

**THE  
SCOTTISH FORESTRY  
TRUST**

**ANNUAL REPORT  
1991-92**

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## **THE SCOTTISH FORESTRY TRUST AND ITS OBJECTIVES**

The Scottish Forestry Trust is a charitable trust established in 1983 to promote education, training and research in forestry and silviculture.

The Trustees have determined that, for the time being, the Trust's major contribution should be towards funding research projects, although, as opportunities arise, educational and training projects are also supported. A small proportion of the budget is set aside for publications and travel.

The Trust's primary objective is to support private sector forestry by contributing to the scientific, technical and economic information it requires to enable it to develop its role in U.K. forestry. Forestry is defined as the forestry industry as a whole, including its contribution to landscape, recreation, wildlife and the environment.

Projects in all of the sciences which bear upon forestry are supported by the Trust. High priority is given to proposals which address industry needs related to policy formation and execution, and to broad management questions. In general terms preference is given to studies of a more applied nature where the benefits are more immediately available to the industry. Notwithstanding that, fundamental work, whose potential to resolve outstanding problems, or to reveal new opportunities and possibilities is thought to be high, is also supported.

## TRUSTEES 1991-1992

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## CHAIRMAN'S FOREWORD

The year has been a productive one for the Trust. It has seen final completion of no fewer than six of the projects it has supported financially. Some represent the culmination of up to three years' work, others have been carried out within the year. Together they give a good indication of the range and scope of the Trust's interests and concerns. There are at present a further six major projects in course, and others under consideration. As always financial constraints limit what can be undertaken.

The completed work includes contributions to the solution of comparatively new problems, as in the studies of the dispersal of the Great Spruce Bark Beetle and its predator *Rhizophagus grandis*. By way of contrast the work on "shake" in oak provides a fresh insight into, and a measure of the economic significance of, a long-standing problem of considerable importance, particularly in the South.

The report on the Private Woodlands Squirrel Questionnaire is a response to an urgent need for a more comprehensive picture of the range of both red and grey squirrels, and the damage they do. Future requirements are anticipated in the development of a computer programme for use as a flexible tool to explore relationships between land and timber production, as called for in the Forestry Industry Committee of Great Britain's recently announced new approach to a national forestry strategy. Advances in knowledge of underlying biological mechanisms and processes are fundamental to progress and always welcome: the emerging understanding of the role of mycorrhiza reported in the investigation of nitrogen uptake by spruce is one such contribution.

Finally, the Trust underlines the need to continue to explore the reconciliation of environmental concerns and timber production. Hence its funding of a survey of the progress of the late Professor Mark Anderson's transformation from uniform plantations to an all-ages mixed species forest at Glentress. This is the only example in the uplands of Britain which has continued for 40 years, and it is important that it should be fully monitored.

My fellow Trustees and I look forward to building on these contributions to an evolving forestry in the coming year.

J. M. G. Galbraith.



## ACKNOWLEDGEMENTS

The Trustees gratefully acknowledge the generous contributions of:

|                                |                                                                      |
|--------------------------------|----------------------------------------------------------------------|
| <b>THE DULVERTON TRUST</b>     | £6,000 — applied to the Timber Growers Award                         |
| <b>THE HEARTHSHEATH ESTATE</b> | £300 — applied to the Private Woodlands Squirrel Questionnaire       |
| <b>THE SHOTTON PAPER CO</b>    | who kindly donated the paper on which this Annual Report is printed. |

The Trust is pleased to accept donations, and gifts of cash, property etc., from any source to further its work in assisting forestry to fulfil its potential in the countryside and in the wider economy.

## PROJECTS SUMMARY

### CURRENT PROJECTS

#### **1. The Influence of Site Quality on the Productivity of a Range of Major Tree Species in Scotland**

**(Macaulay Land Use Research Institute and the Forestry Commission)**

To date, site productivity studies have concentrated on the most important commercial species such as Sitka spruce, and on the traditional forestry sites in the hills and uplands. More recently the afforestation of better-quality land is being encouraged, and there is increasing interest in planting a wider range of species. These changes have highlighted the need for a more comprehensive body of information on site/yield relationships, not only for forest management purposes, but also for production forecasting and regional and national land use planning.

The work is being carried out on Land Capability for Forestry (LCF) Classes 1 to 5. The species involved, thought to be the most significant in terms of their commercial and environmental value, are Douglas fir, Scots pine, Japanese larch, oak and birch. A minimum of 30 sample plots per species per LCF Class will be sampled where possible. The sample plots are drawn from FC and private estate records.

