THE DESIGN OF FOREST LANDSCAPES

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SUMMARY

The Forestry Authority, as the country's leading authority on forestry practice, has Design Guidelines which aim to offer designers sound relevant and appropriate advice on the theory, process and practice of forest landscape design. The guidelines therefore represent the FA's vision of how designed Britain's forest landscapes should appear. The aim of this study is to rigorously evaluate the advice offered in the FA's guidelines in relation to the FA's objective to offer an aid to design.

A literature review and series of interviews with those responsible for the advice explores the motivation behind the introduction and development of the guidelines. The review concludes that the unusual circumstances surrounding the inception of guidelines are likely to have resulted in the advice having a strong forestry bias, a weak theoretical framework and to be offering advice that is divorced from other land-use interests. An analysis of the nature and contents of the guidelines and the subsequent critical discussion suggests that the advice is not always complete, consistent, logical or relevant.

The concept of an alternative approach to offering forest landscape design guidelines is tested through both a postal questionnaire and a field survey. The findings for the postal questionnaire suggest that the FA's advice is generally well used and found useful but that it is at times limited and fails to respond to the needs of the current user group. The findings for the field survey show that enough evidence exists to support the concept and further investigation along these lines. The study concludes by making 20 recommendations for changes or additions to the FA's current advice, which address the issues raised by the research findings. These recommendations are offered as a framework within which alternative advice could be further developed.

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1.1   Introduction

One of the surprising aspects of research into Britain's forestry is how unique and unpredictable the development of the British Forestry Industry has been. For what is, after all a basic land use industry, forestry has been the cause of an unusual amount of activity and controversy over the years.

From almost total tree cover in around 2500 BC this country exploited its timber reserves to the extent that by the late C19 forest cover had fallen to about 5% of land surface.

The turning point for Britain's forests arrived with the formation of the Forestry Commission (FC), and its post war afforestation programme in 1919. With the help of state funding and financial incentives to the private sector the FC has enabled a remarkable recovery to take place. In the relatively short time span of around 80 years forest cover has increased from 5% to roughly 10% of the country's land surface.

In fulfilling its objectives to expand tree cover the FC's work has absorbed huge amounts of public money and resulted in landscape change on a scale that has, at times conflicted with professional ideals and public wishes. These concerns have served to raise awareness of forestry issues and encouraged FC accountability.

The FC, in justifying its own existence and continued support, has learnt to be flexible. This flexibility is reflected in the degree to which it has been possible for the Commission to survive the dramatic changes in the fortunes of the industry in recent years. Manipulated and sustained largely by

external forces, the FC has seen forestry trends swing from the extremes of the 1970s' and 1980s' passion for large scale, upland afforestation, to the dramatic loss of confidence in forestry investment following the 1988 Budget taxation changes (Hansard 1988).

Over the past decade however, the FC has worked hard to re-establish the industry. Since the 1970s, by tailoring objectives, initiatives and incentives, it has progressively shown a commitment to a more environmentally friendly approach to forestry practice, with the emphasis on multi-purpose use and public benefit, illustrated by its National Forest and Community Woodland initiatives. While this new direction in forest activity is generally welcomed by the public and interested professionals alike, it is now possible to look objectively at the FC's strategy in the light of the research projects which have accompanied this period of re-establishment.

Researchers assessing the effectiveness of the FC's new policies and its objectives, initiatives, incentives and consultation procedures were not all totally convinced by the success of the FC's new strategy (Bishop K., 1991, Watkins C., Williams D., LLoyd T., 1996, Hill P., 1987, Mason D., 1991, Sandys P., 1994). In fact the Countryside Commission's[1] England's Trees and Woods (1993), and the Environment Committee's Forestry and the Environment, (House of Commons,1993), reveal that some were clearly still unconvinced by many aspects of the FC's activities.

It appears that the FC still has some way to go before the industry is considered to be effective in its new form. The questions raised and decisions made during this period of major re-adjustment will effect many aspects of forestry activity and ultimately the nature of Britain's future forest landscapes. The FC's views and strategies are therefore an interesting and relevant topic for study at this time.

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[1] Countryside Commission (CoCo) became the Countryside Agency in 2000

This research proposes to examine the validity of one aspect of FC advice, that is the body of advice offered on the design of forest landscapes.

The Forestry Authority (FA) as a part of the FC is charged with encouraging good forestry practice. It is concerned with setting standards, giving advice, providing information and offering grants for expanding, regenerating and managing forests and woodlands. The concept of forest landscape design was introduced and developed within the Environment Branch of the Forestry Authority, and tied into the statutory framework of responsibilities by amendments to the 1967 Forestry Acts and modifications to the 1967, 1968, 1981 and 1985 Wildlife and Countryside Acts. These Acts required the FC to take into consideration the conservation of natural beauty, flora and fauna and recreation interests in their forestry operations. These considerations were further highlighted at the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro and the forestry guidelines agreed in Helsinki (1993) prompting the Government to review its forestry policy and strategies in light of the UK's commitment to sustainable forest management (Sustainable Forestry: The UK Programme 1994).

The FA have interpreted their duty to these landscape issues by adopting the following objectives set out in the FA's current Annual Report Mission Statement (2001):

- To protect Britains forests and woodlands.

- To enhance the economic value of our forest resources.

- To conserve and improve the biodiversity, landscape and cultural heritage of our forests and woodlands.

- To develop opportunities for woodland recreation.

- To increase public understanding and participation in forestry activity.

Over the years the FA have produced a series of guideline reports which they believe ensure that these aesthetic and environmental issues are given due emphasis in the forestry industry's activities. To date there have been five reports specifically addressing issues of forest landscape design in forestry. Those titles currently available are Community Woodland Design Guidelines (1991); Lowland Landscape Design Guidelines (1992) and Forest Landscape Design Guidelines (1994). These reports are accessible to any professional involved in, or interested in forest and woodland planting.

1.2 Forest Landscape Design

The FC established forest landscape design as a legitimate activity in the early 1960s and have in the last forty years worked to develop and promote its understanding, communication and application. From the outset the FC designers took the decision to make a distinction between the practical design considerations relevant to timber production - which they termed 'forest design', and the aesthetic considerations related to forest landscapes referred to as 'forest landscape design'. This early separation of form and function in the development of the forest landscape design advice was an unusual step in a design discipline, but the distinction still holds for current design advice and it is necessary to define the two activities for the purpose of this study.

Although both disciplines are intended to be practised in conjunction, with the total design often carried out by the same staff member, the relevant advice is offered in separate reports. 'Forest design' is concerned with the practical aspects of timber production, addressing the economic viability of forest schemes, forest establishment, management, harvesting and marketing issues. A 'forest designer' makes decisions on: site suitability and selection; forest type, for example coppice or high forest; species mix and

density; management systems and harvesting timing. 'Forest landscape design' on the other hand is concerned with those aspects of forestry activity which have visual and, to a lesser extent, ecological and social implications for the landscape. A 'forest landscape designer' makes decisions on: visual effects of forestry activity such as the effects of plantation shape, species pattern and management systems; also the visual and practical integration of recreational use and interpretation. This study is concerned primarily with 'forest landscape design'.

1.3   Research Context

The professional and public interest which has accompanied developments within the forestry industry over the years has led to a good deal of discussion and prompted numerous research studies related to forestry matters. It is surprising then that the issue of forest landscape design has received minimal attention from researchers, even though recent changes in forestry objectives and the nature of forestry expansion suggest that it may be useful to review the existing advice. There is however little interest in debating the subject at the present time. Even though the FA's formal responsibilities following the 1992 Rio Earth Summit had implications for the communication of design and design advice, they served only to prompt a reinstatement, rather than a review of the present situation.

The FA is convinced it has a good product in its Forest Landscape Design Advice which successfully fulfils its objectives. The general attitude within the FA itself is that the Design Guidelines have been developed to a point where any further work would merely involve the refinement and consolidation of existing ideas (Bell S., personal communication). This view is borne out by the consistency of the advice through time, reinforced by internally commissioned research (Lee T., 1990), and further confirmed by

an award from the Landscape Institute for the dissemination of this design advice through the guideline reports. The FA is considered to be the expert body in forestry matters and is widely respected as the leading authority on forest landscape design with a growing international reputation (Bell S., 1995). As such there is little incentive to question its approach and there is no substantial body of research directly related to the present study.

1.3.1   Background Research

A review of the current direction in both forestry and landscape research has helped to place the study undertaken here in context. There are four main areas of study related to this topic, some aspects of which may help to explain, or have implications for, forest landscape design advice, (examples are selected to illustrate the point). These main areas are:

• Forest Design and Practice

Recent studies by the Forest Research Department of the Forestry Commission, the Countryside Commission and other interested organisations cover a wide range of subjects from wildlife conservation (Souter R., 1990; Harris E. and Harris J., 1991; Watkins C., 1993 and Ferris et al 2001) and habitat management, crop health and condition to forestry establishment, harvesting (Spilsbury M.J., 1990; Hibberd B.G., 1991; Quine C.P. and Gardiner B.A., 1992,) and forest management, (Beckley T.M. and Korber D., 1995, Herlin I., 2001 and Wood R. and Handley J., 2001).

Aspects of forestry sustainability and biodiversity were popular areas of study following the Earth Summit (Probust J.R. and Crow T.R., 1991; Pearce D.W. and Warford J., 1992; Clayton A., 1992; Spellerberg I.F. and Sawyer J.W.D., 1993; Nixon C., 1995). In response to the shift away from upland commercial afforestation, studies were undertaken on lowland forests on traditional estates (Nicholls D.C., 1989), the establishment of farm and urban woodlands

(Bishop K.D., 1989; Williamson D.R., 1992), woodland restoration (Silvanus, 1991) and native woodland regeneration (Rodwell J., 1995).

- **Forestry Policy and Economics**

Public and professional concern over the forestry industry's activities prior to the 1988 Budget announcement, which withdrew various tax concessions (Finance Act 1988), prompted a number of studies addressing issues of existing and future forestry policy (Aldhous J.R. and Field A.B., 1989; Mather A.S., 1991; Pryor S., 1992), together with various reviews of the effectiveness and appropriateness of the planning situation regarding forestry development (Essex S.J., 1988; Brotherton I. and Hetherington M., 1990; Mather A.S., 1993; Selman P.H., 1997) including research related to the proposed Indicative Forestry Strategies (Selman P.H., 1990; Whitbread T., 1991). Cost-benefit analyses of investment in forestry and methods of calculating the value of forests in relation to developing forestry policies is a popular current research theme (Bergstrom J.C., 1990; Price C., 1991; Bateman I.J., 1991, Johansson P.O., 1993, Gluck P., 2000; Price C., 2000; Buttoud G., 2000; Stewart-Roper C. and Park A., 2000; Forestry Commission 2001).

The introduction of new initiatives and incentives following the 1988 Budget announcement created a need for more information on recreational demand. Various studies considered aspects of use, with particular interest in the possible value of forests for recreation, both social (Handley N.D., 1989; Handley N.D. and Ruffell R., 1993) and economic (Benson J.F. and Willis K.G., 1991 and 1992; Bergin J., 1993).

Both the establishment of the Countryside Commission's National Forest and Community Woodland initiatives and incentives such as the Ministry of Agriculture Fisheries and Food's[ii] Farm Woodland Scheme were accompanied by studies aiming to monitor and evaluate their success. (Scambler A., 1989;

[ii] Ministry of Agriculture,Fisheries & Food (MAFF) became Department of Farming & Rural Affairs (DEFRA)

Bishop K. D., 1991; Pitt J., 1991; Great Western Community Forest 1992; Lloyd T., Watkins C. and Williams D., 1994; Sandys P., 1994; Hill P., 1994; Clark J., 2000).

Research commissioned to assess the possible privatisation of the FC Estate also resulted in studies concerned with the validity of the proposal (Mather A.S. and Murray N., 1986) and issues of access (Countryside Commission, 1991)

- **Social and Cultural Aspects of Landscape Design**

A major body of work has already been established in the area of social and cultural landscape issues (Kaplan R. and Herbert E.J., 1988; Kaplan R. and Kaplan S., 1989) but the shift away from forestry for timber production and towards forests for multi-purpose benefit, with the emphasis on recreation value has also stimulated interest in the way people perceive, understand and use forest landscapes (Willis K.G. and Benson J.F., 1989; Willis K.G. and Garrod G.D., 1992; Hyttinen P. et al 2000) It has also renewed interest in research into landscape preference and public attitudes to forestry and forest environments (Kent R.L., 1993; Sidaway R., 1990; Burgess J., 1995; Atherden M. and Butlin R.A., 1997; O'Leary T.N., McCormack A.G. and Clinch J.P., 2000, O'Brian, E. 2000).

The Pan European Ministerial Conference on the protection of forests in Europe, in Lisbon (1998), has helped the social and cultural importance of woodland gain recognition, prompting research into community involvement in forestry activity (Slee B., Clark G.M. and Snowdon P., 1996; Atherden M. and Butlin R.A., 1999) and the development of theory and methodologies surrounding attitude and behaviour research have continued to evolve from and around such studies (Uzzell D., 1991; Krohn D. and Gimblett R., 1992; Palmer J. F., 2000; Tahvanainen L. et al 2000).

- **Landscape and Design**

Research concerning landscape aesthetics is relevant to the theoretical underpinning of any design work. A slowly evolving area of theory and discussion on landscape aesthetics has been contributed to by, for example, Appleton J., (1975/1996), and Orians G.H., 1986, and has more recently been furthered by Bourassa S., 1991, Berleant A., 1992, Carlson A., 1993, Hubbard P., 1994 and Mc Harg I.L., 1997.

Since the introduction of landscape assessment methods in the 1960s and 1970s, the interest in this area of research has been sustained by the need to assess and evaluate landscape character and quality in order to assist classification systems, designation and planning strategies (Hull B. and Buhyoff G.J., 1984; Dearden P., 1987; Swanwick C., 1991; Freimund W.A., Anderson D. and Pitt D.G., 1996; Price C., 1993; O'Riordan T. et al 2000). The theory has more recently been addressed by Manning O. (1998) and Cassidy D.J. (1998), while the Forestry Commission's <u>Landscape Assessment for Indicative Forestry Strategies</u> (Price G., 1993) and the Countryside Commission's <u>Character Map of England</u> (1996) projects have both advanced the landscape assessment methodology. In 1998 the Countryside Commission launched a pilot study looking at how increasing woodland cover could be used to contribute to conserving and strengthening countryside character. <u>The Woodland Cover Landscape Character Pilot: Methodology and Guidance Notes for Pilot Areas</u> (1998) project produced a series of guidance notes for woodland landscape in each of the ten character areas selected. This study was intended to set a framework to inform policy decisions and to promote strategic action, including the production of woodland guidelines, on future woodland establishment and management. These research findings were not however developed beyond the pilot stage.

One of the major pre-occupations in landscape assessment studies in the past has been with identifying and quantifying the concept of landscape beauty (Cats-Baril W.L., 1987; Carlson A.A., 1984; Brown T.C. and Daniel T.C., 1986; Bishop I.D. and Hulse D.W., 1998; Tahvanainen L. et al 2001).

1.3.2. Directly Relevant Research

Simon Bell, the FA's Chief Landscape Architect has for many years been responsible for the direction of all design research within the FA. During this time Bell has followed a personal line of investigation, initiating a series of informal studies focusing on visual design principles to support the development of the Forest Landscape Design advice. His more recent work has produced the book <u>Elements of Visual Design in the Landscape</u> (1993); the guidance note, <u>Forest Practice Advice Note 3</u> (1997) for establishing forests in designed landscapes and the <u>Good Practice Guide to Forest Design Planning</u> (1998), which focuses on integrating landscape ecology into forest design and his latest book <u>Landscape: pattern, perception and process</u> (1999).

An important piece of research which has particular significance to this study was commissioned by the FA in conjunction with the Countryside Commission for Scotland in 1986 and conducted by Terrance Lee of the University of Surrey. <u>Attitudes towards and Preferences for Forestry Landscapes</u> (1990) was an attitude study designed to record and evaluate pattern of public attitude and preference for forestry landscapes related to use and experience. The survey recognised the broad physical parameter used by the FA in describing the forest landscape and therefore the information produced by the study could provide the FA with the means to evaluate its product, that is the information needed to assess the forest landscape design advice in light of FA objectives and user satisfaction. More recently the FC has commissioned a further programme of research into the

social significance of forest landscapes, which has resulted in the technical paper <u>Perceptions, Attitudes and Preferences in Forests and Woodlands</u>, (FC, 2001).

Where the findings of any of these studies relate to recommendations for changes or additions to the FA's design guidelines they are referenced in Chapter 10

1.3.3   Informed Opinion

The research context also takes into account opinions which have not reached the level of formal discussion or been converged into research studies but which are nevertheless relevant to the study topic.

Although for many years now the FA appears to have had the monopoly on design advice, there has always been a small number of informed professionals and academics, interested in land use and landscape issues, who have questioned the FA's theoretical and practical approach to forest landscape design. Even though little documentary evidence exists to chart this disagreement, alternative views have been voiced and some equally valid alternative advice has been independently developed and is currently in use. The nature of this alternative advice is an important part of the research context and is discussed in full in Chapter 2

The review outlined above illustrates that the body of research in existence is often relevant to the nature of Forest Landscape design but it does not address in any critical or systematic way the nature, role or performance of the FA's guidelines. The research context has served to focus the direction of the study which, together with questions arising from the initial examination of the FA's guidelines; discussions with student users of the advice and the literature review, has shaped the following research objectives.

1.4   Objectives of Study

The study aims to answer the following questions regarding:

1   tracing the evolution of the FA's forest landscape design advice:

- why and how the present advice was introduced and became established?

- what factors have influenced its development and content?

2   an assessment of the advice theory:

- is the existing advice theoretically sound?

3   an assessment of the advice in practice:

- who uses the advice and what is their opinion of it?

- how is the advice used?

- how well is the user served by the advice?

4   recommendations for the development of new advice:

- what further or alternative advice, if any, would the user find helpful?

Table 1.1   A Summary of the Methods used to Address the Research Objectives

Research Objectives	Research Methodology	Operational Definitions
1 Tracing the evolution of the advice and affecting factors	Literature review & interviews with people directly involved in formulating the Guideline advice	
2 An assessment of the advice theory	Analysis of the Guideline contents; a critical review by a trained landscape architect (author) & interviews with selected landscape professionals.	
3 An assessment of the advice in practice	A survey of users of the Guideline advice	A measurement of the advice's contribution to user satisfaction
4 The development of new advice	Based on critiques in 2 &3 and an assessment by landscape students & trained landscape architect (author)	A measurement of people's awareness of different aspects of forest landscapes

1.5   Research Methodology

A four part research strategy was planned in 1994 with reference to the body of research methodology available at that time. A variety of methods were used to collect both the qualitative and quantitative data needed to answer the research objectives and to allow an evaluation of the FA guidelines' advice. This strategy is briefly described below while a more detailed account and justification of the data collection and analysis methods used are presented in the relevant section of each chapter.

The empirical research is largely based on the results of a postal questionnaire and a field study survey undertaken in 1993. These findings were supported by information collected through a series of interviews with informed professionals and academics and a content analysis of the FA's design guideline reports.

1.5.1 Interviews

Due to the limited amount of literature available to support research in this topic the qualitative data needed to advance the study was collected through a series of semi-structured interviews. During the winter of 1994 nine interviews were conducted which, as a methodology, served two purposes. The first was to explain the motivations behind the introduction of the advice, its nature and form, by discussing the development and contents of advice with key people responsible for its production. The second was to compare and evaluate the alternative professional perspectives on forest landscape design by gathering the range of opinions on the FA's advice and other approaches to design advice.

1.5.2 Content Analysis

The content analysis of the FA's design reports was approached in two parts. Firstly a systematic identification and categorisation of the content of the six existing guidelines recorded both quantitative and qualitative data for analysis. Secondly, this analysis was then followed by a comparison of the amount and type of advice given in each report. The aim was to establish whether the design guidelines offer advice related to context and to user needs, in a form that is coherent and consistent, related to objectives and is, in practice easy to understand and implement.

1.5.3   Postal Questionnaire

The postal questionnaire was distributed to 210 professional people involved in woodland planting throughout the UK. It asked about the use they make of the FA's forest landscape design guidelines and about any opinions they have formed regarding the advice. The questionnaire was designed to collect, quantify and explain how useful the respondents find the guidelines; which aspects they think are relevant to their work and which are not, and whether they find the guidelines easy to understand, appropriate and complete. The findings contributed to the evaluation of the FA's advice and to the justification and details of the alternative advice offered in Chapter 9.

1.5.4   Field Survey

Having identified a case for offering further advice the study then needed to establish and test the new theoretical framework on which any recommendations for alternative advice could be constructed. The study proposed an approach to the design of forest landscapes based on people's awareness of various landscape factors at different distances. In order to collect the information needed to establish a hierarchy of factors, a field survey was designed and conducted with the help of a group of university landscape students. These students were taken to six different sites and asked to look at nine wooded landscapes. They then completed a questionnaire about their observations. The results of this survey provided the quantitative data that contributes to a model for offering visual design advice for forest landscapes.

1.5.5   Additional Supporting Methodologies

In addition to the Research Context review (1.3) which helped to focus the research concept and provide the background information for the study, a number of additional methodologies were adopted to support the on going

research in order to keep the study current. These included personal correspondence, telephone conversations and informal interviews with individuals within the forestry and landscape professions.

1.6   Limits to the Field of Investigation

The scope of the research is defined by the practical nature of the research objective which is to offer alternative design advice to those people designing forest and woodland landscapes. It therefore evaluates the FA's 'forest landscape design' advice but not their 'forest design' advice, except where forest design activities have landscape design implications.

In order that the recommendations offered for design guidelines are relevant and practicable, they are developed within the constraints of the existing framework of FA policies and objectives and the research focuses on the national rather than international scene as the study objective is to offer practical design advice to designers working within Britain's forestry industry.

1.7   Structure of Thesis

The thesis is structured in the following way:

1.7.1   Chapter 2   Theoretical Framework

Chapter 2 considers the theoretical framework which surrounds the existing advice. It reviews the literature and opinion directly related to the research topic and identifies the three main alternative approaches to forest landscape design to that offered by the FA. The chapter looks for the system of rules and assumptions which underpin each approach to design advice

and goes on to describe and evaluate these alternative approaches. The discussion of the theoretical framework concludes by considering the value of further investigation.

