference (with a focus on Freiburg meeting, September 2017); the SIMWOOD Conference (Paris, September 2017) and; annual conference and activities of the European Forest Institute
- Continue to work with Forest Enterprise Scotland and Forest Enterprise England to transition forester software to a web hosted platform and move our associated spatial data repository to a new cloud hosted shared GeoStore by June 2018
- Publish official statistics, including UK National Statistics and Official Statistics, forestry statistics, timber price indices, UK wood production and analyses from the National Forest Inventory
- Prepare consultation draft National Forest Inventory (NFI) reports regarding the use of woodlands by the public and woodland ownership

FR impact indicators

- Feedback from private and public stakeholders and event participants about their use of our work
- Information on FR website statistics, including trends of website use
- Peer-reviewed publications which are accessible, with metrics on usage
- All publishing scientists have up-to-date information on their publications, as evidenced through ResearchGate (or similar recording mechanisms)

FR Business Priority: Grow our business

FR has a proven track record of partnership working and we will continue to grow existing and new partnerships with sector-led initiatives, professional bodies, businesses, charities, universities, non-Governmental organisations and Government departments in the UK and across Europe. FR will also undertake specialist international work where it is profitable from a business or developmental perspective. FR will continue to work constructively with the UK and Devolved Administrations to facilitate their desire to establish resilient future arrangements for forest research particularly in the context of the Scottish Government's decision to complete the devolution of forestry.

Desired outcomes

FR will focus upon priority areas of research be they existing areas of expertise or new opportunities that build upon our proven skills and reputation. FR will continue to secure additional income from a wide range of customers and partners, both in the private and public sectors, in order to continue to grow our business and benefit its customers and the users of its expertise.

Key Actions

- Continue to build relationships with new and existing customers, especially Defra, the devolved administrations and forestry sector and maintain external income, including that from non-FC core funding
- With FR staff initiate horizon scanning of the UK, European and International applied forest research / monitoring / scientific services and forestry data services markets to develop a new science offer for our key customers be offered by FR from 2019 onwards
- Develop FR's forest soil survey capability and identify other opportunities for FR to offer professional training to a range of new and existing customers
- Contribute to intergovernmental projects dedicated to establishing a new operational model for FR going forward and develop new FR corporate arrangements for existing shared services such as human resources, information technology and finance by April 2019

FR impact indicators

- External income secured
- Diversity and value of projects undertaken
- The number and range of PhDs/MScs supported
- Progress on determining agreed business models

Appendix 1.

Appendix 1: Working to the Science and Innovation Strategy for Forestry in Great Britain

FR has seven research programmes that deliver its contribution to the SIS. These programmes are:

1 Assessing resilience and sustainability of urban trees, woodlands and forests

This programme includes the assessment and evaluation of resilience in the context of forestry and the wider mosaic of land use; what contributes to it, what are appropriate indicators of resilience, and what are the risks to and vulnerabilities of the forestry socio-ecological system. The 'system' approach will examine risks to both the functioning and state of the system (ecosystem services like timber production, recreation, Carbon sequestration, Carbon stock, water yield, shade, habitat, biodiversity, soil stability, nutrient cycling, greenhouse gas balance, climate change mitigation). The programme will include long-term monitoring of change in conditions or in state, and it will cover the social and organisational aspects of resilience (organisations, structures, cultures and networks) and examine indicators of social resilience in forest governance and management.

2 Understanding tree health and threats to resilience

This programme focuses on pests, pathogens and invasive species, and will include research into the risks and vulnerabilities of trees and stands, breeding resistance, control and management strategies and the tree health advisory role. It will also cover the assessment of risks from climate change and pollution (drought, fire, floods, erosion, pollution damage, eutrophication), and dealing with uncertainty. This programme will also integrate the biotic and environmental aspects with understanding of social science, forest management and governance.

3 Delivering resilient forests in a changing climate

This programme covers forest planning, infrastructure and silvicultural aspects of adaptation and adaptive capacity, at stand, forest and landscape scale, and includes organisational, professional and personal influences on decision-making and behavioural outcomes. The programme will produce recommendations on selection, diversification and/or breeding of species, provenances and genotypes; forest management systems, including on managing impacts on soil and water; management to support innovation; and the organisational and professional dimensions needed to adopt these recommendations. This includes methodologies for combining different knowledge and expertise to overcome barriers to implementation.