One objective will be to analyse the data to produce information suitable for forest level application similar to that already available for Sitka spruce. A more generalised model will relate wood yield to LCF Class. As well as contributing to production forecasting at local, regional and national levels, it is hoped to be able to quantify the trade-off between reduced timber production and conservation.

#### **2. Molecular Methods for the Detection and Identification of *Heterobasidion annosum***

**(Department of Molecular and Life Sciences, Dundee Institute of Technology)**

*Heterobasidion annosum* is an important fungal parasite of conifers here and worldwide. Current methods of detection are time-consuming and require specialist interpretation. A more accurate knowledge of the

percentage of trees infected, and the extent of decay would be of great value in forest management. The laborious nature of the current procedures limits the scope and nature of research on the fungus.

### **3. Net Carbon Dioxide Uptake of Scottish Forests (Institute of Ecology and Resource Management, University of Edinburgh)**

Temperate forests are substantial sinks for carbon dioxide. Current estimates suggest that the annual rate of carbon dioxide removal by the U.K. forest estate is around two million tonnes per annum. The annual rate is currently doubling over a period of about 20 years, largely due to the expansion in area of the last 40 years and to the relatively young age of the majority of stands.

There is, however, a carbon dioxide cost in the management of the forest estate. Carbon dioxide emissions come from management operations, the respiratory costs of growth and maintenance, carbon allocations among roots, branches and stems, the production of litter and the turnover of organic matter in soil, brashings, lop and top, etc. A basic understanding of some of the processes involved is available; knowledge of others is sketchy. Thus there is uncertainty about the magnitude of the real **net** rate of CO<sub>2</sub> fixation, and about calculations made of the net rate of carbon sequestration once a steady state forest is attained.

### **4. Capercaillie in Commercial Plantations (Institute of Terrestrial Ecology)**

There is widespread concern about capercaillie numbers. A voluntary shooting restriction has been urged by the Scottish Office, and a fund-raising appeal has been launched by the Scottish Landowner's Federation. There is general agreement that management action needs to be based on sound knowledge of the bird's biology and habitat requirements. Research requirements have been discussed by representatives of a range of interested bodies and this project is integrated with other work and aimed at defining forest management practices beneficial to capercaillie.

The work funded by the Trust stems from a well documented population

of capercaillie which appears to be thriving in a Sitka spruce, dominated plantation, a poor habitat in terms of what capercaillie are currently thought to require.

The specific objective is to describe the utilisation of a commercial plantation forest, comprising mainly Sitka spruce. The work will require the use of radio-tagged birds. Parallel studies on chick nutrition and ecology will be carried out, funded from other sources.

### **5. Private Forestry in Europe (A. J. Grayson)**

The objective is a description of private forestry throughout Europe. The intention is to produce much more than a compilation of facts.

Information on the structure and scale of the industry, forestry policies and their relationships with those relating to other land uses, and institutions and their framework, will be set in their historical, social and economic contexts. Emerging trends will be identified. Special regard will be paid to trends which may be expected to influence private forestry in Britain, and features of private forestry elsewhere which might have relevance here.

Initially the scope of the work will extend throughout the EC and beyond it in Europe. Ultimately, however, the geographic balance will reflect what is of interest and value from a British point of view. The work will be organic in nature and will evolve towards its final shape as it proceeds.

The Trust is pleased to acknowledge that the initial stimulus for the project was provided by the Royal Scottish Forestry Society. Subsequent discussions within the Trust, between Trustees and outside opinion, and, more recently, with the selected contractor, have resulted in the synopsis briefly outlined here.

## COMPLETED WORK

### 1. The Development of a Transformation from Uniform Plantations to an Irregularly Structured Forest (Institute of Ecology and Resource Management, University of Edinburgh)

The need to promote visual amenity, conservation and recreation in productive forests has led to a renewal of interest in irregularly structured forests.

In 1952 Professor M. W. Anderson planned a 60-year transformation from uniform plantations to an all-aged forest of mixed species on an upland site of 120 ha at Glentress in the Tweed Valley. After almost 40 years it was felt necessary to determine whether the transformation was proceeding to plan or whether delays in achieving regeneration due to planting failure or to browsing damage would require an extension of the 60-year transformation period. An enumeration survey was designed to produce measurements of the distribution of species, their size classes, overall stocking and areas of regeneration or understocking, so that the present condition of the forest could be compared with the hypothetical structure postulated.