1.7.2   Chapter 3   The Introduction and Evolution of the FC's Forest Landscape Design Advice: Organisation

1.7.3   Chapter 4   The Introduction and Evolution of the FC's Forest Landscape Design Advice: Authors

Chapters 3 and 4 consider the evolution of the FA's forest landscape design advice and attempt to explain how the current advice has come about by looking at two areas likely to have had an influence on the nature and development of the design guidelines. The chapters in turn consider:

- both the Forestry Commission, including its aims, objectives and image, and the government policies which have guided its activities; and
- the authors, a study of the key people involved in the introduction and development the advice.

Chapters 3 and 4 conclude that the introduction, development and nature of the advice has been generally determined by external forces and constraints in a way that may make it theoretically unsound. The following chapter looks at the contents of the advice in the light of this assumption.

1.7.4   Chapter 5   The FA's Design Guidelines: Content

Chapter 5 sets out to record and compare the content and nature of all woodland design advice offered by the FA both past and present. It compares the amount and type of advice between reports and looks specifically at how the nature and content of the advice has changed over time and how it differs

between upland and lowland reports. The chapter concludes by reviewing a number of issues that appear to undermine the quality and value of the advice.

1.7.5   Chapter 6   The FA's Design Guidelines: Critique

Chapter 6 looks critically at those issues raised by the content analysis in Chapter 5 in order to determine whether the advice is theoretically sound and fulfilling the FA's objectives in providing useful, relevant advice to the forest landscape designer. The critique concludes by making a case for further investigation.

1.7.6   Chapter 7   User Response: Postal Questionnaire Analysis and Results

Chapter 7 evaluates how useful the existing advice is to the professional designer by describing the postal questionnaire and analysing the survey results.

1.7.7   Chapter 8   Rationale for Further Research

Chapter 8 reviews the findings of the study so far, evaluating the design advice with reference to the initial research objectives. The chapter then sets out an hypothesis for an alternative approach to offering visual design advice, based on establishing criteria defined by a woodlands' visual appearance.

1.7.8   Chapter 9   The Woodland Perception Field Survey: Analysis and Results

The study tests this hypothesis with a survey designed to measure people's awareness of different woodland aspects and their visual characteristics, when appraised from certain distances. Chapter 9 describes the Woodland Perception Field Survey methodology, presents the survey results and considers how these results lend support to a model against which designers can set or test a visual design solution.

1.7.9   Chapter 10   Discussion and Recommendations for Further Advice

Chapter 10 discusses the findings of the research in detail and recommends changes to the existing guidelines for forest landscape design based on these findings. It then reviews the methodologies employed by the study, setting out the advantages and limitations of each.

1.7.10   Chapter 11   Study Summary and Conclusions

Chapter 11 considers where and how the outcome of the study has a bearing on the theory and practice of forest landscape in general and what implications the study findings have for design guidelines for forest landscapes in particular. The chapter concludes by making suggestions for further research.

CHAPTER 2 THEORETICAL FRAMEWORK: A Review of the Theoretical Framework for Forest Landscape Design

2.1 Introduction

The Research Context in 1.3 outlined the state of research linked to the study topic. This chapter surveys the professional opinion and literature directly related to the research and explores the theoretical framework which surrounds the existing advice on forest landscape design.

The chapter identifies three different approaches to design in the landscape and presents the rationale for each one. It goes on to consider the level of support for the FA's approach to forest landscape design and evaluates the alternative design guidelines that were available in 1994. The discussion concludes by setting out the key points raised by the review which in turn helps to further focus the research questions in 1.4.

2.2 The Objective of the Review

The objective of this review was to collect and evaluate the views of those individuals directly involved in the introduction and development of the FA's Design Guidelines and the views of those individuals who have at some time questioned the FA's advice or suggested an alternative approach. The information was collected through a series of interviews and is supported by the literature review.

2.2.1 The Interviewees

The interviewees were selected in 1994 through informal discussions with FA staff who were able to identify those individuals responsible for the FA's design advice and also their critics. The literature review suggested the names of other individuals and organisations with different approaches or views on the subject.

The seven people judged to be responsible for the advice were:

- **Simon Bell**, Forester and Landscape Architect. At the time of interview, Chief Landscape Architect for the Forestry Authority at the Forestry Commission Head Office in Edinburgh.

- **Duncan Campbell**, Forester and Landscape Architect. Former Head of Environment for the FC and, at the time of interview, Head of Scottish National Heritage.

- **Sylvia Crowe**, unfortunately it was not possible to interview Sylvia Crowe, however her contribution to the guidelines is discussed in detail in Chapter 4.

- **Oliver Lucas**, Forester and Landscape Architect. At the time of the interview, Forest Enterprise Forest District Manager for Dorset Forest District in Wareham .

- **Gordon Patterson**, Landscape Architect in private practice and Landscape Consultant to the Forestry Commission.

- **Gareth Price**, Landscape Architect for Forestry Authority England at the National Office in Cambridge.

- **James Swabey**, Landscape Architect for South and West England Forest Enterprise for South and West England Regional Office in Bristol

and those individuals who have at some time been critical of the advice were:

- **Victoria Haigh**, Chief Landscape Architect for ADAS, at the time of the interview, at Wrest Park in Bedfordshire.

- **Colin McKercher**, at the time of the interview, Lecturer in Landscape Design, Department of Landscape at the Herriot-Watt University in Edinburgh.

- **Mary Ann Robinson**, Landscape Architect, at the time of the interview, Head of Zonal Systems in Policy Directorate at Scottish National Heritage in Edinburgh.

2.2.3   Methodology and the Nature of the Data

A loosely structured framework of questions was developed from the preliminary review of the FA's Design Guideline reports and related literature to ensure all topics relevant to the study were covered. The semi-structured nature of the interview also allowed the interviewees the freedom to discuss those issues central to their own work and air any views which they felt may have a bearing on forest landscape design. In this way it was possible to identify key issues not necessarily given attention in the existing practices or literature.

Prior to each interview the participants were sent a breakdown of the subjects for discussion and asked to put aside an hour for the session. The interviews were conducted by asking the prepared questions in a systematic and consistent order and allowing the participants to respond in their own time. The discussions were recorded on tape and later transcribed.

2.2.4   Analysis Technique

The study uses the collected information to compare differing theoretical approaches to design in the landscape. The following sections discuss the findings of this analysis, they consider:

sections 2.3.1-2.3.7

i   the alternative theoretical models for design in the landscape;

ii   on which issues there is difference of opinion and whether these differences of opinion undermine the FA theoretical approach to forest landscape design.

sections 2.4-2.4.6

i   the presentation of other advice offered on forest landscape design;

ii   the drawing of comparisons between this alternative advice;

iii   where the FA's approach is thought to be acceptable or unacceptable.

2.3   Approaches to Design

2.3.1   Introduction

The review of the literature on landscape design and study of landscape design practice reveals that, in issues concerning the importance of landscape character, ecological diversity, aesthetic value and environmental quality, practitioners may hold the same values but give weight to their importance in different ways. Thus it is possible to distinguish three fundamentally different approaches to designing the forest landscape. This section describes each of the following approaches in turn:

- aesthetic design (2.3.2);
- ecological design (2.3.3);
- functional design (2.3.4).

2.3.2   The Aesthetic Design Approach

As a result of the FA's continued aim to produce high quality and attractive forest landscapes, its theoretical basis for forest landscape design advice is still caught up in the complex field of landscape aesthetics. The FA's design philosophy was originally driven by the visual implications of forestry operations, rather than with any ecological, cultural or functional consequence of its activities. This aesthetics-led approach can still be seen to have considerable relevance according to the FA's current guidelines, (the content and validity of this advice is discussed in detail in the critique chapter 6).

Inspiration for this approach is drawn from the aesthetic tradition, from the fine arts, and the work of Brown and Repton (Hadfield M., 1967; Hyams E.,

1971; Stroud D., 1975) for example. Design techniques look to the symbols and rules used in art, architecture and graphic design and as a consequence the value and potential of a landscape relates to concepts such as the Rule of Proportion and the Golden Section. This 'formalist' approach implies a relationship between the two dimensional formal properties of the visual landscape and the quality of that landscape. It considers that if a landscape is designed with reference to traditional aesthetic principles it will be considered a successful design solution. In this way the FA's aesthetics-led approach assumes a universal acceptance which is justified by precedent (Bell S., personal communication[1]) for example, Brown and Repton's historic landscapes are widely considered to be great and beautiful landscapes thus it follows that all landscape designed using their principles will be at the very least acceptable and at most beautiful.

All of the current forest landscape design guidelines (latest published 1994/5) maintain a system of design which is characterised by the manipulation of the formal and artistic properties of the visual landscape, using as design tools the principles of: shape; scale; visual force; unity and diversity. Simon Bell, as the FA's Chief Landscape Architect (1979 - 1999), is

principally responsible for the content and form of the current guideline advice and in his interview of November 1994, he stated that he believes the continuation of this approach is valid, as only a formalistic approach can "reveal the visual patterns that are the key to understanding the landscape, its character and how it functions". In his view, identifying these patterns are "fundamental to the landscape and work (in design terms) on practical, ecological and natural levels". He stresses that the aesthetic approach has also allowed the development of a "design language" or "artists vocabulary"

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which is important if a designer is to possess a visual sense of the landscape with reference to forestry operations, and important too when a designer needs to describe the landscape and articulate design ideas to other members of the forest design and implementation team.

While aiming to achieve attractive and natural looking landscapes by following aesthetic design principles, those individuals involved in the preparation of the FA's design advice do acknowledge the significance of all aspects of forestry operations in realising a design solutions (Bell S., Campbell D., Lucas O., Patterson G., Price G., Swabey J; personal communications). They accept that the existing advice is strongly visual but argue that the way forestry looks in the landscape is a major concern. Some individuals question the weighting of the visual aspect of design in the guidelines (Campbell, Lucas, Price, Swabey, personal communications) and profess an interest in developing a more holistic response to the design process, one that would balance for example, all functional, ecological, cultural or psychological issues through the design process. At present however there are no signs that these convictions have influenced the FA's current basis for offering design advice.

There has been considerable support for the formalist approach throughout the development of forest landscape design advice. Webster A.D.,(1917), Miles R.,(1967), Crowe (1978) and Campbell (1987) have all adopted a formalistic approach to some extent, employing visual design principles as a cue for design. Over the years the FA has trained many hundreds of individuals in forest landscape design from both the public and private sectors and these include individuals from other public organisations such as Scottish Natural Heritage and the Countryside Agency, who continue to follow the FA's lead.

2.3.3   The Ecological Design Approach

The science of ecology has long been closely associated with landscape design and has often been cited as having an influence on our appreciation of the landscape, illustrated by the writings of Payne, Knight and Price (in Wall T., 1994); Hough M.,(1984); Spirin A.W.,(1988); Olin L.,(1988, 1997); Campbell D.,(1991); Corner J., (1997) and Makhzoumi J., (1999) among others. The ecological approach underlies landscape planning and design particularly in Holland; in Britain it has been championed, in academic circles, by Alan Ruff (1985) of Manchester University and in practice by Robert Tregay (1982). Their views and techniques have received most attention as an alternative approach to solving landscape problems in urban situations and the development of Warrington New Town in particular served to raise its profile (Tregay R., 1980, 1983). According to Ruff (1985), the last twenty years have seen a rise in the interest of this ecological approach as offering a theoretical basis for design aesthetics.

The ecological approach is underpinned by the idea of environmental sustainability. Practitioners of this approach therefore are not predominantly concerned with manipulating the landscape's visual nature because they believe that aesthetic conventions only have validity when placed in the context of a sustainable functioning ecosystem. Tregay (1985) states that the aim of the ecologically based design solution is the creation of an environment which represents a dynamic entity or 'functioning whole'. This he believes can give inherent meaning and logic to a landscape. Successful designs therefore are those that reflect the relationship between man's activity and the processes of the natural world.   The theoretical argument underlying the ecological mode of design appears to assume that ecology-led designs display an inherent quality which will be acceptable on a universal level. Ruff (1982) goes further, suggesting that a landscape that

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is ecologically sustainable is also attractive: 'a landscape developed along these ecological lines will develop a powerful aesthetic'.

The design process in this case looks to semi-natural rural habitats as the inspiration for design by employing the images of the informal and complex nature of the natural eco-system. This approach prompts the designer to work with the characteristic vegetation structures and plant communities appropriate to a site and, where possible, to exploit the natural cycles and ecological relationships which have dictated their form. The principle design objectives are to imply a state of 'naturalness' achieved through the 'freely developed expression of natural processes' (Tregay R., 1985). Designing with nature appears to involve more than working with natural vegetation in terms of its visual form, colour, texture and the resulting pattern and spatial qualities reflected in the formalist approach. It requires a creative approach to ecological concepts such as succession, regeneration and companion planting with a constructive use of natural processes such as the effects of trampling, soil infertility and water run-off.

Landscape management is also central to the ecological approach. Tregay (1982) suggests that in practice the successful design should offer a precision and formality that reveals a design intent but one that is also capable of accommodating the 'undesigned, unplanned expression of nature'. In fact the achievement of naturalness is often accomplished not by leaving it to nature but through an intensive and long term management regime which is an on-going part of the design process. Ecological landscape design in essence has to be created and controlled through the careful design and management of different habitats.

Hough (1984) believes that 'ecological process provides the indispensable basis for planning and design', however the ecological approach has its

critics. While Appleton's work may be used as a theoretical basis for the model, Appleton (1979) himself is critical of the approach where it over-simplifies the question of what is 'ecologically beneficial with what is aesthetically pleasing'. He warns that this approach could be used as 'spurious support to practical policies which on other grounds may not be advantageous'. Rettig (1983) also doubts the claims of this approach as a method for achieving a reliable and relevant landscape aesthetic. He considers ecology based design solutions as 'no more or less than a fashion or style resulting from a reaction to certain beliefs, values and practices'. He refers to the system as 'merely a technique' to be used by the designer when appropriate, furthermore, he dismisses its claim as a theoretical framework for design as meaningless and arbitrary.

The product of ecological designs has also been questioned. Ahern (1995) criticises some wild and naturalistic designs for lacking design sensitivity and refinement and failing to look like designs. He blames these failings on a lack of understanding of the context and of the dynamic nature of plant communities, along with a poor appreciation of the scale of management and financial commitment required to make this type of design acceptable.

2.3.4   The Functional Design Approach

While there has been very little direct criticism of the FA's approach forest landscape design a small number of people have from time to time queried the FA's design theory and voiced their opinions. Landscape architects Victoria Haigh and Mary-Ann Robinson are members of this minority.

During the late 1970s and 1980s, Haigh and Robinson were working for the then Ministry of Agriculture Fisheries and Food, (MAFF) on the development of Integrated Land Management Plans (ILMP), and the landscape assessment methodology (Haigh V., 1988) used to guide and monitor the landscape

designation process for Environmentally Sensitive Areas, (ESAs) introduced in 1986. In order to give credibility to this work they found they needed to review their own theoretical assumptions about design in the wider landscape. The theoretical framework on which Haigh and Robinson eventually based their approach turned out to be significantly different to that of the FA and their conclusions led them to question the appropriateness of aesthetics-led design solutions in the rural landscape. As the landscape architects who were responsible for laying the foundations of the way in which rural landscapes are currently designated for their quality, Haigh and Robinson's views are both well founded and relevant.

Key to the function-led design theory they developed is the definition of 'landscape character' which is fundamentally different to the FA's aesthetic view and broader than the ecology-led vision. While the FA's definition appears to follow the accepted definition, that is, character represents 'a distinct pattern of elements which occur consistently in a particular type of landscape', Forest Landscape Design Guidelines (FA, 1994), the guideline advice reveals that character, in this context, has no relationship with the underlying physical or functional landscape. Character can be drawn on top of a landscape and can be manipulated by introducing or altering existing visual patterns. In the functional approach, Haigh and Robinson see the concept of character quite differently.

Character is defined on two levels: all landscapes have an 'intrinsic' character which is described simply by the site's geology, landform, drainage channels and soil. This intrinsic character is overlaid by the landscape's 'transitory character', represented by existing vegetation cover and artefacts. Landscape character therefore exists as a combination of two sets of processes and it is the recognition of the relationship of these

processes, that is natural forces and man's activities, with the appearance of the landscape that articulate what Robinson terms the 'logic of the environment' (personal communication). With this definition of character it is reasonable to assume that a design solution that is not dictated by the processes which created the landscape's existing character, is likely to appear no more than an arbitrary act of pattern making. In this way Haigh and Robinson (personal communication) believe a functional approach can access whether a development is appropriate for a site in total resource terms and moreover, they argue it follows that a design solution that responds to a site's function is likely to be in sympathy with the landscape character. For example trees will not establish themselves above the tree line because of the micro climate and quality of the soil and therefore tree planting is likely to be inappropriate in this landscape.

The design process in this approach is central to the function-led design philosophy. The process focuses on identifying and incorporating all the landscape issues and values that concern a site's function. These can be aesthetic, ecological, cultural or economic, depending on the landscape's past use and future potential. By taking account of all of these factors the resulting design will be the product of the working system of that particular landscape. The design therefore will not only achieve a sustainable balance of all resources and maximising the benefit or productivity of that site, but also take on an appropriate visual form . In fact Haigh agrees with Crowe (1978) on this point: if a landscape has functional integrity it will also have an acceptable form. McKercher (personal communication) goes a step further and his view is uncompromising. His opinion is that as a part of a working system forestry operations and processes should be evident and that on no account should a functioning landscape's integrity be compromised by the imposition of a preconceived visual form.

In Britain, the 'function leads form' theory has a strong following in land use-planning by foresters, chartered surveyors, land managers and farmers who have all traditionally worked the land in this way. The approach however is not widely recognised as a design skill in its own right and has never been formally presented or critically appraised. Haigh and Robinson (1995) consider their landscape assessment for the Somerset Levels comes closest to representing the culmination of this thinking. The fact that Haigh and Robinson's system has not been taken up in the development of current landscape assessment methodology by the Countryside Commission, in its development of the Character of England map, (1996), suggests there is some resistance to function-led design solutions.

The FA is also sceptical of the function-led approach. Bell (personal communication) totally rejects Haigh and Robinson's ideas without explanation while Swabey (personal communication) reasons that this approach to design in the landscape would be inappropriate to forestry as foresters do not regard the landscape as a commodity in the same way farmers do. Swabey seems to believe that forestry requires a long term vision which a function-led approach cannot provide. He supports his view with the observation that it was the visual impact of a function-led approach to forestry operations that was considered unacceptable in the past.

2.3.5   The Approaches Compared

The key differences between these three approaches to design described above can be summarised in Table 2.1

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Table 2.1 **Summary of the Different Theoretical Approaches to Design in the Landscape**

	Ecological model	Functional model	Aesthetic model
Theory	An ecology-led approach focuses on natural process and materials in a site's development.	A function-led approach focuses on a landscape's functional integrity.	An aesthetic approach focuses on a landscape's visual character and aesthetic quality.
Assumptions central to the approach	Character is defined by plant structure and communities, together with the visual expression of natural processes.	Character is defined by the relationship between natural processes that created the landscape and site function.	Character is defined by the visual pattern of landscape elements expressed in aesthetic terms.
Aims and objectives	• Main aim is to create ecologically viable design solutions. • A sustainable eco-system is a design objective.	• Main aim is to integrate a site's physical character with its past, present and future land-use. • Efficient land-use management is a design objective.	• Main aim is to improve or minimise any visual changes in the landscape. • Visual integration and enhancement are design objectives.
Design process	The design solution is likely to be a product of ecological processes and creative management techniques	The design solution is likely to be a product of landscape processes and the total resource of the site	The design solution is likely to be a product of visual design principles

2.3.6 Criticism of the FA's Approach to Forest Landscape Design

While there is general agreement that Crowe and Campbell's introduction of forest landscape design advice was an important and positive step in getting visual landscape issues taken seriously in forestry operations, it does not follow that their methods are considered universally appropriate. Criticism of the FA's general formalist approach to landscape design has come from both academics and practitioners.

In recent years, theoretical discussion has led to the view that the experience of landscape represents more than the sum of its physical or visual elements. As a consequence, individuals have started to question systems of design that focus purely on the visual aspects of the landscape in preference to the physical, functional and psychological issues associated with the wider perception of the environment. It is a development which leaves the FA's formalist approach to design lagging behind the consensus view of landscape aesthetics. Hubbard (1994) states 'There is an obvious need for both researchers and designers alike to consider aesthetic issues in a wider context as part of a hierarchy of material considerations to be taken into account in any landscape design'.

Punter (1982) is critical of any approach to design that communicates through principles drawn from the fine arts. He suggests that 'The appreciation of architectural qualities remains an essentially private visual language, which is difficult to learn and probably irrelevant to apply'. Bourassa (1991a), agrees with Punter, he describes the formal theories, based on cultural or personal values, such as the FA 's Visual Design Principles, as 'symbolic theories' implying that designers who set arbitrary aesthetic standards such as the golden section, create landscapes meaningful only to those familiar with the system of symbols. Bell (personal communication)

cites the success of Brown and Repton's landscapes as the justification for the formalist approach. But Punter also rejects this, doubting the appropriateness of systems which 'base their approach on precedents rather than principles'.

The advocates of the ecological approach have in turn voiced criticism of the aesthetic-led approach. The ecological approach uses ecological materials and processes as the building blocks of design which are believed to confer an ecological integrity on a design solution. The FA on the other hand appears to have taken the ecology out of landscape design and to have directed efforts towards a visual impression of 'nature'. For example the FA advises designers to shape forest plantations to rise in hollows and fall on spurs and ridges in order to mimic the nature landscape The Landscape of Forests and Woods (FA.,1978). Ruff (1982) is not convinced by this advice. He considers that a system of design which relies on the arrangement of plants according to the arbitrary values of shape, line, colour and texture will result in a 'value laden landscape that prescribes intuitive and value laden responses'. Hough (1984) agrees stating that 'aesthetic values and formal doctrines which create formal parks and open spaces have little connection with the dynamics of natural process and lead to misplaced priorities' and in a more recent essay, McHarg (1997) reinforces this view with 'I conceive of non-ecological design as either capricious, arbitrary, or idiosyncratic, and it is certainly irrelevant'.