4 Valuing ecosystem services, forest governance and influencing behaviour

This programme models and assesses the benefits, costs and services that both current and proposed future forests, can deliver. It will consider the evidence required to support forest

expansion, and how this expansion can be achieved. The programme will involve the valuation of ecosystem services and natural capital research, the understanding and assessment of woodland expansion drivers and barriers (financial and policy etc.), and evaluation of specific benefits of woodlands and trees (timber, biodiversity, flood risk management, water resources, soils, pollution control, diffuse pollution, climate change mitigation and urban greenspace).

5 Tree breeding and developing sustainable markets, forest products and services

This programme will characterise and understand the potential of the growing stock of forests to deliver products with a wide range of potential uses. It includes research on tree breeding, timber properties and their controls, and how they may be manipulated and improved to meet the evolving potential applications of wood as a resource. The research will cover relevant aspects of non-wood forest products, market analysis, supply chain management and innovation in the use of forest products.

6 Forest resource assessment, greenhouse gas balance and modelling

This programme will undertake underpinning research for many other programmes. It will do this by developing methods, models and tools for data acquisition to enable the assessment of the status and development of forests, timber and biomass stocks, and the impacts of disturbances and interventions. The skills of the IFOS and Statistics teams are a vital component of this programme, as are the use of remote sensing and technical development. Long-term work includes the Permanent Sample Plot network and the valuable and numerous (nearly 2,000) research plots located in GB on both the private and public forest estate. The programme will play a pivotal role in forestry sector actions, both by providing the data and tools needed to inform and verify decisions about forest policy and practice, and in applying data and tools to support the formulation and implementation of policy and practice.

7 Integrating research for policy and practice to deliver resilient forests

FR specifically addressed the needs expressed in the SIS for a more innovative approach to dealing with whole system issues. This programme will ensure multi/interdisciplinary working, and integrate various modes and disciplines of research to address the research challenges. It will facilitate the creation of a common conceptual framework across programmes, and both bring together different disciplines within FR and link science with policy and practice. It is a methodological programme which will build on current thinking around socio-ecological systems and other relevant whole systems approaches, and create a structure of workshops for internal and external stakeholders to integrate the research.

Appendix 2.

Appendix 2: Forest Research's Business Plan

Table 1. Income and Expenditure 2016-2019

	2016-17 Actual	2017-18 Planned	18-19 Indicative *
Income			
FC Corporate and Forestry Support	9,088	9,121	9,121
Other Contracts	7,404	8,006	8,006
Total Income	16,492	17,127	17,127
Expenditure			
Staff Costs	10,114	10,122	10,221
Depreciation	783	852	852
Other Costs	6,054	6,153	6,054
Total Expenditure	16,951	17,127	17,127
Net Operating Surplus/(-) Deficit	-459	0	0

* pending approved budgets

Comment [PJ1]: Provisional target subject to FCEB review in July

Comment [PJ2]: Provisional target subject to FCEB review in July

Table 2. Balance Sheet at 31 March 2017

	2016-17 Actual	2017-18 Planned	18-19 Indicative *
Non Current Assets			
Property, Plant and Equipment	11,254	11,502	11,750
Other Assets	92	92	92
Total Non-current assets	11,346	11,594	11,842
Current Assets	2,980	2,980	2,980
Current Liabilities	-1,841	-1,829	-1,823
Net Current Assets/(-) Liabilities	1,139	1,151	1,157
Total Assets less current Liabilities	12,485	12,746	12,999
Provision for Liabilities and Charges	-36	-14	0
Taxpayers' Equity	12,449	12,732	12,999

Table 3. Cash Flow 2016-2019

	2016-17 Actual	2017-18 Planned	2018-19 Indicative*
Net Operating surplus/(-) deficit	-459	0	0
Depreciation	783	852	852
Notional charges	35	35	35
Changes in working capital	361	-12	-6
Change in provisions	-68	-22	-14
Cash inflow/(-) outflow from operating	652	853	867
Less: Capital Expenditure	2,006	1,100	1,100
Net cash inflow/(-) outflow	-1,354	-247	-233

Table 4. Trends in Staff Numbers (full time equivalents)

	2016-17 Actual	2017-18 Planned	2018-19 Indicative*
Total	227	227	227

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