The original species selection followed an altitudinal series of Douglas fir, Japanese and European larches, Scots and Corsican pines with areas of Norway spruce up to about 350m. In the 1940s Sitka spruce replaced failed Corsican pine and poor-quality larch, and extended planting to over 500m. During the transformation further planting of lodgepole pine hybrid larch and Sitka spruce has occurred up to 560m. Browsing pressure (sheep and deer) in the early years of the transformation moved species selection towards a higher proportion of Sitka spruce than originally planned, with a parallel reduction in shade-tolerant conifers and beech.

The report discusses species and size class distributions, regeneration and stocking. It considers the variations due to site type and exposure, the impact of developments in provenance and forest management, and the difficulties inherent in assessing the progress of the transformation.

The importance of the study rests on the fact that the transformation at

Glentress is the only example in the uplands of Britain which has been continued for 40 years. It explores relatively uncharted territory. The results highlight the need for adaptability to accommodate changes in forest management. The survey has provided the necessary base from which its future development will be monitored, an important step in the development of a model for transformations aimed at multiple objectives in forest management.

### 2. The Mechanism of Increased Nitrogen Uptake by Spruce in Mixed Species Stands (Department of Plant and Soil Science, University of Aberdeen)

On poor peats and heathlands, satisfactory growth of Sitka spruce can only be obtained with two to four applications of expensive nitrogen fertiliser. When planted in mixture with Scots pine, lodgepole pine or larch the species shows improved nitrogen nutrition and better growth. For a number of years forest scientists have sought to understand the mechanisms by which the "extra" nitrogen becomes available.

Earlier work had led to the view that mycorrhizal associates of pine, particularly of the genus *Suillus* which have the ability to break down protein nitrogen produce a pool of nitrogen. This pool does not exist in pure spruce stands. The mycorrhizal associates of spruce are much less able to degrade protein but are able to exploit the pool of nitrogen created by the pine fungi.

The work funded by the Scottish Forestry Trust was designed to enhance knowledge of the mycorrhizae of spruce, and to examine the mechanisms of the movement of nitrogen into spruce.

The mycorrhizal flora of pure and mixed stands were examined on different soils. The results confirm that a change in mycorrhizal associations is part of the mixtures effect. It begins before a closed canopy is formed. It must be viewed as a potential cause of the improved nitrogen nutrition of spruce rather than an effect. But why the change in spruce mycorrhizae next to pine occurs remains unknown.

More detailed laboratory work confirmed that spruce mycorrhizal fungi are able to use the nitrogen produced by the pine mycorrhizae. It seems



a strong possibility that this is indeed the mechanism by which nitrogen is acquired by spruce in mixture.

### **3. The Ecology of the Great Spruce Bark Beetle (*Dendroctonus micans*) and its Predator, *Rhizophagus grandis* (Forestry Commission)**

The Great Spruce Bark Beetle is a major pest of spruce from Siberia to Western Europe. It was first discovered in Britain in 1982. The combined action of sanitation felling, restriction of movement of infested spruce and biological control by the release of a specific predator *Rhizophagus grandis* have reduced populations of *D. micans* markedly.

The work funded by the Scottish Forestry Trust contributed to a wider Forestry Commission programme on the dispersal biology of both pest and predator, aimed at providing soundly based recommendations to enable forest managers to respond to both existing and new infestations.

The work centred on two main topics. The first sought to develop a monitoring system for *R. grandis*, to enable field releases to be checked, to determine whether the predator has reached a new outbreak of *D. micans*, to (indirectly) monitor *D. micans* spread, and as an aid to the study of *R. grandis* dispersal.

*R. grandis* is attracted to the frass of *D. micans*. Frass extracts were chemically analysed and subsequent bioassays revealed that most of the activity was in a single fraction of the extract. An artificial lure based on this fraction was tested in dose-response experiments using baited traps and laboratory-bred beetles. Trap designs were also explored. The results suggest that a successful lure is in prospect.

A second series of studies sought to address the nature of tree resistance to attack by *D. micans*. It had been noted that spruce trees with bark wounds such as might occur during thinning operations appear to be more susceptible to *D. micans* attack. In laboratory studies it was shown that bark tissue with a high level of lignin has an adverse effect on beetle survival and development. Subsequent field studies suggest that changes are induced in bark by wounding and this does increase susceptibility to attack by *D. micans*. Field studies have also confirmed the detrimental

effect of lignin content on the survival and development of *D. micans*. Differences in bark liquification among Sitka spruce provenances are being investigated.