Those who see function as the key to form in the landscape are also critical of approaches that employ these formal doctrines. Bourassa states 'It would be a mistake to somehow abstract the aesthetic elements of landscape without considering their inter-relations with its functional qualities' (1991b). While Haigh accepts that some of the FA advice on designing forest landscape

is useful and relevant she suggests designs that place visual issues above the functional issues that restrict a site's potential. She argues that "Understanding the visual character of a landscape is not enough if it ignores the qualities and capabilities of the underlying land" (personal communication).

Haigh and Robinson (1994 personal communications) are sceptical of the implications of the FA's advice for the role of the landscape architect. In their view, a landscape architect would consider all the issues related to a site's development and evaluate the constraints and opportunities offered by a site as a normal part of the design process. The visual design would then be a product of this process. By dictating the way a landscape should look, independently of the design process, it is unlikely that a site would be able to fulfil all the other requirements in a satisfactory way. Haigh (1994 personal communication) suggests, for example, that placing a line arbitrarily on the landscape in order to control the landscape's visual appearance denies the landscape its visual integrity. She sees the FA's aesthetic approach as a system developed to 'dress-up' an operational problem and feels this superficial approach trivialises the role of landscape architects. She observes that if the woodland was 'right', that is appropriate, for the landscape it would not need to be visually designed to make it acceptable.

2.3.7   Summary

This chapter has explored assumptions and approaches which surround the research topic. The review reveals that two alternative approaches to design in the landscape are being employed in addition to the FA's guidelines. Both are based on different theoretical assumptions and both to some extent challenge the FA's approach.

The ecological model and the functional model have support in academic and landscape practice circles but both also have their own critics. The criticism levelled at the FA's approach suggests that the formalistic model may not necessarily be theoretically sound and is therefore unlikely to be the most appropriate or the most useful model for forest landscape design.

2.4 Advice Offered by Others

2.4.1 Introduction

In practice, criticism of the details of the FA's advice is rarely expressed. However reservations about its general approach to design and the details of its advice may be implied by the use of alternative strategies for designing the forest landscape. While no other forest landscape design guidelines exist to rival the FA's reports in terms of availability and content, four other organisations have felt the need to produce in-house design guidelines, to either supplement or replace the FA advice. This section records the alternative approaches to advice produced by the Woodland Trust (WT), the Cambridge Woodland Fund (CWF), the Farm Woodland Advisory Group (FWAG) and the Urban Forestry Unit (UFU). Details of the various approaches used by these bodies was obtained as part of the postal survey described in Chapter 7.

2.4.2 The Woodland Trust

The Woodland Trust(WT) is a charitable body that acquires and manages woodlands for public amenity and recreational benefit. In order to help achieve its objectives, the Trust has compiled its own design advice 'Guidelines for Designing New Woodlands' (1996) as an aid to their 'Woods and Landscape' training course. The Trust's aim is to 'enhance the value of the chosen site' and it proposes to achieve this through the improvement of the

landscape and the creation and management of wildlife habitats paying particular attention to public access and visitor enjoyment.

The Trust's objective in offering the advice is to provide a framework within which a designer can approach the practice of forest landscape design with reference to the Trust's own objectives, which are weighted in favour of public access and recreation. It offers specific advice on how to 'give greater impact and interest to a layout design' in the form of a seven page hand-out listing detailed design opportunities supported by diagrams, most copied from the FA's guidelines. The nature of the advice is strongly prescriptive for example 'join new paths at an angle to existing paths' (p1) and 'make your coups circular or wavy-edged' (p2).

In order to create woodlands which are considered 'aesthetically pleasing in the long and short term' the WT's design advice suggests selecting only those sites where woodland planting is appropriate and agrees with the FA that designing in tune with local character is desirable. However it moves away from the FA's visual pattern making approach, choosing the ecological definition of landscape character. It believes that the use of native species and a species mix, woodland structure and scale characteristic of the local area is the best way of reinforcing that character. The advice does however include some of the FA's visual design principles as 'tricks of the trade' (p3). It uses the FA's 'lines of visual force' and the aesthetic 1/3 to 2/3 rule of proportion, to help designers 'minimise forestry operations and maximise forestry experience' that is, design out the visual impact of forestry operations and design in visual and experiential interest.

Unlike the FA's approach the WT gives the visual, functional and ecological aspects of woodland establishment equal weight as design issues 'design

through management can improve the diversity of habitats for wildlife and the aesthetics of a site for visitors' (p1). The approach is also more aware of people's perception of woodland experience and the specific design advice given often works on all of these levels. For example, the advice on planting density suggests a thick hedge or planted edge can act as a deterrent to people walking into an area but it can also focus the eye on less dense areas where a view can be presented.

Greater weight is placed on the importance of designing the woodland interior in the WT's guidelines where a main objective is to achieve a 'varied and interesting' woodland experience. Advice on woodland interiors is minimal in FA advice and the techniques suggested by the WT to increase the visual experience of the woodland interior through the designed manipulation of light and shade does not exist in the FA guidelines.

While this design advice uses many of the FA's ideas, the additions and changes suggest that, for the WT, the FA's guidelines are to some degree inadequate,, at times inappropriate and likely to be presented in a form that does not, in their opinion successfully address the Trust's designers' needs or objectives.

2.4.3   The Cambridge Woodland Fund

The Cambridge Woodland Fund (CWF) offers design advice for 'Designing a Community Woodland' (1995). Its aim is to create a natural and well integrated environment which offers amenity and wildlife benefits. The objectives of CWF gives weight to the enhancement of the landscape and the creation and management of wildlife habitats together with the provision of public access and recreational opportunities equally. The two pages of advice offered is presented in the form of a ten point check list of opportunities and constraints which the CWF believes should be taken into consideration when designing woodland.

The scope of this advice is as broad as that of the FA, covering the physical and ecological landscape issues of climate, soil, existing local plant communities and wildlife habitats. Issues such as appropriate plant species, silvicultural techniques and the creation of other features, for example ponds, meadows and hedges are also taken into consideration and greater emphasis is placed on designing the functional requirements of a site and their subsequent management implications. Management implications of woodland planting is not covered in the FA's guidelines.

It follows the FA in stressing the importance of assessing the visual impact of a proposed plantation and uses many of the same visual design principles but uses them to assess the landscape rather than to design the landscape as in FA guidelines. These include shape and scale, the line and structure of the woodland boundaries and their relationship with the other visual forces in the landscape but, unlike the FA, this advice gives equal weight to the design of the woodland interior.

The guidelines here do not address the design process. The advice selects some information from the FA guidelines and re-packages and supplements it where necessary. The CWF guidelines are simply stated and non-prescriptive suggesting that it has in part rejected the form, nature and content of the FA guidelines.

2.4.4   The Farm Woodland Advisory Group

The Farm Woodland Advisory Group FWAG produces a small eighteen page information pack, the 'Tree Pack'(1994) aimed at offering advice to anyone interested in establishing woodland on farm land. FWAG's planting objectives are multi-purpose and cover timber production; shelter; wildlife; conservation; game management and the landscape. Public access and use is

not an objective here. In its information there is economic, silvicultural and woodland management advice for planting proposals and a one page section on 'Designing a New Woodland'. This design advice is strongly ecological and heavily weighted in favour of designing to establish an ecologically sustainable woodland environment. The detailed design advice pays attention to the correct use of species and woodland structure required to create such an environment. The issue of visual landscape design is minimal and only the visual impact of establishing new woodland in the wider landscape is considered. Detailed design advice is limited to 'graduating' the plantation edge to achieve visual landscape integration.

This document suggests that landscape design aesthetics are either not thought to be an issue when planting farm woodlands or that whoever is responsible for the layout of new planting is not in need of design advice. While the FA's design guidelines do contain silvicultural advice, advice on species mixes and the structure of rides and glades the FWAG advice is more habitat-led and more detailed often conflicting with the FA's advice.

2.4.5   The National Urban Forestry Unit

The National Urban Forestry Unit (NUFU) was created to oversee the planting of woodlands around Britain's towns and cities and to provide practical advice and information on the establishment of these woodlands. While not openly critical of the FA's Guidelines, the NUFU has felt the need to produce its own three page information note, 'Design Guidelines for Woodland Planting' (1997), which looks specifically at the issue of design in the urban fringe. Led by the design objectives of screening; public access; nature conservation; environmental education and timber production, these guidelines provide statements on landscape design and a series of notes on technical design issues for 'forest-style planting'.

As with FWAG the advice on the visual landscape is minimal. The guidelines aim to promote a woodland scale of planting and to use local naturally regenerating woodland as a model for design. The technical design advice for plantations focuses on woodland composition and recommends that the species and species' mixes used are dictated by the existing local vegetation structure and not by the visual shape or pattern of a design. Plantations, it is suggested, should be laid out in simple bold blocks of planting for ease of management for example, 'two species should form at least 70% of most schemes and diversity should be allowed to increase naturally' (p1). Simplicity of design, it states, is 'the key to success' (p1).

This approach to woodland establishment does not address the issue of the visual impact of forest planting in the landscape. Chris Rance (personal communication) of the NUFU does not dismiss the FA's guideline advice as useless but rather sees it as inappropriate in urban situations. The Unit's guidelines appear to give weight to ecological and functional issues above visual and aesthetic issues and, as a consequence, has little in common with the FA's aesthetic approach. In fact the advice offered by the Unit is likely to produce woodland designs that ignore or even contradict the visual design solutions recommended by the FA's guidelines.

2.4.6   Summary

The contents of these alternative guidelines often draw on the FA advice but all the organisations have felt the need to re-package, edit or supplement the FA's advice in a way that reflects their own planting objectives. Non of the organisations attempt to place their advice within the context of the design process or attempt to offer a theoretical basis for their approach.

2.5   Conclusion

A review of the 'in-house' guidelines does not reveal a coherent theoretical reasoning behind the forest landscape design advice offered by those in practice, but a rather limited and superficial approach led by individual design objectives and practical needs.   It appears that non of the organisations feel the need within their guidelines to establish a theoretical framework for their advice however, while much of the advice presented has been drawn from FA ideas there seems to be a definite resistance to wholly aesthetics-led design solutions with much of the advice drawing from both the ecology- and function-led approaches.

The difference between the form, nature and contents of the alternative guidelines available raises questions of the validity of these different approaches to woodland design advice in general but also the FA's approach in particular. The next chapter considers why and how the FA advice was introduced; why it has developed its present form; and what factors have influenced the theoretical reasoning and the content of the advice.

CHAPTER 3 THE INTRODUCTION AND EVOLUTION OF THE FC'S FOREST LANDSCAPE DESIGN ADVICE: ORGANISATION

3.1 Introduction

Today, within the Forestry Commission's (FC) Forestry Authority (FA) is a well established and committed team of designers whose remit covers the development and dissemination of design advice. The FA has produced numerous reports and guidance notes on all aspects of forestry but advice on the design of forest landscapes did not exist for the first forty-four years of the FC's existence. Chapter 3 looks at the history of the FC; its aims, objectives and image, together with the government policies that have guided its activities and then attempts to explain the motivations behind the introduction and development of the advice in relation to these different factors.

This chapter uses information gathered from the literature review and the series of interviews described in 1.5.1.

3.2 Government Policy and the Establishment of The Forestry Commission

During the early years of the last century and particularly during those years spent fighting the 1st World War (1914 - 1918) the country felled 182,000 ha. (450,000 acres) of woodland. In 1916 in response to this unprecedented loss of timber resource the government called upon The Forestry Sub-committee of the Reconstruction Committee to 'consider and report upon the best means of conserving and developing the woodland and

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forestry resources of the UK, having regard to the experience gained during the war'. The findings of the Acland Committee (1917) led it to recommend the creation of a state-funded forestry programme.

The FC was established as a government agency in 1919 to plant and manage Britain's state-owned forests and to promote and facilitate private planting. The FC's main policy objective was to provide a strategic reserve of timber to support the country in the event of another war and it was empowered to acquire and plant land to these ends. The initial target was set at an ambitious 0.75 million hectares (1.77 million acres) of woodland to be established by the twenty-first century.

When the Forestry Act came into being on 1 September 1919 it heralded what must have been one of the most rapid and significant land-use changes witnessed in Britain. In 1994 the Commission marked seventy-five years of sustained forestry activity in which time the forest cover in Britain increased from around 5% to more than 10%, representing a forest estate of over 850,000 ha. (2,006,000 acres) (Facts and Figures FC, 1995-1996). Ian Lang, the (then) Secretary of State for Scotland, celebrated the FC's achievement as an 'unshakeable belief in the value of their work...' (Pringle D., 1994). At the beginning of this century the FC had already exceeded the expectations of its founding commissioners and it would be reasonable to say that Britain owes its forest landscape almost entirely to the work of the Forestry Commission.

3.2.1   The Nature of British Forestry

Prior to the FC state programme, the nature of much British woodlands was of a semi-natural character. It was generally small scale, broad-leaved and maintained by private estate owners for hunting, shelter, amenity and

timber. Where timber production operations took place forestry objectives, like those of agriculture, were related to efficient crop production. In the absence of any reason to do otherwise, FC foresters applied this functional approach to their operations and large areas of land were quickly and successfully afforested under the early planting programmes. By the sixties however, these new plantations were mature enough to reveal the dramatic visual and environmental changes that this scale of planting could bring about.

The appointment of a Landscape Consultant in 1963, marked a turning point in the FC's recognition of landscape and environment issues in the forestry industry and was the first step in the development of design advice. The Consultant was faced with forty-four years of FC activity during which time it had managed to establish over one million acres of new forest cover and achieved a style of planting thought by one of a growing number of public and professional critics, 'to embody some of the worst acts of vandalism perpetrated on Britain's woodland heritage' (Mills E., 1996).

Whether in the uplands or lowlands this newly afforested land often suffered significant landscape changes both visual and material, typified by the following:

• **Visual changes**

<u>Shape</u>:
the layout of the new plantations introduced regular and often geometric shapes into the landscape. These layouts were related to the functional rather than aesthetic concerns of the foresters and generally dictated by land ownership boundaries and efficient timber production practices, for example tree species were planted in single species blocks for ease of harvesting.

Lines:

straight lines, often at right angles to the contours became a feature of the new plantations. These too were led by practical considerations and were formed by, for example, linear planting layouts; forest roads and rides; fire breaks; straight plantation boundaries and, in upland landscapes, the practical upper limits of planting.

Pattern:

large scale blanket afforestation introduced uncharacteristic and unnatural patterns in the landscape and these changes were particularly conspicuous where an existing land-use pattern was obliterated, for example field enclosures.

Colour:

the use of single species trees particularly the conifer species brought about distinct changes in the subtlety and variety of landscape colour in many locations, and where evergreens were planted the loss of seasonal colour also made significant visual changes to local landscapes.

Form:

the general perception of form in the landscape was altered by the changes in ratio of tree cover to open space and by tree cover that obscured geological formations and erased any subtleties of landform.

Element diversity:

forestry could also alter the range of element diversity in a landscape, with blanket tree cover visually reducing the number of different features that make up a landscape, for example any rocky outcrops, hedgerows, water-courses, stone walls and individual trees would all be obscured beneath the canopy of a forest plantation.

• Material changes

Land-use:

the introduction of forestry as an alternative land-use brought about changes to traditional local land-use activities, for example stock grazing, crop cultivation, and farm viability.

Ecological:

tree planting was also bringing about changes to local ecological systems, reducing ecological diversity (a result of the limited choice of tree species) and affecting the nature and quality of water courses, soil condition and micro climates. There was also evidence that some planting was damaging ancient woodlands, their flora and fauna and resulting in the loss of non-woodland semi-natural habitats and communities.

Cultural:

it was apparent too that forestry was capable of bringing about far reaching cultural changes to an area by altering the nature of local employment and the existing social and recreational use of local land. It was also possible that large scale tree cover would have an effect on the way people perceived their local landscape, altering its genius loci simply by erasing local landmarks or altering established desire-lines or the nature of open space for example.

The consequence of these changes and losses being evident where FC plantations were established was that a growing number of people questioned the objectives of such a forestry programme.

3.3 Factors Which Contributed to the Nature of British Forestry Between 1918-1963

To understand how the above state of affairs came to exist it is useful to take a closer look at both the government's and the FC's policies and objectives at this time. Four key factors emerge as playing a significant part in defining the nature of British forestry during the years prior to the appointment of a Landscape Consultant and these are:

* the concept of state owned forests and the 'grand design';

* the policy recommendations on species and unit size;

* agriculture expansion and land availability;

* the constraints on early plantation design and

3.3.1 State-owned Forests and the 'Grand Design'

The FC became Britain's first state-owned industry. The loss of so much woodland during the First World War and the fear of a world shortage made a state-owned forestry industry seem a reasonable, logical idea and this conviction was confirmed by the Second World War coming so soon after the first. A state option was unusual but chosen because 'if the forestry problem is one of national insurance, of which the state is not justified in requiring private individuals to bear the burden, it follows that the state must bear it' (Acland 1917). The reasons why this innovative and far-sighted afforestation programme eventually led to unacceptable forest landscapes are concerned with the sheer scale of the scheme, the accompanying high annual planting targets, the urgency with which planting needed to be achieved and the length of time this re-afforestation strategy was allowed to continue.

3.3.2   Policy Recommendations

The details of the Acland Committee's recommendations also played a significant part in shaping the new forest landscapes. Although the character of woodland, particularly in England, was traditionally broadleaved, the timber market in post-war Britain was mainly for soft woods. In giving this factor due consideration the Acland Committee recommended the use of fast-growing conifer species. This decision alone was responsible for major landscape changes, both visual and ecological.

One other significant policy recommendation followed further woodland losses during the Second World War. Having supported the need for continued forest planting in order to achieve the 2 million ha. (5 million acres) effective strategic reserve, the 'Post War Forest Policy' formulated in 1943 (FC) recommended that the general timber market was best served by large scale forest units. The result of these unrelated policy recommendations was the development of the much criticised practice of blanket coniferous afforestation.

3.3.3   Agricultural Expansion and Land Availability

The war years had also led to serious food shortages and the subsequent programme of agricultural expansion and improvement now began to compete with forestry for land. The agriculture industry was given priority on all land with any agricultural viability forcing forestry onto the poorest quality land. Foresters had very little choice but to move their operations into the uplands of the north and west and use conifer species which could tolerate these harsh conditions. As a result forests were planted in areas where forestry was not only out of character but also ecologically and visually inappropriate.

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3.3.4   Constraints on Early Plantation Design

The pressure to establish the 'strategic reserve' produced plantation designs that were led by function rather than aesthetics. As a former Keilder District Officer in the early 1950s explained: ' We had a clear remit to plant as much as possible as fast as possible. There was no timber left for either pit-props or construction. Massive reconstruction was needed in all our cities there was a call for building at least 1/2 million new houses a year. Wall to wall planting was literally the order of the day and the criterion was the successful achievement of the steep planting targets which were set each year'. Garthwaite, P (1996). Forestry objectives at this time left no room for landscape design or conservation considerations and even if more had been understood about the visual and environmental effects of afforestation on this scale by those early foresters, the idea of achieving a reserve of woodland as a defence strategy was likely to out weigh any environmental consequences of the forestry programme in a nervous post war Britain.

3.3.5   Summary of Contributory Factors

Although the decision to create a state-funded forestry industry appeared to be carefully considered and soundly based, the fact that the FC was driven by a single prime objective, which it pursued to the exclusion of all other land-use considerations contributed to the unpopular view of its activities. Up until the 1960s the factors which appeared to be responsible for the undesirable nature of state forestry were directly related to the details of the original government proposal. The sheer scale of the planting programme together with the urgency attached to achieving a 'strategic reserve'; the function-led approach to planting employed by the foresters and the use of coniferous species in large forest units, on land where forestry would not normally be thought appropriate, simply brought about landscape change on

a scale that many people found unacceptable. However the lack of foresight shown by the FC's approach reflected the climate of low environmental awareness in the post-war era, and was perhaps more to do with a lack of understanding and of experience in landscape and land-use issues than a conscious decision to plant woodland at the expense of the landscape.

3.4   The Decision to Appoint a Landscape Consultant

Planting rates were still healthy into the 1950s and by the end of the decade the FC had planted over one million acres of land with private land-owners contributing over half a million acres. The FC however was becoming increasingly aware that it had a problem with the style of its operations. A combination of four factors led to its decision to appoint a Landscape Consultant in 1963:

- criticism from other interested parties, both public and professional persuaded the FC to review its methods;
- the FC realised it needed to act to improve its poor public image;
- growing disquiet among FC staff led to internal campaigning for a review of forestry practices and
- changing government policies necessitated new FC objectives and a more environmentally-orientated approach to the industry.

3.4.1   Criticism, both Public and Professional

The state forestry programme has never received whole hearted support. As early as 1922 the FC came under attack from the Committee on National Expenditure, (the Geddes Committee) who recommended the abolition of the FC at a time of post-war financial crisis. For the FC, poor financial performance has been a recurring problem, highlighted for a second time in

a report published by the Treasury (1972) and then again in a report for the National Audit Office (PIEDA, 1986). The main force of initial and subsequent criticism however was directed towards the location and scale of afforestation and the visual and ecological design of plantations. Major arguments focused on a conflict of interests with other land-uses, particularly agriculture and with the changes wrought on the amenity value of the new forest landscapes.

Once the post-war programme of agricultural expansion was underway, the FC found it increasingly difficult to obtain the extensive tracts of land which make afforestation viable. In the early 1930s a recreational function was latched on to Acland's primary objectives to ease the situation, with the result that the afforestation of some of the country's most valued scenic areas became justifiable. The most obvious targets were those areas destined to become National Parks because they represented large areas of open, undeveloped land ideal for large forest units. The FC however did not foresee the strength of opposition it would face to such activity in these locations. Environmental organisations became involved when major schemes were proposed for these landscapes and nation-wide objections were voiced when the FC announced a proposal for a 2,800 ha. (6,748 acre) plantation in Eskdale and Dunnerdale in the Lake District. In response the FC (1936), under pressure from the Council for the Preservation Rural England (CPRE), agreed not to acquire land for afforestation within a 300 sq. mile area of the Lake District .

