

EXTRACT FROM THE UK FORESTRY COMMISSION RESEARCH PROGRAMME

Biodiversity

PPD Manager - Gordon Patterson

The Biodiversity Programme Group is aimed at supporting the forestry policy objective of conserving and enhancing the biodiversity associated with woodlands in ways which contribute to the conservation of biological diversity in the UK as a whole.

This overall policy aim is divided into two major objectives:

- conserving and enhancing the overall populations and natural ranges of native species and the quality and range of wildlife habitats/ecosystems within all types of forests
- helping to conserve and restore UK priority habitats and species (internationally or nationally important and/or threatened) and also habitats which are characteristic of local areas.

Current research programmes have reflected this division. The first objective is addressed by the FR Biodiversity Research Programme, which started in 1995. It concentrates on investigating ways of diversifying planted forests, especially the large area of even-aged conifer plantations established since World War II.

Research under the second objective supports the implementation of UK Habitat and Species Action Plans (key parts of the Government's UK Biodiversity Action Plan). The main programmes here are aimed at improving our understanding and management of native woodlands, but restoration of non-woodland habitats is also included and so are important woodland species such as red squirrel.

Programmes

Assessing Biodiversity in Planted Forests
Decision Support for Biodiversity
Forest Habitat Management
Genetic Conservation
Landscape Ecology
Lowland Native Woodlands
Species and Habitat Action Plans
Upland Native Woodlands

Programme title

Programme Group

Location

Research contact

Assessing Biodiversity in Planted Forests

Biodiversity

Woodland Ecology Branch, Forest Research.

Richard Ferris (AH)

The objective of this programme is to determine the biodiversity status of plantation forests, develop practical assessment methodologies and identify potential indicators of biodiversity value. This is the first attempt to carry out a systematic inventory of biodiversity in plantation forests in GB. The current phase is at the stand scale only; the landscape scale will be addressed in the *Landscape Ecology* programme. Selected growth stages and site types in upland and lowland regions for several major tree species have been sampled for a wide range of wildlife groups. Structural and environmental parameters have also been sampled and relationships will be investigated to try to establish features which could act as indicators of biodiversity status. Early results are revealing a wealth of new information on the biodiversity of planted forests, which should generate new insights and hypotheses concerning the influence of management practices.

The current programme is due to be completed in 2000, when the need for any further sampling will be assessed.

Programme title	Decision Support for Biodiversity
<i>Programme Group</i>	Biodiversity
<i>Location</i>	Woodland Ecology Branch, Forest Research.
<i>Research contact</i>	Duncan Ray (NRS)

A new programme from 1999, which will be related to the *Ecosystem Site Classification* programme in the 'Systems and Operations' Programme Group. Decision support models will be developed using GIS technology to display and assess management options for key species and features. The models will utilise information emerging from the other Biodiversity programmes. Initial work within the *Ecological Site Classification* programme has developed a site classification system and decision support tools for choice of tree species and woodland type; the new programme will attempt to offer managers biodiversity options for sites-types in terms of the habitats and species which may result from different management choices.

Some research from external providers is likely to be commissioned to develop scenario models for testing the interactions between biodiversity and other forestry objectives.

Programme title	Forest Habitat Management
<i>Programme Group</i>	Biodiversity
<i>Location</i>	Woodland Ecology Branch, Forest Research.
<i>Research contact</i>	Jonathan Humphrey (NRS)

A diverse programme with the overall aim of understanding ecosystem processes in planted forests, and how they can be influenced by management of forest structure and composition to benefit biodiversity conservation, whilst still meeting other major objectives of forestry.

This is being tackled by dividing the work into three contemporary strands. The first is to develop a method for assigning ecological values to different components of biodiversity in planted forests. This links to the programme *Assessing Biodiversity in Planted Forests* and also to *Social Forestry* (in 'Social Forestry and Heritage') where

public preferences and perceptions will be investigated. Secondly, the effects of current forest management practices on biodiversity are investigated and thirdly alternative practices will be developed and tested. Outputs will be linked to the *Decision Support for Biodiversity* programme.

Programme title	Genetic Conservation
<i>Programme Group</i>	Biodiversity
<i>Location</i>	Tree Improvement Branch, Silviculture and Seeds Research Branch, Forest Research and external partners.
<i>Research contact</i>	Ian Forrest (NRS)

Biodiversity conservation is concerned with genetic conservation within species as well as conservation of species and ecosystems. The aim of this new programme is to advance scientific understanding of the current patterns of genetic variation amongst native tree and shrub species in Great Britain, and the influence of past, current and future management practices upon genetic variation. As a result, management recommendations for biodiversity conservation will be produced.