Observation that *D. micans* can, on occasion, breed successfully in Scots pine were confirmed. The relative rarity of attacks on Scots pine is most likely a result of avoidance by adult beetles than of failure of broods to establish.

### **4. "Shake" in Oak (Oxford Forestry Institute, University of Oxford)**

The wood of ring porous oak is frequently subject to a defect known as "shake" which describes the development of longitudinal fissures in the living tree. "Shake" occurs in nearly all British oak plantations, frequently affecting more than 50% of the trees.

The work part funded by the Trust continued earlier work at the Institute which had indicated that a predisposition to "shake" increases with earlywood vessel size and that the timing of oak leaf flushing and autumn shedding through their association with earlywood vessel size may be a useful practical indicator of shake-prone trees. One objective of the work was to verify this possibility.

A second objective was to examine the role of mechanical stresses, and a further aim was to evaluate the economic consequences of "shake" to growers, timber merchants and processors.

The test of the strength of associations between leaf phenology and shake required mature stands of oak in which phenological patterns could be observed and sample trees felled to record shakes. The expected relationships were found but are insufficiently robust to be applied with confidence in the heterogeneous stands which characterise much British high forest oak. But their potential value in indicating shake-prone trees in young even-aged plantation oak was confirmed. The presence of frost cracks is a reliable indicator of "shake" independently of other influences.

A survey by questionnaire revealed that over one-fifth of all oak reported

on was degraded by some form of "shake". Average values for shaken and sound timber were found to be £19/m<sup>3</sup> and £51/m<sup>3</sup> respectively but these average values include wide ranges in price in both categories. "Shake" is without doubt the single agent most responsible for reducing timber quality in oak. Its effect on net benefit can reach £10,000 per ha at the end of a rotation.

#### **5. The Development of a Computer Programme for Forecasting Conifer Wood Production in the United Kingdom (Forestry Industry Committee of Great Britain)**

Major investments in the wood-processing sector have made it an extremely efficient, competitive industry, providing a growing market for home-grown timber. Its impact on output and employment in the U.K. is considerable; a recent report by the Fraser of Allander Institute indicated that value added to timber is an even more important consideration in economic terms than the timber itself.

One of the processing sector's natural preoccupations is with the future levels of supply and demand for timber. The amount of new planting that takes place over the next 20-50 years is of critical importance to long-term wood supplies and to the industrial sector's calculations of future growth and investment. Current wood supply forecasts give some cause for concern.

Against this background the Forestry Industry Committee of Great Britain considered it essential to assess the impact of different planting rates on future wood supplies. With financial support from the Scottish Forestry Trust, FICGB commissioned John Clegg & Co. to develop a computer programme for this purpose.

The resulting programme is able to provide a breakdown of wood production into top end diameter size categories and is currently written for forecasting over an 80-year period. Within any one planting year it is possible to make assumptions about species, growth rates, treatments, rotation lengths etc., and the facility will be of particular value in exploring the impact of different types and scales of planting in different parts of the country.

#### **6. Private Woodlands Squirrel Questionnaire (Timber Growers, United Kingdom Limited)**

Since the introduction of the Forestry Commission's Broadleaves Policy in 1985 there has been an increasing emphasis on planting broadleaved species. The greatest obstacle to establishing broadleaved woodlands capable of producing usable timber is the damage caused by the grey squirrel, which is continuing to extend its range. Also the interaction of grey and red squirrels is poorly understood.

The Forestry Commission undertakes an annual squirrel questionnaire for woodlands under its own management with a view to providing information on the range of both red and grey squirrels, and assessments of damage. The picture is however a partial one since the Forestry Commission manages less than 40% of Britain's total woodland and less than 10% of its broadleaved woodland. In order to obtain a more comprehensive picture it was decided to extend the questionnaire to private woodlands with the co-operation of TGUK. The questionnaire was distributed to 2,600 TGUK members.

The analysis of the data was carried out and the report compiled by the Wildlife and Conservation Branch of the Forestry Commission. The questionnaire was distributed to 2,300 TGUK members; 877 completed questionnaires were returned.

Grey squirrels are continuing to spread and consolidate in the North of England and in Scotland. Distribution maps for grey and red squirrels, combining the results of this and the Forestry Commission 1991 survey, are included in the report. Red squirrels are on the decline, especially in Wales.