This voluntary agreement has characterised FC response to opposition throughout its existence and during the 1930s and 1940s similar assurances were sought to keep afforestation out of areas of the Peak District, the North York Moors and Snowdonia. Eventually a National Voluntary Agreement was drawn up between the FC and the National Parks Commission (1961),

however, planting and objections continued in other highly valued scenic landscapes for example Exmoor and Dartmoor, (Joint Action Group for the Protection of Dartmoor and Exmoor, 1961).

The strength of public opposition continued to build and was eventually powerful enough to force the FC to back down from an attempt in the 1950s to use the FC's compulsory purchase powers to obtain 20,000 ha.(48,200ac) of land in the Towys Valley in Wales and no further attempt to invoke this wartime power was used again. By the end of the 1950s this sustained opposition was persuading the FC to review its activities and image.

3.4.2 The FC's Image.

As a state funded operation subsidised by substantial amounts of public money, the FC's image was, and still is, an important issue. To continue to exist, let alone operate, the FC realised it had to convince both the government, the public and other professional bodies that it was worth the investment and that its activities were in the nation's best interest. In the 1960s public and professional criticism of the FC's operations had reached the point where it felt it had to act to improve its own image.

3.4.3 Growing Disquiet Within the FC

The FC was facing pressure too from within its own ranks, as a growing discomfort with the environmental consequences of FC methods started to be voiced. In the 1950s a nucleus of environmentally sensitive staff had become established within the FC. These individuals acted as a catalyst which eventually succeeded in changing the FC's understanding of, and approach to, forestry and the environment. As Oliver Lucas (personal communication) explained "they were able to persuaded the more financially minded that they were not going to be allowed to continue in their present way much

longer and that a landscape consultant would be a positive move to promote a better understanding of environmental issues related to forestry".

3.4.4 Changes in Policies and Objectives of both Government and FC

By the mid 1950s, the momentum of post-war planting was lost. The findings of the Zuckerman Committee's 1957 report on Forestry, Agriculture and Marginal Land concluded that the FC's strategic reserve objective was no longer an acceptable justification for a state forestry programme. In dismissing the defence strategy objective the Zuckerman Committee had taken away the FC's reason to exist. The government however responded by supporting further afforestation for social and economic reasons setting the planting target for the next five years at 127,118 ha. (300,000 acres) (policy statement by Minister of Agriculture July, 1958) but agreed with the Zuckerman Committee that the FC should aim to achieve its objectives with 'due regard to the effect of forestry on the wildlife and on the beauty of the countryside' (Zuckerman, 1957).

The FC now had to decide how it was going to act to stem the tide of internal and external criticism, improve its public image and fulfil its policy obligation to carry out operations in a more environmentally friendly manner. At this time there was no tradition of forest landscape design in the FC. A major source of criticism was damage to the amenity value of the landscape and the specialist knowledge of a landscape architect with a visual design approach must have seemed the best way forward. After all, despite concerns within the Commission about some of its own activities, its existing operations had proved successful in achieving government objectives. The option it chose was to look for a cosmetic, rather than a policy or operational answer to the problem and it appointed Sylvia Crowe as Landscape Consultant in 1963.

3.5   The Continuing Need for Advice: 1963 to 1988

Crowe's approach was to offer straightforward design advice on both the re-structuring of woodlands during felling and the layout of new plantations. Initially her advice was very successful in improving the FC's approach to plantation design and quietening critics. The FC's image benefited from this high profile, more environmentally aware approach and design modifications to its show piece Keilder forest was positively received (Lucas, personal communication).

Despite this promising start public and professional criticism continued to dog the FC's operations and the need for this design advice remained and grew in importance as it struggled to ameliorate the problems that government and FC policies and activities continued to create.

Policy changes introduced during this period were intended to protect the landscape from damaging forestry practices.

3.5.1   Policies Promoting the Environment:

Amendments to the 1968 Countryside Act (Halsbury Statutes, 1968) and the 1967 Forestry Act (Halsbury Statutes, 1967) modified the FC's objectives to include recreation and the conservation of natural beauty.

In 1972 the Forestry Policy (FC, 1972) review placed more emphasis on landscape and recreational aspects of forest planting.

The Ministerial Statement on Forestry Policy (Hansard, Dec 1980) required the FC to achieve a balance between timber production and the environment.

The 1981 an amendment to the Wildlife and Countryside Act (Halsbury Statutes, 1981) moved to protect rare woodland species by changes to the legislation supporting Sites of Special Scientific Interest (SSSI)

In 1985 an amendment to the Wildlife and Countryside Act required the FC to 'endeavour to achieve a reasonable balance' between timber production, and conservation of natural beauty, flora and fauna in their activities.

Also in 1985 following a Review of Broadleaf Woodland Policy (Hansard, July 1985), the government introduced measures to promote and protect Broadleaf woodlands.

In 1986 the FC produced a revised version of its Policy and Progress Paper The Forestry Commission and Conservation (FC, 1986). It's aim was to improve its conservation plans, its consultation with voluntary conservation groups and included a statement of intent with the Nature Conservancy Council (NCC) regarding the management of SSSIs.

3.6   Factors Perpetuating Design Problems

Despite the above efforts the following factors worked to perpetuate unpopular forestry practices:

* conflicting government policy and the pro-forestry lobby;
* poor financial returns on forestry investment;
* abuse of planting incentives;
* a flaw in internal administration of the FA and the FE (Forest Enterprise) and
* lack of state control over the private forestry industry.

3.6.1 Government Policy and the Pro-Forestry Lobby

The concerns and criticisms which met the FC's activities must, to some degree, reflect the failure of forestry policy. Policy statements introduced to protect the environment at this time were vague to the point of being useless: the concept of 'reasonable balance' for example is impossible to define. The Minutes of Evidence supporting the 1990 House of Commons Agricultural Committee report on _Land use and Forestry_ (1990a) reveals that the aspects of forestry causing environmental concern in the 1960s were still a cause for concern years later in 1990.

The Forestry Acts of 1967 and 1979 set out the statutory framework for forestry policy, since which time the government has resisted all calls for a thorough review of the situation. Forestry policy has, instead, been allowed to develop through a number of ministerial statements which simply altered or amended the original policy objectives to suit the prevailing social and economic climate. The outcome of this unusual evolution was a lack of clear policy, a view also expressed in the House of Commons' Environment Committee's 1993 report. This reluctance to review the rationale behind forestry policy may be due in part to pressure from the forestry industry itself. Throughout these years the government was coming under constant pressure from a growing and powerful forestry lobby. This small but well-connected group of people, often working within the FC or within the government itself were well placed to affect the course of forestry policy. What is more, the close relationship between public and private interests held by some individuals within this state industry (identified by Tompkins 1989) suggest some people may have had a vested interest in the particular direction of forest policy.

Not surprisingly then, the most consistent aspect of government policy has been forestry expansion despite the supporting state subsidies and planting targets being difficult to justify in the national interest. The 1980 policy statement on Forestry Policy (Hansard, Dec. 1980) stated that planting should continue at the same rate of 20-25,000 ha. (50-60,000 acres) a year as in the previous 25 years. In 1986 this was increased to 30,000 ha. (75,000 acres) and despite mounting concern about environmental damage an even higher target of 33,000 ha. (81,000 acres) a year was announced in 1987

The various reasons given for this relentless programme of afforestation are listed by Stewart (1988) and range from the original creation of a defence strategy to sustaining rural communities: the reduction of import costs: the use of 'surplus' agricultural land and the creation of multi-purpose forests. Whether these objectives were met successfully has been disputed but the effects of government policies which promoted such high levels of planting in the landscape were further extensive losses of land to forestry and blanket afforestation.

3.6.2   Poor Financial Returns

Government policy was not the only factor to dictate the style of FC operations. The financial obligations of a state industry also led to unpopular forestry practices. Forestry in Britain has never been a particularly profitable concern but then initially the industry was not created to be profit making. Nevertheless in an attempt to make forestry pay the FC 1963 Annual Report introduced timber production and profitable management of the estate as a policy objective.

The industry however continued to show poor returns on state funds largely due to the low yield and poor quality of the timber produced by the afforestation of poor quality land in the harsh upland climates. The drive to

try to make forestry profitable simply led to further pressure on the landscape. As Fairbrother (1970) observed, 'The most profitable way of producing timber does not produce the most sympathetic landscape'.

In order to make a plantation profitable more extensive areas of land needed to be planted up with higher proportions of fast growing coniferous species in efficient, single-species, densely planted blocks. The drive for efficiency also resulted in some unpopular and environmentally damaging practices including poisoning oak crops with the chemical 'Agent Orange' in order to plant the more profitable conifers, (Campbell, D. personal communication).

The shift in emphasis from state subsidised restocking and management of existing woodlands to afforestation for profit directly conflicts with the conservation and enhancement of the environment. As the Nature Conservancy Council (NCC 1986) stated, in its review of the impact of forestry, 'Blanket afforestation over large areas is inimical to nature conservation'.

3.6.3   Incentives

Incentives, the instruments of forestry policy, were also responsible for promoting unpopular practices and perpetuating unacceptable forest landscapes.

The original financial incentives introduced in 1921 offered grants to private landowners to replace war-time timber losses. The dedication schemes, as they were known, incorporated legally binding, long term management obligations linked to the re-stocking and planting of woodlands. Alterations to these early schemes in 1981 removed both the formal legal agreements and grants which paid for long term management and regular supervision of plantations. The new incentives offered under the FA's Forestry Grant Scheme led to more importance being placed on tree planting

than woodland management and took away any obligation or incentive to farm afforested land in a traditional way.

The main threat to the landscape however was as a result of the way forestry was treated under the tax system. Since the 1950s a loophole had existed whereby it was possible to gain substantial tax concessions on the cost of establishing new plantations. Anyone who chose to use their income to plant trees on bare land for future timber production could, under income tax Schedule D, off-set the cost of establishing the woodland against any income obtained from other sources - in other words the cost of planting was treated as a tax-loss.

The advantages of this loophole were not widely understood or exploited until the 1970s and 1980s but the incentive made a significant impact on the nature and location of afforestation in Britain during this time. Understandably the opportunity was very appealing to the country's high earners and led to the formation of forestry companies who planted and managed woodland on their behalf. Because the tax system also offered relief on interest on any loan secured to purchase land for forestry, investors were best served by large scale, coniferous blanket afforestation. Planting rates in the private sector reached record rates during the boom years of the 1980s but this rapid forestry expansion was no longer in the public interest. Forestry had become divorced from any land-use framework because it was motivated purely by financial gain and the consequences for the environment were predictably negative.

3.6.4 Conflicting Objectives of the Forestry Authority and Forest Enterprise.

Another conflict of interests arose due to an administrational arrangement within the FC's FA and FE departments. In 1966 following the restructuring

of the FC accounts the terms FA and FE were used to distinguish between the FC's role as a government department (FA) and trading body (FE) but the organisational structure did not reflect this situation until April 1st 1992 when the FE became a self contained entity, (FC Annual Report, 1992). Within FC Conservancies it was therefore possible for a single member of staff to be required to fulfil conflicting objectives, one as an FE officer, whose primary objective was to plant as much land as possible for the state and the other as an FA officer whose objective was to promote planting by the private sector and control the suitability of all afforestation proposals. Where timber production was perceived to be of primary importance, environmental concessions to plantation location or design were sometimes considered an expensive and unnecessary burden on operations. In such a case an officer could legitimately fulfil his FE objective and proceed with afforestation schemes with minimum consideration for the landscape, (Swabey, personal communication). This set-up could not reliably protect environmental interests.

3.6.5   Lack of State Control over the Private Forestry Industry

The Town and County Planning Act (1947) excluded forestry from planning control. This was not altogether surprising as in the early days of the FC forestry programme there was no reason to suppose planning control was ever going to be necessary. Instead, the FC had, over the years, adopted a voluntary consultation procedure to vet private afforestation proposals. Up until this point, grants available for forestry schemes were only released after the consultation process had been completed. Afforestation proposals of over 20ha. in England and Wales were referred to MAFF. In Scotland proposals of over 40ha. were referred to the Department of Agriculture and Fisheries for Scotland, (DAFS). The local authority would have been consulted on landscape and amenity issues; the NCC on proposals which may

effect a SSSI; CoCo and the NPA on planting within National Parks or within AONBs and, in Scotland, the CCS would have been consulted over proposals submitted for its National Scenic Areas. If after this consultation process questions remained over the appropriateness of a scheme it would be referred to the FC's Regional Advisory Committees, (RAC). If no compromise could be found, the Forestry Commissioners would become involved and then, in difficult cases, the scheme would be referred to the appropriate minister or Secretary of State.

The FC was obviously comfortable with this arrangement as in most cases it could retain the final decision on a proposal and, despite sustained external pressure, particularly from the Nature Conservancy Council (1986), it has, for this reason consistently resisted forestry being brought under planning control, (House of Commons Environment Committee, 1993). The system however ran into problems when the private market flourished during the 1980s. The FC found itself powerless to prevent some highly valued landscapes being lost to forestry. It became apparent that in the face of such commercial pressure and with no statutory controls the FC could not hope to achieve a 'reasonable balance' between forestry and the environment.

3.6.6   Summary: the Developing Design Advice

This was the situation in the period leading up to the 1988 Forestry Act. Until this point the need to develop and apply design advice had been sustained by the government and FC policies which promoted insensitive environmental practices. During this period forest landscape design techniques were being developed and employed specifically to cope with the FC's environmentally unfriendly approach. These design techniques were used to:

- improve the image of the FC by displaying the forestry industry's appreciation of environmental issues;

- exert some form of quality control over the private sector in the absence of statutory planning regulations, which they achieved through design obligations attached to grant aid;

- provide the necessary information to enable foresters to fulfil their conservation objectives and

- satisfy calls from within the FC for a more environmentally sensitive approach to forestry.

3.7   The Effect of the British Government's 1988 Finance Act on Forestry

The boom years of tax-led investment in forestry of the 1980s were brought to an abrupt halt when the 1988 Finance Act effectively removed the tax advantages of forestry establishment altogether.   At the same time ministerial statements on upland afforestation (Hansard, March and October 1988) introduced presumptions against further large-scale afforestation in England's uplands.   The repercussions of these two actions have had a significant impact on the direction of British forestry.   Although the government's decision came as a shock to the industry with hindsight it was not altogether surprising or unjustified.   The following two main factors contributed to the government's decision to move on the forestry industry:

3.7.1   Major Conflict between Forestry and the Environment

During the 1980s, the practice of large scale blanket afforestation was prevalent and the FC appeared completely unable to control private sector activity.   Such were the tax advantages of planting forests to the private sector that schemes were going ahead without grant aid and were therefore

able to by-pass the need for FC consent and the voluntary consultation procedure. In this way, in 1985, the FC failed to prevent three controversial proposals going ahead at Kinnell (1,200ha.), Crichness (200ha.) and Shielsknowe (200ha.). Around the same time, concern was mounting over proposals for afforestation for the highly ecologically-sensitive area of highland 'Flow Country' which prompted groups with environmental interests to form a united front against the forestry industry. In 1986 a number of critical reports from respected organisations such as the Nature Conservancy Council, (1984), the Countryside Commission, (1987), the Council for the Protection of Rural England (1987), the Ramblers Association (1980) and the Royal Society for the Protection of Birds (1985), fuelled a high profile campaign which successfully brought the issue of the Flow Country in particular and forestry activity in general to the attention of the media, the public and the government.

3.7.2 Unrealistic Financial Returns

For the third time in its existence, the disappointing rates of return on forestry investment were made public in a report on the FC's financial status by the National Audit Office (PIEDA 1986). The report findings once again brought into question the justification for substantial public expenditure on a state forestry programme. So by the time of the 1988 budget the forestry industry's image was at an all time low and its poor environmental record and disappointing financial performance made it a prime target for government reform.

3.8 Changes in the Nature of British Forestry, 1988-2001

Despite set backs which saw interest in forestry investment evaporate, the industry fought back and over the following decade the nature of British forestry subtly changed with significant consequences for the designer.

The ministerial statement on Forestry Policy (Hansard, 1988a) which followed the budget announcement re-affirmed the government's commitment to the forestry industry by confirming the annual planting target of 33,000 ha. p.a., but with the proviso that future planting was to be carried out in an environmentally acceptable manner. In September 1991 the FC published a Forestry Policy for Great Britain in which it set out its guiding principles as 'the sustainable management of existing forests and a steady expansion of tree cover to increase the diverse benefits that forestry provides'.

In the early 1990s two international conferences on the environment unexpectedly supported the government decision to pursue its programme of state forestry expansion and, what is more, supported its rationale.

The UK government was represented at the 1992 'Earth Summit' in Rio de Janeiro and agreed the Agenda 21 action plan for sustainable development and the Forest Principles. The Forest Principles is a non-legally binding statement on management, conservation and sustainable development of forests world-wide to 'provide for their multiple and complementary functions and uses' (Preamble b). The key message here was the promotion of environmentally friendly multi-purpose forestry. The Principles also promote the need for setting and monitoring standards; the benefits of environmental impact assessments for forest developments and the advantages of developing public participation in forestry activities.

The second conference held in 1993 in Helsinki, Ministerial Conference on the Protection of European Forests, considered the European response to the Rio commitment, in particular how the forest principles, the climate change, bio-diversity conventions and Agenda 21 could be implemented in Europe and the discussion offered general guidelines for the sustainable management of forests in Europe (Resolution H1).

Following these conferences the government upheld its international commitments by publishing _Sustainable Forestry: the UK programme_ in 1994, (revised in 1998 by a detailed consultation paper on sustainable forestry ' _The Sustainable Management of Forests_), together with _Bio-diversity: the UK Action Plan_ published in 1994, which sets out priorities for maintaining and enhancing bio-diversity and produced a range of Habitat Action Plans and Woodland Habitat Action Plans.

In signing up to the Rio principles and the Helsinki guidelines the government's action not only offered the FC a new lease of life but also gave it a clear direction for the industry's future. These developments did not, however, have a dramatic effect on forestry activity in Britain at this time, simply because large scale blanket afforestation had already lost momentum and there was little interest in establishing forests for the timber market. It did however compel the government to get its forestry strategy in order. A policy that could deliver national environmental benefits through a sustainable multi-purpose forest estate was not difficult to shape from the FC's existing activities and the government lost no time in re-focusing and re-stating its forestry policy and objectives to embrace these new commitments. The govrnment's next priority was to draw up a strategy that would assure the objectives were achieved and develop monitoring systems that would show they had been met.

In 1995 the government published the English Rural White Paper, _Rural England: a nation committed to a living countryside_ (Environment Committee, 1995) and once again renewed backing for forestry and expansion, suggesting a doubling woodland cover in England over the next half century to 15%.

Following this white paper the FC and CoCo circulated a discussion paper Woodland creation: needs and opportunities in the English countryside (1996) to which the government replied with Woodland creation: needs and opportunities in the English countryside: Responses to a discussion paper (1997). The consultation papers showed wide spread support for woodland expansion particularly on the urban fringe, despoiled land and farmland, with importance placed on ensuring that woodland type is matched to objectives and benefits. Other issues raised concerned the need for a more integrated approach to land-use and, once again, better integration of forestry with the planning system. The need to raise levels of public awareness and appreciation of forestry in the landscape were also thought to be crucial in justifying a state forestry programme. The government then drew together its international commitments from Rio, Helsinki and Lisbon (see 3.8.5) along with the issues raised at consultation level and prepared a forestry strategy for England.

3.8.1 England's Forestry Strategy: a New Focus for England's Woodlands (2000)

This strategy presents a vision of sustainable, multi-purpose forestry, which it states will 'benefit society in social, environmental and economic terms' and describes how the government hopes to achieve this vision over the next 10-15 years in England. The report sets out four key programmes for woodland establishment which the government feels reflect its strategic priorities. These programmes are described under the following headings;

1   Forestry for Rural Development:

the government states that it supports reforms to the common agricultural policy (CAP) that phase out production-linked support to farmers and, if this

happens, planting on agricultural land may become more viable. Forestry on farmland is likely to be driven by commercial interests and therefore will encourage larger, probably coniferous plantations grown primarily for timber production. These plantations could be in both upland and lowland areas where local wood-processing and marketing infrastructures can support forestry activity.

2   Forestry for Economic Regeneration:

in their response to the government's 1995 White Paper Rural England, the CoCo and FC discussion papers (1996 and 1997) showed widespread support for significant increase in woodland cover particularly on urban fringe and despoiled land. Woodlands for economic regeneration offer an ideal opportunity to address industrial dereliction and urban fringe abuse, through woodland planting which will achieve real multi-purpose benefits. The majority of these woodlands are likely to be small, with low economic value but with great environmental improvement and recreational potential due to their urban locations.

3   Forestry for Recreation, Access and Tourism:

these woodlands are intended to offer opportunities to promote a wide range of pursuits and support the tourist industry. Access is a major issue here as this is a key element in the FC's 'public benefit' objective.

4   Forestry for the Environment and Conservation:

these woodlands are likely to promote native species, incorporate remnants of ancient woodlands and be in existing areas of high conservation and environmental value which are all key elements for delivering the government's nature conservation, bio-diversity and sustainable management objectives.

With these strategic priorities, commercial, coniferous afforestation will probably continue (subject to environmental safeguards) but it is clear that there has been a significant shift in policy from timber production to sustainable multi-purpose forestry for multi-purpose benefit since 1988. While multi-purpose forestry has been an objective since 1974, it is now the main focus of FC activity and it is supported by initiatives, incentives and controls which are likely to have a more significant affect on the nature of Britain's forestry in the future than they have in the past.

3.8.2   New Initiatives

In 1989 the concept of Community Woodlands on our urban fringes was a new departure and a real life-line for a forest industry that appear to be floundering and without clear direction.   The National Forest and Central Scotland Forest initiatives were to follow and these schemes deflected attention from upland planting by promoting woodland establishment in lowland landscapes and in urban situations around our major cities.   The Community Woodland initiative, which is now twelve years old has so far created 1,700 ha. of forest cover and in 2000 secured a further £9.4million to continue this work.   These initiatives are useful vehicles that effectively convey the country's forestry strategy and demonstrate our commitment to international forestry agreements.

As community woodlands are established primarily for amenity value they are likely to be fast growing, robust in nature with a higher proportion of broadleaves, more open space and lower density tree planting than the old commercial plantations. These woodlands will be semi-natural in character to facilitate user needs, for example parking, walkways, cycle routes and signage and they will be managed and used in a totally different way to commercial timber plantations, they will be designed to accommodated

diverse uses from quiet recreation to sporting facilities, with sustainability, biodiversity, social benefits and landscape beauty being important considerations for the designer.