There will be a strong focus on the implications of the origins of planting stock in native woodlands for the degree of adaptation of native trees and shrubs to local conditions in future. Linkage to the *Landscape Ecology* Programme will be important. There will also be close linkage to tree breeding work in the 'Economic Value' Programme Group, so that the implications for genetic conservation of the use of improved and selected stock can be evaluated.

Current work, which is part EU funded, uses molecular techniques to study patterns of genetic variation of oak, black poplar and Douglas fir. A review of research and policy needs (1998) will lead to development of the full programme described above.

Technical advice on the effect of the Forest Reproductive Material Regulations on all aspects of genetic conservation policy is covered under this programme.

Programme title	Landscape Ecology
<i>Programme Group</i>	Biodiversity
<i>Location</i>	Woodland Ecology Branch, Forest Research and other institutes.
<i>Research contact</i>	Richard Ferris (AH)

This is a new programme, starting in 1998/99, which will aim to improve understanding of how forest species and ecosystems respond to management at the landscape and regional scales. It is expected to develop recommendations for forest structure, composition and management to achieve specified biodiversity objectives. This is a difficult topic to research over short time-scales. There will need to be a focus on selected species or structural features which should have a key role in ecological processes. Expertise and ideas from external providers will be sought to complement work by FR. The programme will span both planted and native woodlands and other associated land.

Programme title	Lowland Native Woodlands
<i>Programme Group</i>	Biodiversity
<i>Location</i>	Silviculture and Seeds Research Branch, Forest Research.
<i>Research contact</i>	Ralph Harmer (AH)

This programme complements *Upland Native Woodlands* and has similar objectives and linkages to other programmes. The emphasis on achieving biodiversity together with good quality timber or coppice is stronger in the lowland programme because of the high proportion of lowland broadleaved woodlands which are native woods or are on ancient woodland sites. The link to *Stand Management of Broadleaves* in 'Systems and Operations' is therefore strong. Current projects focus on understanding the ecology and predicting the effectiveness of natural regeneration in relation to stand treatment, site and vegetation types and deer impact. There are links to the *Deer Population Ecology* programme (in the 'Protection' grouping) in both native woodlands programmes.

Programme title	Species and Habitat Action Plans
<i>Programme Group</i>	Biodiversity
<i>Location</i>	Woodland Ecology Branch, Forest Research.
<i>Research contact</i>	Harry Pepper (AH); Brenda Mayle (AH) from April 2000 (red squirrel); Russell Anderson (NRS) (other)

This programme is intended to support FC's contribution to the implementation of the UK Species and Habitat Action Plans (SAPs and HAPs). The main current focus is the red squirrel which is the most threatened widely distributed woodland mammal, and which FC has devoted considerable effort to in the past. Other priority species will be added where FC can play a key supporting role as partner to nominated lead bodies under the UK Biodiversity Action Plan (BAP).

Species research by FC will be focused mainly at understanding woodland habitat needs and the effects of forest management practices and will be integrated with other programmes such as *Upland Native Woodlands*, *Lowland Native Woodlands* and *Forest Habitat Management*.

Maintenance and restoration of non-woodland habitats that are identified as priorities in the UK BAP and that occur within forests will be included in this programme where FC can play a supporting role to lead bodies. Current work focuses on blanket and raised bog restoration techniques.

The priorities for future species and habitat work will be set after reviewing the needs emerging from SAPs and HAPs and their steering groups. There may also be a need in this programme for research to help decide the appropriate balance between various SAPs and HAPs, where they may compete for the same ground.

Programme title	Upland Native Woodlands
Programme Group	Biodiversity
Location	Silviculture North Branch, Woodland Ecology Branch, Forest Research.
Research contact	Richard Thompson (NRS)

This programme is concerned with the ecology and management of native woodland types in upland areas of Britain - pinewoods, birchwoods, upland oakwoods, upland mixed ashwoods and upland wet woods. There are three main aims:

- to investigate the ecological effects of currently recommended practices;
- to research alternative silvicultural options;
- to understand and monitor the ecological processes and long-term dynamics of native woodlands.

The last requires strong linkage with the *Landscape Ecology* Programme.

The emphasis is mainly on applied research to improve management practice. Long-term monitoring will be undertaken in co-operation with other key interests as part of a strategy. Other partners will also be sought for research into ecological processes and into the relationship between native woodland characteristics and priority species under the UK Biodiversity Action Plan. (See also *Species and Habitat Action Plans*.)

Although the main rationale for this programme is to conserve biodiversity, the programme will include research to find ways of combining biodiversity and improved economic potential through better tree growth or form. There will also be links to other FC funded programmes both inside and outside Forest Research which deal with social and economic and other environmental benefits from native woodlands.