More than half the respondents from England and Wales use hopper traps containing Warfarin poisoned bait as a control measure. An estimated 65,000 squirrels are killed by this method, which is prohibited in Scotland. All other control measures taken together account for a further 36,500 squirrels.

Bark stripping by grey squirrels was found to be widespread on a range of tree species. Although damage in 1991 was reported to be serious in

many places, the main concern was the cumulative effect of damage over the years.

A copy of the Report can be obtained from TGUK.

### **7. The Forestry Industry and the Greenhouse Effect (Department of Economics, University College, London)**

The Trust and the Forestry Commission jointly invited Professor Dennis Anderson of University College, London, to consider the economic aspects of the case for forestry in addressing the greenhouse effect.

Professor Anderson's analysis emphasises the link between policies aimed at reducing carbon accumulations and those whose objective is the reduction of carbon emissions. If carbon taxes are imposed to encourage the latter then an equivalent carbon "credit" should be given to activities such as afforestation which remove CO<sup>2</sup> from the atmosphere. But support for carbon-fixing would only be justified if policies on the energy side were in place.

The report develops the principles on which carbon taxes and credits might be based. The uncertainties about the climatological and environmental consequences of the accumulations of CO<sup>2</sup> and other greenhouse gases are taken account of, and preliminary estimates of both taxes and credits are made, based on the prospective costs of the non-fossil energy technologies which carbon taxes would encourage.

Professor Anderson recognises that although his analysis is in terms of taxes and credits, the regulatory approach with which we are familiar in the U.K. may be preferred. In this context he sees a need for further work on how best to incorporate carbon-fixing aims in the incentives and support structures for forestry. He also sees a need for further studies of the consequences of incorporating carbon-fixing objectives in forestry policy on other aspects of environmental impact.

The Report has been published with the financial help of the FICGB, and is available, free, from the Trust.

### **8. Designated Areas in Scotland**

A publication which includes descriptive accounts of the main designated areas in Scotland, together with maps, at a scale of 1:750,000, of the locations of these designated areas has been produced.

The seven designations included are:

- 1 Sites of Special Scientific Interest
- 2 National Nature Reserves
- 3 Local Nature Reserves
- 4 National Scenic Areas
- 5 Environmentally Sensitive Areas
- 6 Regional Parks
- 7 Green Belts

The publication is available for purchase, price £7.95p from the Trust.

### **9. The Impact of Forestry on Output and Employment in the United Kingdom and its Member Countries**

**(Fraser of Allander Institute; additional survey data compiled by the Department of Forestry and National Resources, University of Edinburgh)**

The object of the work was to provide estimates of the impact of forestry on output and employment on the aggregate U.K. economy and those of its member countries. The approach involved the development of an input/output model of the U.K. economy as a whole, and of a spatial sub-model to determine the distribution of aggregate U.K. economic activity across England, Scotland, Wales and Northern Ireland. Direct, indirect and induced effects of forestry activity were identified, and supply dependencies which tie timber-using sectors to the outputs of the domestic forestry industry were explored.

The value of the output of U.K. forests was shown to be £384 million. The total impact of U.K. forest output plus the dependent processing industry was almost £2 billion. The forests of the U.K. provided 11,800 full-time equivalent jobs. The whole industry (forests plus dependent activities) provided 55,500 jobs; £552m of household incomes were involved. Value added to timber is thus an even more important consideration in economic terms than the timber itself.



The study results, because a principal data source was the U.K. input tables last produced in 1984, relate to that year. Since then approximately £750 million of new investment has been attracted to the processing sector. The study is thus a very conservative evaluation of the current impact of forestry.

#### **10. Yield Class and Windthrow Hazard Characteristics of Forestry in Grampian Region**

**(Macaulay Land Use Research Institute)**

The context for this work is provided by the "Indicative Forestry Strategies" currently being produced by Regional Authorities.

Grampian Region was chosen for this pilot study. Its object was to produce information on forestry potential in the Region, relevant to the scale and conception of the I.F.S. The approach explored the use of predictive models which were developed and applied in conjunction with MLURI's land use information database.

The main output of the study is in the form of maps of yield class and windthrow hazard. A report discusses the methods used, and provides a commentary on the forestry potential of the Region.

#### **11. The Influence of Wide Spacing of Trees on the Interception of Radiation, and the Growth of Trees and Pasture** **(University of Edinburgh, Department of Forestry and National Resources)**

The production of timber from widely spaced trees combined with pasture from which animal product, often sheep meat, is produced has developed in other parts of the world, notably Australia and New Zealand. Its potential relevance in the European environment remains uncertain and is the subject of an increasing amount of research in the U.K.