Looking to the future, the Land Regeneration Unit established in 1997 has continued to acquire plantable land under the economic regeneration programme objectives. This degraded land bank is said to be making an increasingly important contribution to the expansion of woodland. The FC is now pushing research in this area to take full advantage of this source of land to expand the forest estate. It is therefore likely that future initiatives will be directed at promoting planting on brownfield, mineral and waste restoration sites, with the intention of creating woodlands for social and environmental benefits and woodlands that offer the opportunity for economic activity on previously unproductive land. These sites will present new challenges for the designer because of their location, history, condition and development potential, for example a site restored to woodland may at a point in the future become an ideal setting for residential use.

3.8.3   New Incentives

Forestry projects now receive funding from a wide range of complementary sources including European, lottery and millennium funds but the bulk of the money is still provided by the British tax payer. In order for the government to successfully fulfil its strategy objectives it needs the FC's achievements to reflect this substantial investment, through a sustainable, multi-purpose forest estate which benefits, or has the potential to benefit, the nation to the tune of its investment.

Up until 1988, the main source of grant aid for forestry was provided through the Forest Grant Scheme and Broadleaved Woodland Grant Scheme introduced

in 1985. In 1988 these were replaced by the Woodland Grant Scheme (currently WGS III) which continues to offer aid at different rates for new planting, restocking, natural regeneration and for the use of conifers, native and broadleaf species Also introduced in 1988 and running in tandem with the WGS was the Farm Woodland Scheme aimed at encouraging farmers to plant woodland on farm land and administered by MAFF. In 1992 this was modified to become the Farm Woodland Premium Scheme (FWPS).

Due to the depressed forestry climate since 1988 woodland planting and the take-up of grants through the WGS and FWPS has been slow. The FA has responded to this trend by revising and re-structuring its grant-aid to reflect its shifting forestry objectives, and in doing so has developed a more strategic approach to fulfilling those objectives. At the present time the FA has found it increasingly important to target funding to supporting its major initiatives. It is focusing on trying to stimulate planting in the national forest and community woodlands; encourage public benefit within existing and proposed woodland; improve the environmental and ecological quality of plantations; promote sustainable management practices and exploit the potential of forestry to support the rural economy. These aims are reflected in the design of its incentives and currently funding is available on top of the basic WGS and FWPS through the following;

- **Community Woodland Supplements:** paid in addition to all other grant schemes to help encourage planting and management work within the community woodland areas.

- **Location Supplements:** paid on top of Community Woodland Supplement to further stimulate planting proposals in those areas where take-up has been poor. A national forest location supplement is also available, introduced in 2000 and aimed at boosting interest within the national forest area.

- **Access Grants:** revised in 1998, are now available for the creation, maintenance or enhancement of public access, these funds favour sites where local demand is high and there is a shortage of woodland open to the public. In 2000 the FC published a consultation paper <u>Access to open countryside in England and Wales</u> which suggests the FC reports on existing access to forests and woods which may well lead to a further revision of the access incentives.

- **Woodland Improvement Grant:** targeted to improve certain features or facilities within existing woodlands for example facilities for public recreation.

- **Annual Management Grant:** revised in 1999 and paid to promote environmentally friendly and sustainable forestry management techniques, this includes for example a Livestock Exclusion Annual Premium paid to exclude livestock from ancient woodlands in the uplands.

- **Better Land Supplement:** paid to farmers for taking ex-arable or improved grasslands out of production and favour planting on better agricultural land.

- **Energy Crop Scheme:** launched through the England Rural Development Plan in 1999 this grant aims to encourage more diverse land-use through forestry and makes funds available, for example, for short rotation coppice.

- **Challenge Funds:** this scheme aims to encourage the establishment of native woodlands, in particular larger native woodlands in National Parks. Introduced in 1997 primarily for woodland planting over 25 hectares, the challenge fund enables land owners to submit competitive

tenders for the funding they seek in order to carry out planting. Proposals are judged on merit against the aims of the fund which include species choice composition; the quality of the woodland design; the proposed management systems and the opportunities the scheme offers for public access and recreation.

- **Forest Plan Grants:** introduced in 2000, makes funds available for the production of long term forest plans which set out felling and restocking programme for a 20 year period in line with the FA forest standards and best practice advice.

Other sources of grant aid which affect the quality and nature of the forest landscape are available from different organisations and include:

- **The Farm Conservation Grant Scheme:** administered by MAFF, offers grant aid for hedge and shelterbelt planting.

- **Landscape Improvement Scheme:** available through LAs for tree and hedge planting and selected management works.

- **Countryside Stewardship Scheme:** administered by CoCo, offers grant aid for certain countryside operations for example hedge planting and laying, pollarding and tree planting and includes an access payment scheme.

3.8.4   Regulating the Industry

The government has taken steps to prevent a repetition of the pre-1988 problems with changes to national forestry policy and the FA have introduced and strengthened their controls which currently force greater accountability of forestry activity in general and of the activities of the FE in

particular. The mechanisms used to exert this control take three shown below forms: internal and external monitoring systems; consultation procedures and designations and approval mechanisms.

3.8.4.1 Monitoring Systems

In 1999 the Modernising Government White Paper (Command Paper, March 1999) asked the FC to again review its policy on sustainable management by evaluating its existing policies and introducing a research-based approach to keeping them under review. In 2000 the Forestry Minister for England, Elliot Morley, announced the setting up of a Forestry Forum. Made up of representatives of a wide range of organisations, public, private and voluntary with forestry and wider environmental interests, its work will be to monitor and review progress on implementing the new forestry strategy.

Working alongside the Forestry Forum is the newly formed Forestry Commission Advisory Panel (FCAP). This central advisory body will be reporting to the FC on all aspects of the FC work and in particular: the implementation and development of the UK Forestry Standard; progress in sustainable forest management; any legislation and policy changes that effect forestry both the UK and Europe; the performance of the forest research programme; timber market conditions; the non-market benefits of forestry and community involvement in forestry activity. In order to do this the committee has retained three sub-committees: the Technical sub-committee; the Supply and Demand sub-committee and the Environment sub-committee.

The Environment committee, which covers all aspects of forest landscape design, will be responsible for advising the FC on issues and activities related to the environment, specifically the social and economic aspects of

sustainable forestry, including landscape; water quality, air pollution, carbon storage, climate, soil, cultural heritage and recreation. In addition it has been asked to consider the economic and social functions of forestry activity and its interaction with other land uses. Comment on the relevance and priorities of the research programmes linked to these issues will also be the responsibility of this committee.

3.8.4.2   Consultation Procedures and Designations

1.   Register of Proposals

In 1996, the FC responded to pressure, from the CPRE in particular (Environment Committee Report on <u>Forestry and the Environment</u>, 1992-93) and introduced a register of new planting applications designed to make information on FC activities more accessible to non-statutory consultees. The system was introduced whereby felling licenses and forest plans were put on a public register and the LA and other statutory bodies were sent details. The FC now displays this information on its own web-site.

Today the extent to which the FC is routinely expect to consult is illustrated by the array of designations, special plans and indicative classifications which are listed in the UK Forestry Standard and which may currently affect forestry proposals, they are:

Areas of Outstanding Natural Beauty (AONBs) and Heritage Coasts

Community Forest Plans

Conservation Areas

EU Birds Directive, EU Habitat and Species Directive

Indicative Forestry Strategies

Local Area Plans (NI)

Local Authority Structure Plans (England and Scotland)

Map of England by English Nature, Countryside Commission and English Heritage

National Nature Reserves (NNR)

National Parks

National Scenic Areas. Scotland

Planning Authority Designations - e.g. nature reserves in local plans

Public Rights of Way

Register of Ancient and Semi-natural Woodland.

Register of Parks and Gardens of Historic Interest in England and Wales, and the Inventory of Gardens and Designed Landscapes in Scotland

Rights of Common

Scheduled Ancient Monuments (SAM) and their settings

Sites of Special Scientific Interest (SSSI)

Tree Preservation Orders (TPOs)

UK Bio-diversity Action Plan

Unitary Development Plans (Wales and Metropolitan Boroughs)

Wildlife and Countryside Act 1981 and Wildlife Order 1985 (NI)

2. Indicative Forestry Strategies

Throughout the FC's existence but particularly during the 1980's, the government was coming under increasing pressure to bring forestry development within the town and country planning system. In response to this pressure the government issued guidance to the county councils of England and Wales on the preparation of Indicative Forestry Strategies (IFS) in 1992. The idea of these strategies was to improve FC consultation procedures by allowing the appropriateness of forestry proposals to be scrutinised and to encourage a long term strategic approach to integrating forestry with other land-use activities in a particular area. For the first time, the FC had to consider forestry in relation to the wider land-use framework.

IFSs take the form of area-based non-statutory plans which indicate 'preferred', 'potential', 'sensitive' locations for planting and they are usually linked to Development Plans via a formal policy which then gives them a statutory base. The introduction of IFSs has forced the FC to be fully aware of the impact of all aspects of forestry on regional landscape; proposals which are inappropriate in scale or species, for example, would not get through this system. The introduction of these strategies was welcomed by the FC, perhaps because they have made it possible for forestry to remain outside planning control and therefore allowed the FC to retain decision making on forestry proposals.

In 1993 the FA published guidelines, Landscape Assessment for Indicative Forestry Strategies (Price G., 1993), which look specifically at assessing the landscape both visually and physically when preparing an IFS. These guidelines offer a design vocabulary which is not always in-line with other FA advice, which is discussed later in Chapter 6.

Designations which have been prepared by other organisations will also have the effect of guiding the FC's decisions and activities. The CoCo and English Nature's Character Maps (CoCo, 1988 and CA, 1999) of England for example, will enable the FA to make informed decisions on the nature and appropriateness of planting proposals. This map is particularly relevant to forestry where it identifies distinctive and valuable landscape characteristics which need protection, highlights impoverished landscapes where change is desirable, or where it indicates regional preferences for different types of woodland creation and management.

3.8.4.3   Approval Mechanisms

1.   Sustainable Forestry and the UK Forestry Standard.

Following the government's international commitments on forestry principles and practice, agreed in Rio and Helsinki, the government produced Sustainable Forestry: the UK Programme (1994 revised in 1998). This report sets out the policies and objectives which are intended to help the UK government meet the aim of sustainable forest management. In response to this the FC announced in it's 1995-1996 Annual Report the preparation of a set of forestry standards intended to represent the government's practicable approach to sustainable forestry and to promote 'best practice' in the forestry industry,

By controlling access to grant aid, felling and restocking licences and plan approval in addition to enforcing the requirements of environmental assessments and statements, the FC has the ability to exert some influence on forestry practice.   In order to help its staff enforce this control in a consistent and objective manner the FA have produced a 'best practice' framework set out in its forest standard, The UK Forestry Standard (1998)

The   standards provide the basis for monitoring and reporting on environment standards in managed woodlands by defining criteria and indicators by which sustainable forestry practice can be assessed.   The guidelines are extensive and reveal how tightly regulated forestry proposals are.   Designations and legal restrictions which may affect a planting proposal cover agriculture, landscape impact, ecological impact, archaeology and cultural heritage, water resources, the aquatic environment and community interests. Compliance with the standard is now a pre-requisite of all grant-aid.   The standard notes identify the basic principles of good practice which the FA states apply to most forest situations. Within the notes, of which there are 6, there are guidelines which have implications for forest landscape design advice and these are discussed in full in Chapter 6.

2. Forest Design Plans

In 1992 the Forest Design Plans initiative was launched. This initiative required that plans are prepared by the FE for all plantations in which operations are going to be undertaken. Forest design plans fill the gap between the IFSs, which represent the regional level and site level plans which are traditionally the operational level for productive woodlands The production of the plan aims to help owners and managers recognise opportunities for improving the diversity and appearance of forest coming up to felling age and to balance these opportunities with other functional and operational activities. By introducing this system the FA ensures that it retains control over the design of existing and future plantations. All FE woodlands are now required to be covered by a 'forest district-wide strategic plan' in order to 'strengthen its own internal planning system' (Annual Report 1999/2000) and to help District Managers develop their forest design plans within a framework which relates to the England forest strategy.

The Forest Design Plan initiative is supported by an FA forestry practice guide Forest Design and Planning: a guide to good practice. (Bell S.) published in 1998. Each plan is required to give details of proposed felling and restocking over a 5 year period and outline how the forest is expected to develop in the long term. This system is designed to ensure that environmental objectives are central to forestry operations rather than, as in the past, a concession, and as with the Forestry Standards any public funding for forestry proposals has to meet the guidelines set out in this report.

There is a good deal of design advice offered in this good practice guide and it is consistent with the advice offered in other FA guidelines (discussed in full in Chapter 6).

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3. UK Woodland Assurance Scheme

In June 1999 the UK Woodland Assurance Scheme (UKWAS) was launched which represents a national standard for sustainable forest management. Certification is concerned with offering the timber buyer a guarantee that the products on sale have originated from a forest that employs sustainable management practices. It is a voluntary scheme which has to be administered by an independent assessor. The certification process sets criteria to judge the quality of management within a forest holding and indicators to assess on-going performance. By setting this base-line forest owners and managers are encouraged to raise the standard of their forest management.

Although it was conceived as an economic market-based instrument its objectives are to improve forest management and to improve the market share for products of such management. It is nevertheless inherently environmentally sensitive, socially aware and economically viable because sustainable management is the only route to certification. In November 1999 the FC led the way by receiving certification on the entire FE holding (performed by SGS Forestry). This undertaking represented a shrewd move in FE marketing but was also important in delivering the government's sustainability policy.

3.8.4.4 Summary of Monitoring Mechanisms

The government's current forestry strategy has set out a framework which exerts a much tighter control on forestry activity than in the past. It has achieved this by making the industry more openly and publicly accountable. The acceptability of planting proposals is controlled through consultation procedures and designation strategies, while the policy objective of sustainable management ensures forestry is environmentally friendly. The

importance of environmental and conservation issues are now given equal weight to other forestry interests at a planning level and the FA have introduced criteria and mechanisms that allow it to regulate the quality and nature of both private planting undertaken with grant aid and all work carried out by the FE.

The landscape design of forest and woodland plantations, particularly the visual aspects of the design is still very heavily controlled by the FA. The FA advice is concentrated in the design guidelines but further advice is also given in the forest standards and the forest design planning guidance notes. The assumption is made that the details of this design advice are appropriate, acceptable and environmentally sound. However in 2000 the FC announced that the FA is to introduce its own monitoring system to help report on and regulate the quality of the forest landscape designs that have been created or re-modelled using its own design advice.

3.8.5   Research and New Information

New information is constantly becoming available from both FC commissioned research and external sources (for example CoCo) which should have a significant effect on the future nature of forest planting. In particular, Declarations signed by the government and other European countries at the Pan European Ministerial Conference on the Protection of Forests in Europe (1998) in Lisbon, highlighted the social and cultural importance of forestry and the level of importance the forestry industry should place on public appreciation, consultation and community involvement in their forestry strategies.

The FC has responded to this prompt by initiating a programme of research (described in 1.3) intended to provide a better understanding of the social aspects of forestry which will produce new and relevant information for forest designers to work with. Research particularly into forest use and perception is already underway and planned projects will provide further insight specifically into uses and preferences of different visitor groups; the perception of landscapes; the perceptions of bio-diversity in forests; methods of encouraging access to woodlands and community engagement in forestry in relation to the England Forestry Strategy. As yet the findings of current research projects, for example the work on the design of woodland interiors undertaken at Heriot-Watt have not made any impact on the existing design advice, but at some point in the future this new information must filter into the design guidelines.

3.9   The Use of Current Forestry Policies and Strategies and their effect on the use of the FA's Forest Landscape Design Advice

Although planting is currently in the doldrums (1999/2000 timber prices have levelled off at the lowest levels seen for years) and the response to initiatives at present is disappointing, changes in policy objectives, initiative, incentives and controls, and hence the nature of forestry, have worked to sustain the importance of design advice. They are also likely to have changed the way the advice is being used because:

• the design advice is no longer important as a means of quality control or planning control over commercial plantations as the emphasis of the new initiatives is on multi-purpose use and environmental and landscape quality;

- Indicative Forestry Strategies are removing the need for design work to limit the impact of forestry in the landscape or to make inappropriate proposals acceptable;

- forest landscape design no longer needs to be used to improve and promote the FC's image as an environmentally conscious organisation as criticism has largely subsided due to the marked reduction in the blanket afforestation which accompanied tax-led investment; also environmentally friendly practices are now an objective and

- designers no longer have to place the emphasis on designing to 'integrate' forestry where new initiative planting (for example the National Forest) is intended to be a feature in the landscape.

The current nature of forestry activity in the UK, set out in section 3.8, suggests that the FA's design advice may now be required to:

- provide and communicate a more holistic approach to forest landscape design to meet the reinforced sustainable multi-purpose objectives;

- offer design advice that interprets the design implications presented by the Forest Standards;

- offer design advice to support the current FC initiatives, particularly where little existing advice was, or is, available including social and cultural aspects of design, landscape assessment techniques and the concept of landscape character;

- offer design advice which embraces the latest research in use, preferences and understanding of forest landscapes;

- offer advice that recognises and can incorporate the importance of current FC objectives in design terms, for example the design implication of the bio-diversity action plan;

- offer advice which can support and integrate with other professional advice available to those designing in the landscape;

- offer advice tailored to the needs of today's woodland designers who are likely to have a different training, experience and field of knowledge to the traditional FC forester, for example Groundwork staff involved in amenity planting and

- offer design advice which can give the best possible value for money in multi-purpose terms.

Whether the FC design guidelines are meeting these needs is discussed later in Chapter 6.

3.10 Conclusion: the Development of Design Advice in Relation to Government and FC Policy and Objectives.

The landscape of Britain has matured over many centuries. The formation of a state forestry agency was the start of an unusual, large scale land-use development, which brought about drastic visual and environmental changes to the landscape and highlighted public awareness of land-use issues.

The nature of the post war afforestation programme and subsequent forestry policy created a timber reserve that was drawing serious criticism of FC activities from public and professionals alike. The FC's prime motivation in introducing a landscape consultant and eventually design advice, was to improve its own image. However it is important not to underestimate the strength of feeling within the FC itself about landscape issues which steered the FC towards environmental awareness.

The advice grew in relevancy because government and FC policies and objectives continued to promote unacceptable landscapes and attract damaging criticism from an increasingly environmentally conscious public.

The design advice proved successful in quietening this criticism by making the face of forestry more publicly acceptable.

It is likely to remain important because, although recent government policy, FC objectives, initiatives and incentives have shifted the emphasis of forestry from timber production to multi-purpose use, forestry expansion is still a key objective. Forest plantations are still going to need to be integrated into the landscape but with wider understanding of landscape issues in design. The FC has introduced the need for more specialist but also more comprehensive information to provide design advice that reflects an understanding of this holistic approach to the management and use of multi-purpose forests.

The next chapter looks at the evolution of the Design Department within the FC.

CHAPTER 4 THE INTRODUCTION AND EVOLUTION OF THE FC'S FOREST LANDSCAPE DESIGN ADVICE: AUTHORS

4.1 Introduction

This section identifies those people who have been instrumental in the introduction and development of the design advice. It aims to establish their individual contribution to the nature of the advice by assessing in what way, if any, their training, experience, personal values or design theories have had a bearing on the nature of their design advice and records their opinions on how and why any future advice should develop.

The discussion section (4.7 - 4.7.5) considers the motivations behind the introduction and development of the advice and questions whether the evolution of the advice has been logical, coherent and responded to context, and if the issues raised in this chapter justify a critical review of the advice.

4.1.1. The Authors

In November 1995 interviews were conducted with the following individuals (all quotes are from these interviews unless stated otherwise):

Simon Bell, Forester and Landscape Architect. At the time of interview, Chief Landscape Architect for the Forestry Authority at the Forestry Commission Head Office in Edinburgh.

Duncan Campbell, Forester and Landscape Architect. Former Head of Environment for the FC and, at the time of interview, Head of Scottish National Heritage (now retired).

Oliver Lucas, Forester and Landscape Architect.   At the time of the interview Forest Enterprise Forest District Manager for Dorset Forest District in Wareham (currently Forest Planner for the Somerset and South Devon Forest District in Devon).

Gordon Patterson - Landscape Architect in private practice and Landscape Consultant to the Forestry Commission.

Gareth Price, Landscape Architect for Forestry Authority England at the National Office in Cambridge.

James Swabey, Landscape Architect for South and West England Forest Enterprise at the South and West England Regional Office in Bristol

These people were selected for interview because of their position within the Forestry Commission during the period when the advice evolved or because they have since made a significant contribution to the development of the design advice. They were identified by other FC staff and with reference to the literature review.

Dame Sylvia Crowe: Gordon Patterson advised against an interview with Sylvia Crowe on the grounds of her age and frailty.

4.2 The Inception of Forest Landscape Design: Sylvia Crowe, Landscape Consultant to the Forestry Commission 1963-1976

Sylvia Crowe was the first FC landscape architect. She was responsible for introducing design into the forest landscape and although her contribution to the development of the advice was relatively small it played a significant part in shaping the nature of the advice that followed.

When Crowe arrived at the FC in 1963, she was already a highly respected member of the landscape profession with a good deal of experience in large scale landscape development issues. Trained in horticulture, she moved into consultancy work for the strategic planning stages of the new towns of Washington and Warrington; for the landscaping for the Central Electricity Board's power stations and for various major road schemes. Crowe's first assignment with the FC was working with the forest managers on the re-design of the early plantations which had been established without consideration for the landscape. Her prime objective was to try to integrate these existing forests into the landscape and minimise the landscape change brought about by the FC's new plantations.

She was appointed to the FC at a time when their operations were receiving a good deal of negative publicity. People were becoming aware of the momentum of land acquisition, particularly in Northumberland and parts of Yorkshire and the severe impact of regimented ploughing furrows and single species plantations. She however held a very positive view of forestry: 'we must overcome the negative attitude to forestry, which looks at it as an unwelcome intruder' (Crowe 1969a). She was not afraid of land-use

change because she would not accept that change need necessarily ruin the landscape. She believed firmly in the relationship between form and

function and in describing her approach to forest landscape design argued that, 'as in all landscape design, the secret is to think through nature, to identify yourself with the landform and the climate and all the other factors which make a landscape what it is and to let the pattern of your land-use grow from this' (Crowe 1969b).