One of the key aspects in understanding the growth of trees and pasture over time, as the tree canopy develops, lies in the interception of solar radiation by the respective foliage canopies. The investigation supported by the Trust explored the proposition that the growth of trees and pasture

when combined in agroforestry systems is linearly related to the light intercepted by their respective foliage canopies. The work was carried out on extensively instrumented sites at Dunkeld and Cloich.

#### **12 Production Forecasting for Private Sector Scottish Forestry** **(University of Aberdeen, Forestry Department)**

Planners in industry need to be informed of the likely future supply of timber in terms of its amount, size and location. The national production forecast calculated by the Forestry Commission has invariably exceeded estimated actual production by the private sector. It was not known whether the discrepancy lies with the forecast, or with the monitoring of private sector production.

The Scottish Forestry Trust commissioned the survey of the private sector growing stock in Scotland, in an attempt to resolve the problem.

The results confirm the potential forecast; indeed their implications suggest that it may even be an underestimate. They also suggest that most of the timber has in fact been removed and point to a clear need to investigate the fate of private sector production, and the extent of local and internal estate markets.

A seminar was held in June 1988 at which representatives of the production and processing sectors of the industry discussed the problem in the light of the survey.

#### **13. Current Knowledge and Perceptions of Forestry** **(Valin Pollen Ltd., and Consensus Research)**

The forestry industry is currently under review, and quite often under attack from a number of directions. In an age in which public discussion of important issues is dominated by the media it seemed prudent to ensure that the industry's case is adequately and appropriately presented. In the hope that it would make a valuable contribution to the industry's communications planning the Scottish Forestry Trust commissioned a communications consultancy, and a specialist market research company,

to identify forestry's key audiences, to assess their current knowledge and perceptions of the industry, and to explore how the communications chain operates to influence opinion.

A key finding of the research study is the extent to which, despite a lengthy period of intensive press and TV comment, the public remains uninformed and largely uninterested in forestry.

More specialist groups — environmentalists, planners, MPs, journalists and landowners — are much better informed, but the importance of specific topics to these various audiences differs markedly. It is suggested that an effective communications strategy must become less defensive and more positive. It must project a whole industry rather than a fragmented array of interests, and the industry should adopt a more positive profile in an attempt to set the tone of the debate.

The Scottish Forestry Trust organised a seminar to discuss the study and a proposed communications strategy with all sectors of the forestry industry in December 1988.

#### **14. The Economic Effects of the "Guidelines for the Management of Broadleaved Woodland"** **(Timber Growers (United Kingdom) Ltd)**

The Forestry Commission's Broadleaved Policy was introduced in 1985, with the objective of ensuring that broadleaved woodlands are managed in a way which is compatible with maintaining their wildlife and amenity value as specified via management guidelines. These guidelines have important economic implications.

The Scottish Forestry Trust provided financial support for an investigation of the financial implications of the guidelines on the economics of the traditional forest estate.

An economic model was set up to include all the costs and receipts expected in a broadleaved crop. The study measured the economic impact of the guidelines by analysing the changes in profitability of five major broadleaved species, based on sample estates throughout Britain, caused by the guidelines.

In essence, the guidelines alter management practices in order to promote conservation and landscape. But, as the report points out, these are not free commodities. Their cost is the profit from forestry foregone as a result of the guidelines' restrictions.

A summary of the report is available from the Trust.



# **THE SCOTTISH FORESTRY TRUST**

## **AUDITORS' REPORT TO THE TRUSTEES OF THE SCOTTISH FORESTRY TRUST**

We have audited the financial statements on pages i to vi in accordance with Auditing Standards.

In our opinion the financial statements give a true and fair view of the state of the Trust's affairs at 31 March 1992 and of its surplus and source and application of funds for the year then ended and comply with the requirements of the Trust Deed under which the Trust was formed.

Brown, Campbell & Company,  
Chartered Accountants.

# THE SCOTTISH FORESTRY TRUST

## INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 MARCH 1992

|                                                  |       | 1992                 | 1991                |
|--------------------------------------------------|-------|----------------------|---------------------|
| INCOME                                           | Notes | £                    | £                   |
| Dividends                                        |       | 82,417               | 77,960              |
| Interest on Deposits                             |       | 32,514               | 48,806              |
| Project Sponsorship                              |       | 8,525                | 4,520               |
| Conference Fees                                  |       | 805                  | —                   |
| Publication Sales                                |       | 625                  | —                   |
|                                                  |       | <u>124,886</u>       | <u>131,286</u>      |
| <b>EXPENSES</b>                                  |       |                      |                     |
| Research Grants, Donations<br>and Other Expenses | 2     | 86,576               | 109,095             |
| Salaries and Expenses                            |       | 17,471               | 14,719              |
| Travelling Expenses                              |       | 878                  | 1,459               |
| Office Costs                                     |       | 3,960                | 3,629               |
| Professional Fees                                |       | 3,108                | 2,002               |
| Investment Management Costs                      |       | <u>9,674</u>         | <u>8,893</u>        |
| (Gain)/Loss on disposal of<br>Investments        | 3     | (25,273)             | (7,780)             |
|                                                  |       | <u>96,394</u>        | <u>132,017</u>      |
| Excess of Income over Expenditure for Year       |       | <u><u>28,492</u></u> | <u><u>(731)</u></u> |

# THE SCOTTISH FORESTRY TRUST

## BALANCE SHEET AS AT 31 MARCH 1992

|                                             | 1992                    | 1991                    |
|---------------------------------------------|-------------------------|-------------------------|
|                                             | £                       | £                       |
| <b>INVESTMENTS</b> at Cost (Note 4)         | 1,396,098               | 1,323,672               |
| <b>CURRENT ASSETS</b>                       |                         |                         |
| Debtors (Note 5)                            | 6,368                   | 5,362                   |
| Royal Bank of Scotland Premium Account      | 44,176                  | 17,723                  |
| Bank of Scotland Income and Capital Account | 188,218                 | 258,489                 |
|                                             | <u>1,634,860</u>        | <u>1,605,246</u>        |
| <b>CURRENT LIABILITIES</b>                  |                         |                         |
| Creditors (Note 6)                          | 6,586                   | 5,464                   |
|                                             | <u>1,628,274</u>        | <u>1,599,782</u>        |
| Represented by:                             |                         |                         |
| Surplus Income brought forward              | 112,204                 | 112,935                 |
| Surplus (Deficit)/Income for year           | 28,492                  | (731)                   |
|                                             | <u>140,696</u>          | <u>112,204</u>          |
| Capital Reserve (Note 7)                    | 1,487,578               | 1,487,578               |
|                                             | <u><u>1,628,274</u></u> | <u><u>1,599,782</u></u> |

Approved by the Trustees on 5th August, 1992  
and signed on their behalf by

J. M. G. GALBRAITH  
.....Chairman

P. S. SAVILLE  
.....Trustee

The Notes on pages v and vi form part of these Accounts.

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# THE SCOTTISH FORESTRY TRUST

## SOURCE AND APPLICATION OF FUNDS FOR THE YEAR ENDED 31 MARCH 1992

|                                                              | 1992<br>£            | 1991<br>£            |
|--------------------------------------------------------------|----------------------|----------------------|
| Surplus/(Deficit) for the Year                               | 28,492               | (731)                |
| Adjustments for items not involving<br>the movement of cash: |                      |                      |
| (Gain)/Loss on Sale of Investments                           | 25,273               | 7,780                |
|                                                              | <u>3,219</u>         | <u>(8,511)</u>       |
| <br>SOURCE OF FUNDS                                          |                      |                      |
| Disposal of Investments                                      | 292,705              | 103,562              |
|                                                              | <u>295,924</u>       | <u>95,051</u>        |
| <br>APPLICATION OF FUNDS                                     |                      |                      |
| Purchase of Investments                                      | 339,856              | 194,458              |
|                                                              | <u>43,932</u>        | <u>99,407</u>        |
| <br>Represented by Movements in Working Capital:             |                      |                      |
|                                                              | <u>Increase</u><br>£ | <u>Decrease</u><br>£ |
| Debtors                                                      | 1,006                | 1,563                |
| Creditors                                                    |                      | 1,120                |
|                                                              |                      | (619)                |
| Net Liquid Funds                                             |                      | 43,818               |
|                                                              | <u>1,006</u>         | <u>44,938</u>        |
|                                                              | <u>43,932</u>        | <u>99,407</u>        |

# THE SCOTTISH FORESTRY TRUST

## NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31 MARCH 1992

### 1. ACCOUNTING POLICIES

The Accounts have been prepared under the historical cost convention.