Crowe could see that forestry had the potential to make a positive contribution to the wider landscape, but only if it was recognised as a 'vital element' in the land-use planning framework. In order to achieve the greatest benefits from forestry she felt that forestry should exist within a strategy of multi-purpose land-use, advising, 'it is dangerous to develop one aspect of it without considering the whole. In the case of forestry any attempt to limit its function solely to timber production reduces the total value of forests as a national asset' (Crowe 1969c).

4.2.1 Constraints on Crowe's Approach to Forest Landscape Design

At times she must have found it difficult to reconcile these ideals with the FC approach to land-use and the environment, which appears divorced from other land-use considerations. Although she was well respected as a landscape specialist, her opinions carried little weight in the face of the forest policy or FC operations at that time.

Crowe's design philosophy, motivation, methods and her understanding of land-use issues related to forestry were, in today's terms, impeccable but the nature of her contribution to FC forest landscape design was constrained by three main factors.

- Forestry Commission Policy

Landscape design was regarded as a low priority objective. The FC was not particularly interested in a total review of its policies related to the environmental implications of its activities. Rather it needed to display only 'due regard' (Zuckerman 1957) for the landscape and the environment which could be achieved through superficial concessions to forest design.

- Crowe's remit

The nature of Crowe's remit made it difficult to design forests in the holistic way she advocated. The FC's existing forests presented her with a 'damage limitation' exercise where she could only hope to make minor environmental improvements through the re-design of badly laid-out plantations. The advice she developed did manage to achieve both visual and ecological improvements to these plantations but the industry's choice of location, species, planting density and establishment techniques severely limited what she could ever hope to gain for the environment.

- The scale of the FC's operations

The scale of the FC's activities also limited what Crowe could achieve as a lone landscape consultant. The number of schemes where she could indulge her multi-purpose design objectives were limited to a few show piece forests, and the rate of forestry expansion made extending this approach impossible. As a consequence she was never going to be able to do more than scratch the surface of the FC's problems.

4.2.2   The Nature of the Design Advice

One of the most important aspects to emerge from Crowe's early design advice was the emphasis she placed on visual design. This approach was to have a

significant influence on the nature of the subsequent design guideline advice and is likely to have evolved for four reasons.

• One of the chief motives for the introduction of the advice was the FC's attempt to address criticisms of its operations. The nature of the advice that developed reflected the nature of the pressure to which the FC was being subjected. Reliance on a visual design response was almost certainly related to the concerns being voiced (by for example the CPRE) over the visual appearance of its upland afforestation.

• Government policy obliged the FC - and indirectly Crowe - to consider the visual impact of its operations. 'The Commission, in preparing its future programmes, will bear in mind the need, wherever possible, to provide public access and recreation, and will devote more attention to increasing the beauty of the landscape' (1963 ministerial statement on forest policy)

• Crowe's main objective was to integrate forestry into the landscape. Given the scale of her work load and the constraints on her approach, a visual design technique was probably the most efficient and successful, if not only, way of achieving these objectives and

• although Crowe held the view that form and function should be inextricably linked in design, she also believed that if a landscape looked right it was likely to be ecologically healthy, 'and how often it turns out that what looks right, is in fact right for the landscape's total health' (Crowe 1969d).

4.2.2.1 Crowe's Design Advice.

Crowe's design advice is set out in <u>Forestry in the Landscape</u> published in 1966. The advice seems particularly applicable to planning and integrating

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large scale plantations into the wider landscape and is based on the recognition and understanding of the visual landscape character of a site, Crowe states: 'it is only when this individuality *(character)* is appreciated that forestry can be developed into a good landscape attuned to its locality' (p31).

Crowe defines visual landscape character as being influenced by:

* landform and the scale of the landscape;

* existing type and pattern of vegetation and land-use and

* the colour of local soil, rock and structures

These three factors she believes will determine the extent and form of an acceptable forest landscape. Her design process is to first identify the visual pattern created by shapes, lines, colours and forms in the existing physical and visual landscape. She then uses this pattern as a cue to integrating forest planting. Crowe, in effect, draws on the landscape, primarily responding to the two dimensional quality of that landscape

Crowe key objective is to visually integrate planting into the landscape and she considers scale and ratio of plantations to be the most important factors in this relationship stating: ' the successful introduction of forestry into any landscape is the maintenance of an acceptable balance between planted and open areas' (p8).

Her design strategy uses the colour and tone of different tree species to reinforce the patterns and forms in the landscape, she suggests designers use planting to 'accentuate the modelling of the hills, by relating it to the contours and so giving rhythm to land forms'. She also suggests that lines on

the landscape formed by plantation boundaries or forest rides and roads can be successfully integrated into the landscape by tying them into the existing landform or land-use pattern, so for example straight lines are acceptable on lower slopes where forestry meets valley field patterns. The same approach is suggested to help designers integrate forestry operations, for example felling coups can be made less conspicuous by designing their shape to compliment the established landscape pattern.

Although Crowe's advice is strongly visual it is important to remember that she believes that if a landscape looks attractive it is very likely to be ecologically healthy. She values the use of broadleaf species for both their visual and wildlife importance and recommends changing species to suit variations in soil type, as in this way the landscape pattern forms a relationship with the landscape's physical character. However with the constraints placed on her designs by forestry objectives Crowe was probably aware that she was likely to have more success getting the purely visual aspects of her advice implemented.

The tone of the advice in this report is low-key, general and, she states, intended for guidance only.

4.2.3   The Introduction of Design Staff to the FC

During the early years Crowe spent much of her time travelling from site to site sketching ideas and giving advice to forest managers on the felling and planting of individual proposals. She faced an uphill struggle convincing foresters of the value of her design suggestions. In order to achieve environmental benefits foresters were often asked to leave areas unplanted and therefore unproductive; fell aesthetically poor plantations prematurely or plant mixes of species including Alder, Oak and Ash which would never be

productive. These concessions to the environment resulted in a reduction of the timber quality and yield and made the foresters' objectives more difficult to fulfil. But, as Oliver Lucas observed: "Sylvia had the strength of character and integrity to actually insist that these things were done properly and she also had the ability to charm, to sway foresters when she met them and with her quick sketches to illustrate what she meant. She made no apology for good landscape as far as she was concerned it was taken for granted that it must be. Whereas other people when confronted by financial consequences might have hesitated, she was absolutely clear".

Although her advice was often unpopular with foresters she had earned a great deal of respect within the industry. By the late 1960s and early 1970s, it was clear to Crowe (in her reports to the FC) (Campbell, personal communication) that she could not, as a one person band, cope with the design work-load, estimated by Campbell as around 2-3 million acres of FC planting plus private woodlands all of which were coming up for felling. She had become aware of the need for a more strategic approach to offering design advice and managed to persuade the FC of this. Crowe was instrumental in convincing the FC of the merits of training their own design staff.

4.2.4   Summary of Crowe's Contribution to the Design Advice

By the time of Duncan Campbell's appointment as the FC's first landscape architect in 1975, Crowe's contribution to the introduction and development of design advice could be summarised as follows:

- Sylvia Crowe managed to convince a sceptical FC and its staff that landscape issues should be taken seriously and could work for, rather

than against, their organisation. She also managed to give the landscape profession some status within the forestry industry

- she persuaded the FC of the merits of training its own design staff and, in doing so, laid the foundations for today's FA design team

- she initiated the visual design approach to forest landscape design which has directed the nature of the subsequent advice.

4.3 Duncan Campbell

While it is important not to underestimate the contribution of Sylvia Crowe to the promotion and understanding of landscape issues and design advice related to forestry, it appears that Duncan Campbell should be given credit for establishing the design team and developing the FC design advice; advice which is largely unchanged 20 or so years later and is considered by many people to have stood the test of time and change in the forestry industry.

4.3.1 Crowe and Campbell

Campbell was known for his pragmatic approach to design. Prior to retraining as a landscape architect he was already dissatisfied with the existing FC designs: "they were far too regimented and geometric and monochrome and that, by and large, they conflicted with landscape qualities rather than enhanced it" (Campbell). As a Forest Officer Campbell first encountered Crowe during her introductory tours in the mid sixties. They worked closely together and shared and developed the same views on design in the landscape: Campbell names Crowe as the person who has had the greatest influence on his work. Lucas says of the relationship: "Duncan made the link between Crowe's great intuitive flair for responding to the

landscape, while Duncan could organise and articulate that into something that we could all share".

4.3.2 Campbell's Objectives

Campbell trained as a forester at Edinburgh University in 1954 and then worked as a District Forest Officer until the early 1970s. When Crowe called for help with her work- load a scheme was planned whereby all Forest Officers, (now Forest Managers) would attend a specially designed course at Newcastle University. The idea however, which would have involved the training of around 700 officers, was rejected in favour of sending one officer to the University. This officer, once successfully re-trained as a landscape architect, would return to convey the new messages about landscape design to the FC's foresters and, it was thought, would probably do so in a more acceptable manner than anyone from outside the organisation. Campbell was selected to join the Masters course in Landscape Architecture in 1973 with Crowe as his mentor.

Campbell took the challenge very seriously. He was well aware of the design problems he would face on his return and knew that the onus was on him to provide a solution. He felt under enormous personal pressure to learn as much as he could and be able to communicate this knowledge. He said of his assignment: "I had to be able to get a product through a process analysis and I suppose from my part coming up from a scientific background where logic and analysis and rational explanation *(form the basis of any project)* I felt that really quite acutely".

For the FC, Campbell's training was a problem solving exercise. It had taken Crowe's advice and opted to retrain one of its own members of staff. Campbell was a forester with a good deal of forestry experience who understood the problems that the FC were encountering. He was already familiar with

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Crowe's techniques and, like Crowe was pro-forestry in a increasingly anti-forestry climate. It made perfect sense to select Campbell for retraining but it had the effect of introducing an element of bias into the guidelines which were to develop. How could a designer develop a balanced view of forestry as an element within the context of the wider landscape when his objective put the emphasis so firmly on forestry interests.

4.3.3   The Development of a Design Vocabulary

Although Campbell made a conscious decision to study widely on the MA course, his objective was clear and producing a practical solution to the FC's problems was his primary motivation. Campbell decided his priority was to establish a vocabulary of design terms with which he could communicate design ideas to non-designers. He needed to be able to talk more objectively to foresters in forestry terms about landscape design.

At this time (1973-1975) landscape design courses were still in their infancy. Campbell spent two years at Newcastle but was disappointed at the syllabus: "A lot of us had some frustration I think, getting hold of what design actually means" but he latched on to the ideas in Lillian Garrett's book, <u>Visual Design: a problem solving approach.</u> (1967) which he felt provided the "only rational explanation on a whole range of the vocabulary". In the absence of any other reference point, Campbell adopted Garrett's visual design language as his communication tool and used her aesthetics-based principles to find acceptable design solutions for afforested landscapes.

4.3.4   A Theoretical Framework for Forest Landscape Design

In the late 1970s, Campbell returned to start training other foresters in the field. He understood the mentality of foresters and knew that to satisfy them he had to produce a convincing theoretical framework to justify his advice.

As he explained: "in the early days it was as much about being taken seriously as being able to make yourself understood". He describes foresters as dedicated people in the technology of forestry who got a 'buzz' out of maximising everything, and felt it was important that foresters understood what they were being asked to do. He wanted to teach foresters to think in a holistic way, "to think how, in being efficient in planting new ground and wood production they could still take account of landscape and nature conservation, recreation and enjoyment".

The theoretical framework which evolved was therefore heavily influenced by two factors:

- the need to solve the FC's problems with the visual appearance of their plantations and
- the need to help foresters understand the concept of design.

As a consequence Campbell's design theory developed an unusual form. He used Garrett's visual design vocabulary to explore the concept of forest design but the guidelines that emerged suggest that the visual design vocabulary became the design theory. The use of this particular, single source of information in effect placed the emphasis of the advice firmly on a visual design approach and reinforced the essentially visual approach initiated by Crowe. It was an approach that did not allow due weight to be given to the physical relationships between forestry and the wider environment for example the relationship between natural process and land use.

4.3.5 The Introduction of the FC's Environment Section.

Although the FC's motivation in developing a design team was driven by the need to improve its environmental image rather than by a desire to achieve

state of the art forest landscape design advice, Campbell was getting some support from senior management. George Stewart was a Forestry Commissioner whom Campbell described as an "excellent patron" and "someone who had a feel for natural beauty and saw politically the need for change". Stewart and Campbell drafted the first landscape policy document SM 45 Landscape Design in 1976 (an internal document) which reflected the FC's willingness to take landscape issues seriously.

Senior management were also persuaded to recruit another member of staff after the good press which followed the re-design of Keilder Forest. In 1976 Oliver Lucas was sent to Manchester University on their Diploma in Landscape Design course and joined Campbell's team in 1978. Later Simon Bell re-trained at Edinburgh University and joined the team in 1983. In the early 1980s, Campbell was promoted to head of the newly formed Environment Section, with control over landscape and recreation; graphic design and interpretation and nature conservation. The FC gave the new team "carte blanche" to develop design advice in their own way.

4.3.6   Working in Isolation

The Environment Section took on a life of its own, working, it appears, detached from policy decisions and without links to outside organisations. Campbell was aware of other forest design work in the US (on computer technology in forest design) and the in Netherlands (on planning approaches to forestry) but believed that, in Britain, they were alone in trying to establish what the landscape required in rational terms. "I felt that we were on our own so, rightly or wrongly, arrogantly or otherwise we ploughed on". Campbell developed internal design training courses which provided a testing ground for new ideas but, as he explained, the demand for their design advice was such that principles were being devised and implemented straight away, because it was the only way to proceed in a

situation where the results of the advice could not be judged for decades.

Campbell and his staff were highly motivated and totally sincere in their work. They believed that their designs provided the best possible solution being constrained, as they were, by the same policy problems that Crowe had experienced. One of the problems with working in isolation was that as the design advice that developed became divorced from the functioning wider landscape. Campbell laid the emphasis of his approach on visual design to the extent that: "As a team we were entitled to make things as beautiful as possible and it was our obligation not to make them ugly regardless of the functional restraints".

4.3.7   Dissemination of Ideas

Campbell had succeeded in pulling together a "strong team". He was central to the development of the early advice but supported to a great degree by Crowe, Lucas and Bell.

The Consultants, successively Tandy (1976) and Patterson (1981), while having no managerial roles did play an important part in supporting the design team and contributing to the advice. Every six months they would make a tour of the Commission's plantations, monitoring the progress of design projects and reporting back their views. Like Crowe, both consultants were experienced, well respected landscape designers and both were equally convinced by the direction the advice was taking. By the late 1980s the team had come to a point where it had developed, exposed and honed Campbell's principles and arrived at what it considered were design principles which would promote a robust forest design in any landscape.

Although the team worked together on testing Campbell's principles, Campbell gives Bell and the Consultant, Patterson credit for much of the work

on lowland landscape design, and Lucas credit for work on ploughing and drainage design. Lucas was also given the task of writing up these new ideas into the FC's book The Design of Forest Landscapes (1991) and later Bell produced a more comprehensive version of Garrett's visual design principles related to the landscape, 'Elements of Visual Design in the Landscape' (1993). Both books were edited by Campbell.

4.3.8 Summary of Campbell's Contribution to the Design Advice

Campbell left the Commission in 1987. James Swabey described him as a figurehead for the landscape profession in forestry who was nationally respected. His contribution to the development of the design advice can be summarised as follows:

- he developed a design language to communicate design ideas to non-designers

- he developed a visual design theory for designing forestry in the landscape

- he introduced the FC's design courses

- he produced the FC's first landscape policy document

- he published advice on forest landscape design

- he established a design team within the FC

4.4 James Swabey

James Swabey qualified as a landscape architect at Manchester University in 1977. He brought to the FC much needed experience of social and urban

fringe design issues having worked in local authority on new town and urban fringe schemes for nearly ten years. In 1984 he enrolled for the MSc in Natural Resource Management (forestry option) at Edinburgh University and joined the FC in 1986.

4.4.1   Social and Cultural Issues

During his time at Edinburgh University, Swabey contacted Campbell with a view to joining the Commission. At that time Campbell was interested in the emerging concept of 'landscape evaluation' and suggested Swabey should write his MSc thesis on landscape evaluation techniques with reference to forestry. Swabey took this advice and produced the thesis. His research concluded that the 'landscape evaluation' scene was so fragmented that, as yet, nobody had the answers but he did believe that to move forward a better understanding was needed of people's perception of forestry in the landscape. Campbell picked up on these findings and was prompted to commission the research that led to Terence Lee's 1990 report 'Attitudes towards and Preferences for Forestry Landscapes'. This was a significant move in the design team's appreciation of the social and cultural issues connected with forestry in the landscape.

Swabey started work for the FC in Edinburgh under Lucas learning forest landscape design. He then moved to the South West Conservancy doing both FE and FA design work for the south west of England and in Wales. Looking back, Swabey says that in coming from a design rather than forestry background, he reflects a different, more practical approach to design. Although Swabey is convinced by the quality of existing advice and the usefulness of the visual design principles he is not necessarily convinced by the heavy emphasis on the visual design approach promoted by the original advice.

4.4.2 Recognition of the Importance of the Design Process

Swabey considers the two strongest aspects of any forest landscape design are the visual design language with which to communicate design ideas and the design process. He considers the design process to be the key to successful design: "I don't think they quite realise the enormity of the design process and its long term influence and how robust it is, the decisions designers make are very, very fundamental to the countryside, for a long, long period of time". Swabey was responsible for the inclusion of advice on the design process into the lowland design guidelines.

4.4.3 Promoting Landscape Assessment as an Element of the Design Process.

The nature of Swabey's work changed direction in the late 1980s when the damage wreaked by the gales of 1987 together with opposition to schemes proposed in the Flow Country led to an interest in strategic forestry planning. Swabey became involved in the development and preparation of the new Indicative Forestry Strategies being produced by Staffordshire County Council. In particular he joined forces with Stephen Warnark from Land Use Consultants to produce a "state of the art" approach to landscape assessment which was intended to support the IFS document.

He was convinced by the merit of this work and considers that the start of any strategy should be through a landscape assessment and that this is an important stage in the design process for forest landscapes. He described the value of being able to identify key elements which describe a landscape as "cranking down a grain from the guidelines, allowing the designer to get very specific within a local landscape and see exactly where it is possible to successfully integrate forestry". Some of these ideas influenced the contents of the lowland advice.

In the 1992 FC re-organisation, Swabey's dual role as landscape architect for both the FE (Wales) and the FA (South West Conservancy) was ended and as he remained with FE he lost the work on IFS's which passed to the FA. It was then picked up by Gareth Price (Landscape Architect, FA England) who completed the project and produced the FA's Landscape Assessment for Indicative Forestry Strategies.(1993)

4.4.4   Lowland and Community Woodland Design Advice

Much of Swabey's early work involved disputed grant cases. This work took him out into the field where in meetings with landowners and land agents he became aware that the design guidelines were not necessarily appropriate in all cases and he recognised that some lowland landscape issues were significantly different from those in the uplands. His observations were key to the introduction and nature of advice specifically for lowland and community woodland situations and he worked with Bell on the contents of the lowland advice Lowland Landscape Design Guidelines (FA 1992).

4.4.5   Summary of Swabey's Contribution to the Design Advice

Swabey's contribution marked a move away from the constraint-led approach of his predecessors, and his work led to significant changes to the traditional advice. He brought to the FA a fuller understanding of the importance of the forest experience and a more strategic approach to the forest landscape design process. His contribution can be summarised as follows:

- Swabey encouraged the appreciation of public perception and social issues in forestry and in the design of forest landscapes

- he argued for a heavier emphasis on the design process in finding design solutions

- he pressed for the inclusion of landscape assessment in the guideline's advice

- he acted as a catalyst for the introduction of lowland advice

- he contributed to the contents of the lowland and community woodland reports.

4.5   Simon Bell

Simon Bell started his training with the Commission as a forester in 1979. He returned from the Edinburgh Landscape Design course in 1983 and practised forest design under Lucas until the arrival of the first batch of landscape architects, James Swabey, Maggie Gilvrey, Alison Grant and Liz Macintosh, who joined the team between 1986 and 1989. During these years the expansion of the design workload had led to the original design team concentrating on different aspects of the work. This was then formally separated to address three main areas: Campbell was concerned with continuing policy and practice development; Lucas with operations and practice on the ground; and Bell took over the design training courses.

4.5.1   Development of the Design Training Courses

During the late 1980s, with forestry booming the pressure on the design training courses expanded dramatically . Bell was eventually running three different courses for both private and public individuals on Upland Design, Lowland Design and Design for Community Woodlands. The training courses introduced students to the visual design principles and took them through the design advice where discussion and comment was welcome. These courses had always been seen as the proving ground for exploring and

testing new ideas so, by specialising in training, Bell became the person at the forefront of developing design advice on Campbell's departure. Bell played a major part in the development and testing of the lowland and community woodland guidelines. These introduced the first changes, both in content and format, to Campbell's original advice.

4.5.2   Sustaining the Visual Design Approach

Bell was and still is, totally convinced by the merits of the original advice, and Campbell's Visual Design Principles remain the backbone of all new advice. The nature of the subsequent advice has been coloured by a response to developments in the industry and the needs of designers but it has also reflected to a great degree Bell's personal values and interests.

While FA research and development over the last decade has moved in the direction of a more holistic approach to making FC operations environmentally friendly and functionally integrated into the landscape, (with work for example on sustainability, biodiversity, strategic countryside planning and conservation management proposals, forest use and perception), Bell has continued to approach forest landscape design with the emphasis on creating 'beauty'. He believes his prime motivation is to increase the beauty of the landscape with his main objective being to develop design advice as a "process for changing an existing condition into a desired condition" an objective which harks back to a time when rectifying the appearance of poor forest landscapes was a priority.

Bell professes a personal interest in art, graphics and ideals of beauty in the landscape. He talks about the landscape in terms of logarithmic spirals; balance and proportion; the golden section and with reference to the landscapes of Brown and Kent. He describes his understanding of the visual

landscape in reductionist terms, breaking down landscapes into their consistent building blocks. He explains: "Pattern analysis is a personal developing interest of mine, pattern is the key to understanding landscape character... all things have a fundamental pattern" but he denies the suggestion that this implies a two dimensional approach to landscape design.

Bell readily acknowledges the significance of function, perception, ecology and the social and cultural issues concerned with forest landscape design. He justifies the emphasis the original and current advice places on the visual design approach by explaining, "people care a lot about the way we see our surroundings and the visual quality of those surroundings" and "we make all sorts of judgements about things on their attractiveness" . The visual quality of our surroundings seems therefore to be Bell's principle concern.

4.5.3   The FA Approach to Forest Landscape Design

The original advice has never received a thorough review despite the major changes to forestry policy; objectives; initiatives and incentives since 1988. Bell believes a total review is unnecessary because the advice has proved unquestionably successful and has now "got beyond the critical response". The FA design courses have succeeded in training virtually anyone with any interest in forest design from local authority to Groundwork Trust staff, and are now considered "the accepted way to do things". The majority of those interviewed agreed that the advice had gone as far as it can in its present form: Bell feels they have "matured current approaches to design" and that "now it's more of a refinement". The most obvious way forward in the near future, as Bell sees it, is to offer more advice that addresses specific issues, as, for example his latest forestry practice advice note on Woodlands in Designed Landscapes (1995).

4.5.4   Future Advice

Bell left the FC in 1999. For a considerable period of time he was able to direct the focus of the design research which guided the development of design advice and it appeared likely that his personal theories and interests would continue to have a significant influence on the nature of future advice but this situation now seems unlikely. With the present emphasis firmly on the multi-purpose benefits of forestry there are many more factors that need to be taken into account when designing the forest landscape. The proposed programme of FC research into the social aspect of forestry should, in time, produce information that will have significant implications for the design of forest landscapes. It is too early to say whether these findings will result in a review of current design theory or practices, or whether, as in the past, any changes will simply be bolted on to the existing advice. Nevertheless aesthetics in forest landscape design will remain an important issue.

Bells work within the commission is now concerned with the international scene and he has been involved in work in Canada and the US looking at the form of natural forests. By studying these forests he had hoped to be able to define the visual factors that indicate 'naturalness' in afforested landscapes and go on to offer visual design advice which can recreate these 'naturalness' factors in British plantations. He has also considered the dynamics of natural systems and processes, with the intention of relating the visual aspects of these dynamics to design. His aim was that by identifying the ecological processes which help to define the evolution of the landscape, he could move towards a more convincing relationship between ecological process and visual form in forestry through design; as yet however, this work has not had any impact on the existing guideline advice.

4.5.5 Summary of Bell's Contribution to the Design Advice

Simon Bell's contribution to the development of the design advice can be summarised as follows:

- Bell continued the development of forest landscape design theory through the design training courses

- he has sustained the emphasis on a visual design approach to forest landscape design

- he (together with Swabey) was responsible for the development of Lowland and Community Woodland Guidelines and the for the content and format of the 1991, 1992 and 1994 guideline publications

- Bell has promoted FC's design advice both nationally and internationally

- he initiated research to support the further development of visual design advice and the relationship between this and the ecological process.

4.6 Factors which have Contributed to the Nature of the Existing Forest Landscape Design Advice

The current design guidelines date back to 1992 with the addition of one practice note in 1995. The design advice that exists today owes a great deal to the original advice offered over thirty years ago and can be attributed to a small nucleus of key individuals working within the FC. Crowe and Campbell together established the theoretical framework to support the advice while Campbell was responsible for the design vocabulary and the nature and content of the initial advice. It was then developed, tested and disseminated under Campbell's supervision with the help of the Commissioner, George Stewart, the consultants Crowe, Tandy, and Patterson and with significant

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contributions from Lucas, Swabey and Bell. This section has looked at the individual contribution of those who have had a strong influence on the introduction and development of the advice The following factors have had a significant bearing on the nature of the advice that has become established:

- the approach to forest landscape design within the FC was always constrained by the terms of government and FC forestry policy

- the design theory and resulting advice was developed internally and in isolation with little reference to other land-use interests or external professional comment. It also relied heavily on a single source of inspiration (Garrett)

- those responsible for developing the advice represent a highly motivated and sincere group of people who have developed an unshakeable belief that their approach to forest design is right, appropriate and coherent. They all agree that the advice offered is workable and robust

- a visual design approach to forest landscape design has been consistently promoted

- those responsible have, to an extent, responded to trends in landscape design development with the recognition of the design process in forest landscape design, the importance of landscape assessment and the recognition of social issues related to forest experience. They have, to an extent, also responded to changes in forestry policy, FC objectives, initiatives and incentives by introducing and developing further advice for different landscape types

- their forest landscape design advice has been published and promoted widely, both nationally and internationally and training courses have been developed for both public and private groups.

4.7   The Case for a Review of the Guideline Advice

Chapters 3 and 4 have traced the evolution of the FA's forest landscape design advice and attempted to identify the factors which have shaped the introduction, development and nature of the advice offered in the guidelines. The following discussion establishes the case for a review of this advice.

4.7.1   The Strong Forestry Bias Attached to Design Advice

Section 3.3 of chapter 3 concluded that, during the period when the design advice was introduced, government forestry policy and objectives appeared arbitrary, weak and illogical and failed to take into account basic land-use or environmental issues in its strategy. Early policy was driven by market

forces and a strong pro-forestry lobby and weighted against the environment, in favour of forestry expansion and timber production objectives. The poor forest landscapes which resulted failed to reflect forestry's full potential as an element in the wider pattern of land-use and were often established to the detriment of other land-use interests. The designers brought in to tackle the FC's landscape problems were faced with a 'damage limitation' exercise on existing plantations and with developing advice which could not avoid having a strong bias in favour of forestry interests.

4.7.2   A Weak Theoretical Framework

One of the problems with Campbell's theoretical framework is that it evolved in response to the need to communicate the concept of landscape design to foresters, which then developed into design advice aimed specifically at finding visual design solutions to solve the problem of the FC's ugly plantations. However, any theory which develops in response to a specific

problem with the aim of addressing such a problem is unlikely to establish a balanced theoretical framework. Campbell's reliance on a single source of inspiration (Garrett) for his advice also raises doubts as to the thoroughness of the exploration of ideas to support a sound design theory.

4.7.3 Bypassing the Landscape Design Process

The design process exists to encourage designers to consider all landscape issues related to a land-use development - including afforestation - in balanced rational terms. A design which can successfully communicate the relationship between form and function offers a landscape integrity: this is the relationship which has through time been responsible for the creation of much of Britain's valued landscape.

In the case of forestry, the FC offered it's designers design objectives which were not related to the FC's own land-use objectives. This situation made it impossible for the designers to relate form and function as they would in reaching a design solution through the normal design process. In developing his advice Campbell's only option was to run the design process from independent objectives, in this case to improve the FC's image and increase the 'beauty' of the landscape, a situation which could not allow equal weight to be given to all the issues involved in forestry development.

The design advice, as a result, was forced to developed a visual design approach simply because forest landscape designers, at this time, had no control over any other aspects of forestry development, for example they could not dictate species mix, planting density or plantation size.

When Crowe and Campbell developed design advice with an emphasis on a visual design approach they were responding in a logical way to the

constraints FC policy and objectives forced on them. However this emphasis on a visual design approach does raise some questions:

- is placing the emphasis on a visual appreciation of the landscape in the best interests of the environment?

- Does a visual design approach create the most successful landscapes when people experience the environment in many different ways?

- A visual design approach may lead to highly subjective decisions on the attractiveness of landscape - who is to say what constitutes a beautiful landscape?

4.7.4   Problems of Advice Developed in Isolation

Even though both the initial design theory and subsequent advice was developed by a team of highly motivated and sincere professionals it suffered from the disadvantage of being developed in isolation. Although in the 1960s and 1970s the FC's designers were alone in exploring the concept of forest landscape design they avoided entering into discussion with related organisations such as the Countryside Commission, other professionals or academics and proceeded to develop their ideas without reference to other design concepts or land-use interests. In fact the initial theory and advice developed almost totally unchallenged, a process which may cast doubts on whether the current advice, which has remained remarkably consistent through the years, is relevant today and able to address the current needs of both the wider environment and the user.

4.7.5   The FA's Resistance to a Review of the Advice

In the past the uncooperative and competitive nature of the FC's relationships with other organisations has made dialogue awkward and, where the advice came up against professional discussion, all criticism has

been firmly rejected. A situation where ideas are not open to challenge could be seen as illogical, unprofessional, even arrogant and not in the best interests of the environment or public. Despite this lack of communication with outside interests the design team was satisfied that the developing advice was being rigorously tested and monitored through the FC's design training courses. However these courses do not appear to be an ideal testing ground. A situation where relatively uninformed and uncritical forestry students were asked to question accepted ideas from highly respected and well versed tutors is more likely to lead to an affirmation than an informed and critical discussion.

Among the FC interviewees there was little interest in reviewing or revising the guidelines. The design team was still convinced by it's approach to, and advice on, forest landscape design. The apparent success in achieving it's objectives must have reinforced the assumption that the design advice was appropriate. But as the design theory appears to have grown out of the FC's design objective, and the design objective carried a forestry bias, there is perhaps room to question the theoretical framework underpinning the advice and the design guidelines which have been developed from theory.

4.8 Conclusion

Although the FC's design advice has reached a point where it is widely accepted, this section has argued that the existing advice has been developed in a way that is likely to have made it biased, incomplete and divorced from other land-use interests. The fact that it has never been seriously challenged or rigorously tested must justify a critical review of the guidelines.

The circumstances which led to the introduction of design advice and which have influenced the development of the contents have altered considerably in recent years. Changes in forestry policy and objectives since the 1988 budget have succeeded in eradicating the unacceptable forestry practices and landscapes of the 1960s, 1970s and 1980s. The move to more balanced multi-purpose forestry objectives has led to a change in the nature of British forestry and this change offers the opportunity and justification to reappraise the nature of the FC's design advice.

The next section looks at the contents of the current guidelines in detail and assesses whether the advice appears comprehensive, relevant, appropriate, consistent in tone and content and whether it has developed with context.

CHAPTER 5   THE CONTENTS OF THE FA'S DESIGN GUIDELINES

5.1   Introduction

Chapter 5 sets out to record and evaluate the content and nature of all woodland design advice offered by the FA, both past and present. The analysis is divided into two parts:

Part 1 of the analysis (section 5.3) compares the amount and type of advice between reports.

Part 2 of the analysis (section 5.5) looks in detail at the nature and content of the advice.

This information is then used to establish whether the current FA design guidelines offer logical, balanced, forest landscape design advice which has responded to context and changing user needs. The chapter concludes by setting out the issues raised by the content analysis. These issues are further discussed in chapter 6, the Critique, in order to determine whether the advice offered is appropriate and sound.

5.2   Summary of Methodology

Although there is a small amount of forest landscape design advice in the FC's general literature the details of this advice are generally consistent with that given in the FA's forest landscape design guidelines. (The exceptions exist in the FA's UK Forestry Standards (1998) described in Chapter 3 section 3.8.4.3 and

these additions and changes are discussed in the Critique, Chapter 6, section 6.9).

The six reports reviewed therefore represent all the significant forest landscape design advice that has been available over time.

The guideline reports reviewed are:

- Forestry in the Landscape 1966

- The Landscape of Forests and Woods 1978

- Forest Landscape Design Guidelines 1989

- Community Woodland Design Guidelines 1991 (CW)

- Lowland Landscape Design Guidelines 1992 (LLD)

- Forest Landscape Design Guidelines 1994 (FLD)

5.2.1   Content Analysis.

For the purpose of this analysis the following variables were established for comparison:

Upland reports - 1966, 1978, 1989, 1994. These reports were all intended to give advice on forest design in upland plantations and their contents can be compared with one another and also over time.

Lowland reports - 1991 Community Woodland Design and 1992 Lowland Landscape Design reports were both intended to give advice on woodland design in lowland areas but with different objectives, their content can be compared but not over time.

Upland and Lowland advice - the 1989 and 1994 upland reports can be compared with 1991, 1992 lowland reports because the advice has been offered over a commensurate period of time.

Key statements relating to each aspect of the advice are summarised and recorded in table form. The analysis is categorised into three sections which represent the basic framework for any design advice; Design Theory, Design and Planning Process and Design Practice.

The advice is then discussed with reference to:

- the development of upland advice over time
- differences between upland and lowland advice
- differences between the variety of lowland advice

5.2.2   Categorisation of the Contents of the Guidelines

For the purpose of this the following criteria were used:

Design Theory (section 5.5.1)

- Design Principles:
  Text offering definitions of forest landscape design, discussing the 'nature' of forest landscape design and those fundamental beliefs and principles that form the basis of the advice, for example, notions of 'landscape character' and landscape 'health'.

- General Design Objectives:
  Advice concerned with those design objectives forest landscape design should aim to achieve, for example, naturalness, habitat diversity, recreational opportunities, increased beauty.

- Visual Design Principles:
  Advice which defines and promotes a visual design approach to design solutions, for example, the use of shape, visual force, unity, scale, diversity and 'spirit of the place', including the design techniques of 'interlock', 'coalescence'.

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Design and Planning Process (section 5.5.2)

- Design Process

  The description of the design process, it's content and sequence

- Design Concept

  Advice offered on developing the design concept or vision and including sources of inspiration and suggestions.

- Site Survey and Appraisal

  Advice on site analysis process detailing the scope and contents of the survey and including advice offered on the collection, classification and analysis of information related to the existing physical, visual and cultural landscape prior to design.

- Public Consultation

  Advice on raising public awareness and participation; information on people's preferences and perception of woodland.

Design Practice (section 5.5.3)

- Design for Integration

  Advice where the main objective is to integrate woodland and forestry operations into the landscape and with local character.

- Design for Recreation and Amenity

  Advice on using woodland planting to improve scenic value, for example, masking pylons and enhancing roadside views. Also advice on designing recreational facilities, for example, footpaths, children's play areas, car parks, structures, buildings, bridle-ways and picnic areas.

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- **Design for Nature Conservation**

  Advice on the creation and conservation of habitats, for example open water and glades, including the preservation of landscape features such as ancient trees and hedgerows.

- **Forestry Techniques and Operations**

  Design advice on practical issues such as management systems and species selection for particular woodland types.

- **Design for Reclamation**

  Advice offered on the design for derelict industrial sites, disused railways, open-cast coal mines, gravel pits, quarries and refuse disposal sites.

5.3 Analysis (Part 1): The Balance of Advice (Tables 5.1-5.2)

The first part of the analysis considers the emphasis placed on each subject represented in the advice. For this stage the guideline contents are categorised by the amount of advice given (measured as the total number of pages, both text and illustration, devoted to each topic) and the results entered on to two tables:

Table 5.1 records figures for

- Upland advice over time, (1966, 1978, 1989, 1994).

Table 5.2 records figures for

- Upland (1989-1994) and Lowland advice (1991, 1992).

The information collected is analysed by comparing the amount and type of advice in relation to the following questions:

*   how has the advice developed over time? (Tables 5.1-5.2)

*   how does the upland advice differ from the lowland advice? (Table 5.2)

*   how does lowland advice differ between reports? (Table 5.2)

5.3.1 Subject Emphasis in Upland Reports Over Time

Table 5.1: The Development of Uplands Advice Over Time

		Total number of pages devoted to each topic									
		Uplands Advice									
		Reports									
		1966		1978		1989		1994		All	
Category	Topic	num	prop	num	prop	num	prop	num	prop	num	prop
Theory	Design Principles	3	0.1	3	0.6	0	0	0	0	6	0.3
	General Design Objectives	0	0	1	0.2	1	0.2	1	0.2	3	0.2
	Visual Design Principles	0	0	0	0	5	0.8	5	0.8	10	0.5
	Theory total	3	0.1	4	0.1	6	0.2	6	0.2	19	0.2
Process	Design Process	0	0	1	0.1	0	0	1	0	2	0.1
	Public Consultation	0	0	0	0	0	0	0	0	0	0
	Survey /Appraisal	0	0	10	0.9	1	0.1	1	1.0	12	0.9
	Process total	0	0	11	0.3	1	0.1	2	0.1	14	0.1
Practice	Integration	19	0.7	17	0.7	10	0.4	8	0.5	54	0.6
	Recreation / Amenity	5	0.2	6	0.2	6	0.3	6	0.4	23	0.3
	Nature Conservation	0	0	1	0	1	0.1	1	0.1	3	0
	Reclamation	0	0	0	0	0	0	0	0	0	0
	Forestry Techniques	0	0	1	0	3	0.1	2	0.1	6	0.1
	Practice total	24	0.9	25	0.6	20	0.7	17	0.7	86	0.7
Total all	Categories	27		40		27		25		119	

NB. 1)Number of pages = text + illustrations. 2)Where the amount of text exceeds 1/2 a page figures are rounded up; where the amount of text is 1/2 a page or less figures are rounded down. 3)Where figures are 0.05 or less they are rounded down to 0.

5.3.1.1 The Amount and Type of Advice Over Time

The 1978 report has offered the most design advice for upland situations, this has been reduced in subsequent reports. Less advice is offered in the current upland reports than at any other time, which is consistent with the diminishing importance of the design advice to ameliorate unacceptable upland forestry practices. These modifications also reflect the changes in forestry policy, objectives and incentives following the 1988 Forestry Act, which had the effect of shifting forestry activity, particularly non commercial forestry from upland to lowland landscapes.

The proportion of advice on Design Theory has increased over time which relates not to the development of a theoretical framework for forest landscape design but to the adoption of the visual design principles, (VDPs) in 1989.

The importance given to Design Principles, that is, the nature of forest landscape design, in the Theory category has been reduced in current advice, leaving a design theory with few guiding principles. This is also related to the role of the VDPs and is discussed further in the review of the Design and Planning Process (section 5.5.2)

Over time the amount of advice offered on the Design Process has been inconsistent. With no advice in 1966, the 1978 report contains a significant amount of advice, specifically in the survey and appraisal category, the figure then drops in 1989 and 1994. This apparent dramatic change is again explained

by the introduction of the VDPs which were developed to help designers approach the visual appraisal of the landscape and, in effect, superseded the existing survey and appraisal advice. This aspect of the advice is looked at in more detail in the review of the Design and Planning Process (section 5.5.2) and in the Critique (chapter 6).

More advice has been consistently offered for Design Practice than for Theory or Process in all reports. These figures reflect the nature of advice developed to solve practical forestry problems. It is interesting that the proportion of this advice has also been relatively consistent between reports which may suggests that the advice has not developed in context or responded to changing user-needs. For example, more information on forestry techniques and less information on integration may be needed by non-forester designers, as this user-group is increasing in number with the growing importance of amenity rather than commercial objectives in new woodland planting.

The 1966 report offers almost all of it's advice on design practice and specifically on design advice for integration. This has remained the most important aspect of the advice in all reports. Initially the emphasis on integration was in response to the need to make forestry activity more visually acceptable in the landscape. Time does not appear to have redressed this imbalance, although there are some signs of change, with the scope of the practice advice now including more advice on recreation and amenity and forestry techniques.

Table 5.2:   Comparison of Upland and Lowland Advice

		Total number of pages devoted to each topic											
		Upland Reports						Lowland Reports					
		1989		1994		Total		1991 CW		1992 Low		Total	
Category	Topic	num	prop	num	prop	num	prop	num	prop	num	prop	num	prop
Theory	Design Principles	0	0	0	0	0	0	0	0	1	0.1	1	0.1
	General Design Objectives	1	0.2	1	0.2	2	0.2	2	0.3	1	0.1	3	0.2
	Visual Design Principles	5	0.8	5	0.8	10	0.8	5	0.7	6	0.8	11	0.7
	Theory total	6	0.2	6	0.2	12	0.2	7	0.1	8	0.1	15	0.1
Process	Design Process	0	0	1	0.5	1	0.3	4	0.5	1	0.1	5	0.3
	Public Consultation	0	0	0	0	0	0	1	0.1	0	0	1	0
	Survey / Appraisal	1	1	1	0.5	2	0.7	2	0.3	7	0.9	9	0.6
	Design Techniques	0	0	0	0	0	0	1	0.1	0	0	1	0.1
	Process total	1	0.1	2	0.1	3	0.1	8	0.2	8	0.1	16	0.2
Practice	Integration	10	0.5	8	0.5	18	0.5	8	0.3	27	0.7	35	0.4
	Recreation / Amenity	6	0.3	6	0.4	12	0.3	14	0.4	7	0.2	21	0.3
	Nature Conservation	1	0.1	1	0.1	2	0.1	4	0.1	5	0.1	9	0.1
	Reclamation	0	0	0	0	0	0	4	0.1	0	0	4	0.1
	Forestry Techniques	3	0.2	2	0.1	5	0.2	2	0.1	1	0	3	0.1
	Practice total	20	0.7	17	0.7	37	0.7	32	0.7	40	0.7	72	0.7
Total all Categories		27		25		52		47		56		103	

NB. 1)Number of pages = text + illustrations. 2)Where the amount of text exceeds 1/2 a page figures are rounded up; where the amount of text is 1/2 a page or less figures are rounded down. 3)Where figures are 0.05 or less they are rounded down to 0

5.3.2.1   Differences in Amount and Type of Advice

Twice as much advice is offered for lowland landscapes than for upland landscapes. The shift in interest from upland to lowland afforestation helped to bring about the introduction of lowland guidelines. The amount of lowland advice produced was in response to changes in the initiatives and incentives, which helped to promote lowland forestry in the private and semi-public sector. More lowland advice therefore seems a logical outcome.

The proportion of advice offered is consistent between categories in both upland and lowland reports, with the most advice devoted to Design Practice and on design for integration in each case. This consistency may be seen as surprising, with the FC choosing to make the distinction between the two landscape types but then appearing to offer a similar type of advice for both situations.

Slightly more advice is offered in the LLD report than in the CW report but the proportion of advice is consistent between categories. Both offer most advice on Design Practice.

Within the advice categories there are some differences in the type of advice offered.

The LLD report places the emphasis firmly on design for integration and offers three times as much advice on landscape survey and appraisal. The difference in the nature of the advice is explained by the different objectives of lowland and community woodland designers and reflects the fact that community woodlands are new woodlands intended to change the character of an area while lowland woodlands are imposed on an existing landscape and need integrating.