### 2. RESEARCH GRANTS AND DONATIONS

|                                                                                                  | 1992<br>£     | 1991<br>£      |
|--------------------------------------------------------------------------------------------------|---------------|----------------|
| A Wood Production Forecasting Model                                                              | 3,000         | —              |
| Private Woodlands Squirrel Questionnaire                                                         | 5,330         | —              |
| Wood Industry Input/Output Study                                                                 | —             | 167            |
| The Forestry Industry and the Greenhouse Effect                                                  | 2,465         | 11,000         |
| Dispersal of the Great Spruce Bark Beetle                                                        | —             | 11,054         |
| Carbon Dioxide Uptake of Scottish Forests                                                        | 10,816        | —              |
| Site Quality and Productivity of a Range of Tree Species                                         | 9,000         | —              |
| Designated Areas in Scotland                                                                     | 1,544         | 24,072         |
| The Commercial Potential of Birch                                                                | 7,536         | 8,302          |
| "Shake" in Oak                                                                                   | 4,000         | 6,000          |
| Scottish Forestry Trust Awards Scheme                                                            | —             | 1,250          |
| Development of a Transformation from a Uniform Plantation<br>to an Irregularly Structured Forest | 4,676         | 5,000          |
| Royal Highland Show Private Forestry Exhibit Sponsorship                                         | 1,000         | —              |
| Private Forestry in Europe                                                                       | 13,200        | —              |
| Camserney Planning Appeal Fund Contribution                                                      | 1,000         | —              |
| Detection and Identification of <i>Heterobasidion annosum</i>                                    | —             | 8,833          |
| Nitrogen Uptake by Spruce in Mixed Species Stands                                                | 6,090         | 12,000         |
| Yield Class and Windthrow Hazard in Crampian                                                     | —             | 5,186          |
| Timber Growers Award Sponsorship (Dulverton Flagon)                                              | 12,000        | 12,000         |
| Printing and Distribution Costs: Annual Reports,<br>Royal Highland Show etc                      | 4,919         | 4,231          |
|                                                                                                  | <u>86,576</u> | <u>109,095</u> |

### 3. GAIN ON DISPOSAL OF INVESTMENTS

Certain shareholdings were disposed of in the year in order to take advantage of alternative Investment Opportunities. The disposal resulted in a gain of £25,273.

The Notes on pages v and vi form part of these Accounts.

**THE SCOTTISH FORESTRY TRUST**  
**NOTES TO THE ACCOUNTS**  
**FOR THE YEAR ENDED 31 MARCH 1992**

|                                                                 |                      |                      |
|-----------------------------------------------------------------|----------------------|----------------------|
| <b>4. INVESTMENTS</b>                                           | <b>1992</b>          | <b>1991</b>          |
|                                                                 | <b>£</b>             | <b>£</b>             |
| Cost at 31 March 1991                                           | 1,323,672            | 1,224,996            |
| Additions                                                       | 339,856              | 194,458              |
| Disposals                                                       | (267,430)            | (95,782)             |
| Cost at 31 March 1992                                           | <u>1,396,098</u>     | <u>1,323,672</u>     |
| <br>Listed Investments, dealt on a<br>recognised Stock Exchange | <br><u>1,396,098</u> | <br><u>1,323,672</u> |
| <br>Valuation:                                                  |                      |                      |
| Listed Investments – Market Value                               | <u>1,497,048</u>     | <u>1,437,517</u>     |
| <br><b>5. DEBTORS</b>                                           |                      |                      |
| Included in Debtors are the following<br>amounts:               |                      |                      |
| Tax suffered on Investments                                     | 4,220                | 2,035                |
| Accrued Interest                                                | <u>2,148</u>         | <u>3,327</u>         |
|                                                                 | <u>6,368</u>         | <u>5,362</u>         |
| <br><b>6. CREDITORS</b>                                         |                      |                      |
| Included in Creditors are the following<br>amounts:             |                      |                      |
| Salaries and Expenses                                           | 1,931                | 1,036                |
| Office Costs                                                    | 915                  | 914                  |
| Professional Fees                                               | 1,400                | 1,660                |
| Investment Management Costs                                     | <u>2,340</u>         | <u>1,854</u>         |
|                                                                 | <u>6,586</u>         | <u>5,464</u>         |

**7. CAPITAL RESERVE**

The gain on sale of the Trust's shareholding in Woodland Owners' Association (Commercial) Limited is held in Capital Reserve.

The shares sales proceeds less costs of realisation are invested by the Trust. There has been no movement on capital reserve during the year.