Twice as much advice is offered on recreation and amenity for community woodlands and more advice on design for reclamation and for forestry techniques.

5.4   Summary of Analysis (Part 1)

* The consistency of amount, proportion and type of advice suggests that the upland advice over time has not changed a great deal and may not have responded to context or user needs to the degree that would be expected given the changes in forestry activity since the first advice was introduced.

* The heavy emphasis placed on advice for designing for integration (which exists in all reports, both past and current), raises questions about the balance of the advice and whether advice which favours a particular approach in all situations can produce the best possible results in terms of forest landscape design and user education.

* The amount and type of upland advice compared with lowland advice again seems strangely consistent considering the physical and visual differences inherent in these landscape types, the nature of forestry in these situations and the different needs of the users likely to be working on upland and lowland schemes.

* The LLD and CW advice reflects differences in amount and type of advice consistent with the different design objectives of the reports.

5.5   Analysis (Part 2): Nature of the Design Advice
(Tables 5.3-5.7.5)

This section looks in detail at the contents of each report, charting how the advice has developed and attempting to explain the changes and differences in the content and tone of the advice. This section should be able to answer the questions posed in section 5.3 and establish the key aspects of current design advice to be evaluated in the following Critique (Chapter 6).

5.5.1.   Design Theory

This category focuses on the advice offered as Design Principles, General Design Objectives and Visual Design Principles (Tables 5.3 - 5.5.4).

5.5.1.1.   Design Principles: Table 5.3

This section looks at text that defines the concept of forest landscape design and at text which describes the nature of forest landscape design. This information helps to establish the fundamental beliefs which provide the theoretical basis for the FA's advice and, while there are few clear statements of Design Principles within the guidelines, there are three specific areas which could be considered central to the FA's approach and as such, are analysed below:

5.5.1.1.1   Definition of Forest Landscape Design
* **General**
  (includes trends and upland and lowland comparisons, all columns)

The definition of forest landscape design is an obvious place to start but surprisingly no clear or consistent definition is offered in any report. This reflects the way the design advice was originally introduced by Crowe, that is, as informal advice aimed at improving existing plantation appearance. It is

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Table 5.3: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on Design Theory - Design Principles

	Reports containing the advice:					
Advice on Design Principles	**Upland**				**Lowland**	
	1966	1978	1989	1994	1991	1992
Landscape character is an important factor in forest landscape design	/ p5	/p7	/p3	/p7	/p9	/p5
• Landscape character is an important factor in assessing the significance of land-use change			/p9	/p7		
• Landscape character is defined by the shape and scale of land form, local climate, land-use, vegetation cover and prevailing colours	/p5	/p7				
Analyse character by assessing;						
• Scale	/p6,7	/ p8				
• Contrast of open ground and planting	/p6,7	/ p8				
• Colour	/p6,7	/ p8				
• Views		/ p8				
• Analyse character using the Visual Design Principle			/ p9		/ p13	/ p 5
• The elements which distinguish character may be natural, human or aesthetic			/p9	/p7		
• Landscape character is formed by a distinct pattern of elements occurring consistently in a particular type of landscape			/p9	/p7	/13	/p4
• Forest landscape design depends upon six design principles; shape, scale, visual force, unity, diversity and spirit of place			/p4	/p2	/p13	/p2
• Successful design achieves a balance between function, site requirements and aesthetics				/p2		
• Successful design marries economic realities with ecological process and aesthetic principle					/p2	
• If design cannot resolve the conflicts arising from landscape change do not plant			/p1	/p1		/p3
• A healthy landscape is likely to look right	/p27					
	A		B		C	

Notes applying to all tables:
* / under the column headed 1966 (for example) means that advice contained in the 1978 report is not, in any meaningful way, different from that given in the 1966 report.
* Blank boxes indicate that the report (signified by the column) makes no reference to the advice referred to (in the row)

surprising that over time a clear definition has not evolved, particularly as the principle aim of the more recent guidelines is to communicate design theory to non-designers.

- **Trends**
  (upland 1966 and 1978 advice cf. upland 1989 and 1994 advice, columns A&B)

No definition is offered in the early upland reports (1966 and 1978) although they both state that landscape character is an 'important factor' in forest landscape design. The later 1989 upland report also states this but introduces the visual design principles as factors which forest landscape design 'depends' upon. This reflects Campbell's development of the aesthetic-led design system which focused on achieving forestry objectives, rather than the development of a landscape-wide theoretical design framework within which forest landscapes could be created.

- **Upland and lowland differences**
  (upland 1989 and 1994 advice cf. lowland 1991 and 1992 advice, columns B&C)

A form of definition is offered in the lowland advice but the explanations differ between lowland reports. The 1991 CW advice suggests forest landscape design is 'concerned' with function, site requirements and aesthetics, while the 1992 LLD advice considers that economic realities, ecological process and aesthetic principles best define forest landscape design. These definitions are selective and linked to planting objectives of the particular reports and, while it is probably reasonable to assume that the FA consider all these aspects are important in some degree to all forest landscape design, the inconsistency may not be helpful to the user trying to grasp the FA's design theory.

Lowland differences
(lowland 1991 and 1992 advice, column C)

The lowland advice is generally consistent.

5.5.1.1.2 Landscape Character

• **General**

All reports (1996,'78,'89,'91,'92,'94) identify the concept of landscape character. While the importance of understanding the concept, introduced by Crowe in 1966, has remained consistent the role of character in forest landscape design has undergone a subtle change. For Crowe landscape character represented a guiding design principle but this role has diminished in importance in favour of using character to assess the significance of visual land-use change when proposing woodland schemes.

• **Trends**

All reports (1966,'78,'89,'94) agree that landscape character can be defined in terms of human activity, natural components and aesthetic qualities. However, in later editions (1989 & 1994) greater emphasis is placed on the character's visual form, in particular the two dimensional visual pattern that character can present, 'Character is a distinct pattern of elements which occur consistently in a particular type or landscape' (1989 and '94).

It is interesting to note that within the wider landscape industry the concept of landscape character has, over time, taken on a more pivotal role in design solutions, while in the FA guidelines the concept has been relegated to one of many factors important in the landscape assessment process. This could be seen as confusing. On the one hand the FA acknowledge that character can be human, natural and aesthetic - which is in line with current thinking - but on the other hand, in design terms, character remains simply a visual pattern. It seems that the FA, while trying to reflect an updated understanding of

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character, cannot quite leave behind its old visual-led approach. It is also interesting to note that even though this more holistic understanding has been incorporated into the assessment process the detailed design advice offered for forest design has remained remarkably consistent.

- **Upland and lowland differences**

Advice on the components and factors which constitute landscape character is consistent for upland and lowland landscapes.

- **Lowland differences**

Lowland advice is consistent.

5.5.1.1.3 Appropriate Planting

- **General**

Three of the recent reports (1989, 1994 and 1992) advise against planting if conflicts arising from landscape change cannot be resolved by design.

This advice was not included in the early reports (1966 and 1978) when perhaps the FC was less willing to consider abandoning planting in the face of opposition. Nor was it included in the 1991 CW report. Landscapes proposed as CW are often areas of derelict or despoiled land on the urban fringe, which are considered unsuitable for development but where forestry is seen as a positive option. These areas, however, are not necessarily of low ecological or amenity value. Some urban fringe and despoiled landscapes develop localised character and ecological value which may be better suited to a form of treatment other than forestry, for example, areas of lying water or heath land. To question whether forestry is appropriate at the survey and analysis stage of planning a CW could be considered useful.

- **Trends**

Only the 1966 Upland advice talks of 'landscape health'. This notion, promoted by Crowe, that a landscape which is designed to be ecologically healthy will, more often than not, 'look right' is now outdated and is not included in more recent reports.

- **Upland and lowland differences**

Upland and lowland is not consistent

- **Lowland differences**

Lowland advice is not consistent.

5.5.1.2   General Design Objectives: Table 5.3.1

This section looks at text which sets out general design objectives for forest landscape design. This tends to be done in an inconsistent way so while advice is offered to help designers achieve certain objectives, the options open to designers are not always clearly stated.

- **General**

The 1994 Upland and 1991 Lowland (CW) are the only reports that suggest developing recreational opportunities as a design objective. Although this is particularly relevant in the CW guidelines it is questionable that the advice is absent from the other reports given that multi-purpose forestry objectives have been a part of the FC's strategy since 1978.

The 1992 LLD report offers the least advice on general design objectives and it should be noted that advice on protecting element diversity and landscape heritage offered in the upland reports is not included here. Although these

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Table 5.3.1: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on Design Theory - General Design Objectives; Visual Design Principles

	Reports containing the advice:					
	Upland				Lowland	
Advice on General Design Objectives	1966	1978	1989	1994	1991	1992
• Develop recreational opportunities				/p1	/p2	
• Understand and respect landscape character	/p7	/p6				
• Strengthen landscape character			/p9	/p7		
• Relate the design to landscape character	/p31	/p18			/p9	p1,12
• Reflect and enhance the landscape's best natural qualities			/p32		/p2	/p3
• Incorporate the landscape's best natural features			/p32		/p2	
• Eliminate visual intrusion			/p32		/p2	
• Lessen the effect of landscape change			/p9	/p7		
• Protect elements of diversity			/p9	/p7		
• Develop and wide range of habitats			/p32	/p1	/p2	
• Value landscape heritage			/p9	/p7		
• Meet operational needs of management			/p32			
• Meet the needs of society by producing timber				/p1		
Advice on the Visual Design Principles (VDP's)						
• The VDP's can be used to analyse and identify landscape character and help to compose the constituent parts of a forest into a unified/satisfying design.					/p13	/p5
• The VDP's can help to explain design to non designers					/p13	
• An understanding of the VDP's ensures that landscape character and aesthetic components are given due weight against functional considerations						/p5
Shape - has a major influence on how we see our surroundings			/p4	/p2	/p13	/p7
• Lines at right angles to contours look unpleasant because landscape proportions are broadly horizontal			/p4	/p2	/p13	/p5
• Diagonal shapes are thought to present the most pleasing effect			/p4	/p2	/p13	/p5
• Shape dominates other factors			/p4	/p2	/p13	/p5
• The distinction between natural and geometric shape is significant to forest design			/p4	/p2	/p13	/p5
• Compatible shapes create 'unity'			/p4	/p2	/p17	/p5
• One shape acquire a stronger visual impact from its relationship with another whether the landscape scale is large or small						/p5
	A		B		C	

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objectives are more relevant to large scale afforestation schemes they can also be an issue in smaller schemes, particularly in lowland landscapes where landscape character changes over small areas and lowland landscapes are likely to be richer in cultural heritage.

It is also interesting to note that timber production and management needs are not presented as a design objective in either lowland reports.

- **Trends**

Early advice (1966 and 1978) offers a single objective which is to design with regard for the landscape's character, this is entirely in keeping with Crowe's remit.

In the 1989 advice the range of general design principles increased dramatically. These introductions reflected the prevailing mood in the industry which was under enormous pressure to improve its poor environmental image. General design objectives were aimed at addressing problems of blanket afforestation and were heavily weighted in favour of protecting and conserving both the visual, physical and cultural landscape. However, by 1994 the problem of blanket afforestation had receded, reflected by modified objectives which helped to redress the balance. Timber production was introduced as a design objective (1994 LLD report) and the need to design to emphasise naturalness was removed from the advice.

Upland and Lowland Differences

The upland (1989 and 1994) and lowland (1992) advice agrees that designs should aim to enhance the landscape's natural qualities and aim to use planting to improve the appearance of the landscape.

Both upland and lowland advice agrees that developing a wide range of habitats is an objective.

Only the lowland reports do not suggest that designing to reflect or strengthen character is an objective. This is understandable where community woodlands are intended to change local site character but should perhaps be an objective where woodlands are being designed into rural lowland landscapes.

The upland objective to lessen the effect of landscape change is again linked to large scale blanket afforestation which has now lost its relevance and is not included in lowland advice.

• **Lowland Differences**

The two lowland reports only agree on design objectives which reflect landscape character and which enhance natural qualities. Even though the 1992 LLD report appropriately concentrates on design advice for small scale forestry proposals, there seems to be no good reason why the other objectives set out in the 1991 CW report should not be included as possible objectives depending on the particular site. In particular designing to develop a wide range of habitats.

The 1992 LLD advice is minimal compared with the 1991 CW but if CW advice seeks to realise a greater range of opportunities arguably this is appropriate. However, the LLD advice seem limited considering the FA's multi-purpose objectives for all forests.

5.5.1.3   Visual Design Principles (VDP's): Tables 5.3.1, 5.3.2, 5.3.3 & 5.3.4

The VDP's are in effect a technique for assessing the visual landscape but they are presented in the design advice as important principles in the understanding of forest landscape design and as such are recorded in the theory section. The advice presented under the VDP's is confusing. Sometimes it is offered as a principle which is intended to guide design decisions, 'shape has a major influence on how we see our surroundings' (1989 p4) but at times it is offered as a design solution, 'design should follow visual force' (1989 p4). This inconsistency makes the advice difficult to categorise and brings into question the validity of the theoretical framework.

- **General**

Although Crowe and Campbell were working with visual design principles from the beginning, these principles of shape, scale, visual force, unity, diversity and 'spirit of place' were not introduced into the guidelines until 1989. They are consistent in the 1994 and in the 1991 CW and 1992 LLD reports. Great emphasis is placed on the use of the VDP's which are said to be 'key' to the process of forest landscape design. They remain important in both upland and lowland advice and have not varied in form or application over time. The FA believe they work well and in fact the 1994 upland report has re-named the VDP's as the Design Principles

Trends

Introduced in 1989 the advice on the VDP's has been entirely consistent.

- **Upland and Lowland Differences**

Lowland advice explains the function of the VDP's in analysing landscape character, this explanation is absent from the upland advice but is consistent with the more explanatory character of the lowland reports

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Table 5.3.2: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on Design Theory Visual Design Principles cont.

Advice for Visual Design Principles cont.	Reports containing the advice:					
	Upland				Lowland	
	1966	1978	1989	1994	1991	1992
Scale - Proportions of species and felling areas should be related to scale				/p4		
• Scale concerns relative and absolute size			/p6	/p4	/p14	/p7
• Scale has a major influence on people's perception of the landscape			/p6	/p4	/p14	
• The distance and width of view and height of the observer all effect appreciation of scale			/p6	/p4	/p14	/p7
• Planting should reflect the scale of the landscape			/p6	/p4	/p14	/p7
• Landscape divided by woodland should reflect ration of 1/3 to 2/3 to be 'satisfying': proportions of 1/2 to 1/2 creates a feeling of 'unnatural symmetry'			/p6	/p4	/p14	/p7
• The change of scale across landscapes should be gradual, avoiding abrupt changes			/p7	/p5		
• The forest edge can define the scale of the landscape, if the edge is too far away control of scale is lost					/p4	
• 'Closure', 'nearness', 'coalescence' and 'interlock' can be used to organise smaller elements in the landscape to create a larger scale					/p14	
• 'Closure' is positioning individual elements so they appear to enclose space and become one					/p14	/p8
• 'Closure' can increase the scale of small woodlands where a larger scale is necessary					/p14	/p8
• 'Nearness is a devise to increase scale and introduce balance and structure into a design					/p15	/p8
• 'Interlock' is a device used to achieve required scale of planting in context of the landscape					/p15	
• **Visual Force** represents the phenomenon whereby the eye and mind respond to the lines in the landscape in a predictable and dynamic way			/p4	/p2	/p13	/p6
• Visual force in land form draws the eye down convex slopes and up concave slopes			/p4	/p2	/p13	/p6
* Designs should follow visual force			/p4	/p2	/p13	
• Patterns of natural vegetation are similar to those when planted to visual force			/p4	/p2	/p13	/p6
• Designs opposing Visual Force will look disruptive and out of place			/p4	/p2	/p13	
• The strength of visual force is related to scale and irregularity of land form			/p4	/p2	/p13	/p6
	A		B		C	

Table 5.3.3: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on Design Theory- Advice on the Visual Design Principles cont.

Advice on the Visual Design Principles cont.	Reports containing the advice					
	Upland				Lowland	
	1966	1978	1989	1994	1991	1992
Visual Force cont.						
• Designs obeying visual force create a unified relationship between forest and land form			/p4	/p2	/p13	/p6
• Forest margins designed to respond to visual force create a direct relationship between forest cover and landscape			/p5	/p3		
• Forests which obey visual force match expectations of natural wooded landscape			/p4	/p2	/p13	/p6
Unity is the product of the relationship between shape, scale and visual force			/p6	/p8	/p17	/p10
• Unity is an essential object of landscape design			/p6	/p8	/p17	
• Unity can counter-balance contrasts of colour, shape and form and texture and lack of diversity inherent in large scale woodland plantations			/p6	/p8	/p17	/p10
• Unity is achieved by designing shapes, external margins, open spaces and the pattern of species so that shapes interlock			/p6	/p8	/p17	/p10
• The achievement of unity is connected to creating a 'surface pattern'				/p8	/p17	
• A high degree of interlock gives unity to a design				/p8	/p17	
Diversity is the number and degree of different features in a landscape or design			/p8	/p6	/p16	/p9
• Landscape diversity is linked to ecological diversity but the two are distinct and not equivalent			/p8	/p6	/p16	/p10
• Excessive diversity can lead to restless confusion in a design			/p8	/p6	/p16	/p10
• Where one element in the landscape is dominant a high level of diversity is more acceptable			/p8	/p6	/p16	/p10
• In uniform landscapes designers should create diversity			/p8	/p6	/p16	/p10
• Increasing diversity can have the effect of reducing scale			/p8	/p6	/p16	/p10
• Diversity should be incorporated at different scales depending on a woodland's external or internal view-points					/p16	
• Field pattern, crop and soil colours, trees, woods and individual farm-stead's produce a rich diverse landscape						/p9
• Colour changes create rich seasonal diversity						/p10
• Texture, species, age, seasonal diversity and particularly colour can help diversity						/p10
	A		B		C	

Table 5.3.4 : Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on Design Theory - Advice on the Visual Design Principles cont.

Advice on the Visual Design Principles cont.	Reports containing the advice					
	Upland				Lowland	
	1966	1978	1989	1994	1991	1992
Spirit of Place is something unique to a particular place			/p8	/p6	/p17	/p10
• It is often expressed by particular contrasts or arrangement of features			/p8	/p6	/p17	/p10
• A 'spirit of place' is easier to conserve than create			/p8	/p6	/p17	/p10
• Extreme land form, lighting effects, water, wildness and age can create 'sprit'			/p8	/p6	/p17	/p10
• Spirit of place is an important stimulus to good design			/p8	/p6	/p17	/p10
• Qualities which contribute to spirit of a sense of 'spirit' should be assessed and incorporated into the design			/p8	/p6	/p17	/p10
• Ancient trees can help to create a spirit of place			/p8	/p6	/p17	/p10
• Spirit of place should be incorporated and conserved and strengthened where links are weak					/p17	/p10
• Design stimulus can be provided by historical connection; aspects of heritage, pre/early industrial associations, remnants of park land and designed landscapes					/p17	/p10
• Public art can help create a spirit of place					/p17	/p10
	A		B		C	

The VDP's are more fully explained in the lowland reports. The techniques of 'Closure', 'Interlock' and 'Coalescence' and 'Nearness' only appear in the lowland advice although these techniques may be useful techniques in upland landscapes.

Less advice on 'spirit of place' appears in upland reports, this is as could be expected given the high proportion of commercial plantation and the lower priority placed on public access and recreational benefit.

There are a number of guidelines given in the upland advice that have not been included in lowland advice probably because they are seen as less relevant or irrelevant in lowland forestry or in lowland landscapes. It appears the assumption is made that lowland forestry proposals are going to be smaller and less commercially driven and therefore less advice is given on integrating the impact of forestry operations. It is also assumed that lowland forestry will not need to be so carefully integrated as it is unlikely to be highly visible. It is judged that advice on lines of visual force and relative scale is less useful in lowland landscapes where these principles will be more difficult to determine. While this may be generally true it is not always so and it is questionable whether the decision to offer design advice by landscape type is the most logical approach or the best way to present the advice.

• **Lowland Differences**

The advice is more fully explained in the 1991 CW advice than in the 1992 LLD advice which is surprising to note, as the community woodlands are more likely to be designed by design professionals familiar with landscape design principles.

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5.5.1.4 Summary of Advice for Design Theory

The FA's reason for producing design guidelines was to offer design advice to people involved in woodland design so that plantation schemes could be put on the ground in line with FA ideas and with minimum assistance from the FA trained designers. In order for those users to be able to understand and apply the advice it has to be supported by a sound, logical theoretical framework within which the designer can work and be creative.

The shortcomings of the theoretical framework stem from the original FC objectives and the constraints placed on the development of the initial advice. Lucas, (personal communication) states that "the guidelines grew from solving practical problems, from solving aesthetic problems, not from theory and were then turned into theory so that people could have some sort of understanding of the diverse principles . . . involved in forest landscape design". For this reason it is difficult to identify the theory or guiding principles behind forest landscape design. At no time however, has the FA appeared to have returned to reconsider the theoretical basis in a logical, balanced way which would allow all aspects of forest landscape design to be re-considered and presented in a way that would address its objective of being a teaching aid.

The tone of the advice swings from general advice (1978) to specific advice (1989 & 1994) and from being extensive (1989) to limited (1994).

5.5.2 Design and Planning Process

This section includes all advice on the design process, the survey and appraisal stages and advice on public consultation (Tables 5.4 - 5.4.3)

5.5.2.1 Design Process: Table 5.4

The design process exists to make sure all factors are taken into consideration at the design stage and that the design which emerges is a product of the analysis of opportunities and constraints related to the nature of the proposed site and the design objectives.

The Design Process category looks at text covering the content and sequence of the design process.

- **General**
  (trends and upland and lowland comparisons, all columns)

No advice on the design process existed before 1989 perhaps reflecting the infancy of the concept of forest landscape design. Because early design work was bolted on to normal forestry practice to deal with the aesthetic problems forestry was creating, it took some time for forest landscape design to develop as a design skill in it's own right. The advice on the design process appears to be similar in stage and content for the uplands over time and has increased in importance. The advice differs between upland and lowland reports, with the lowland advice having developed along different lines which concentrate on a process focusing on the visual implications of a design. The differences in approach may be a reflection of the FA's continuing development of the design process which is bringing it into line with current landscape practice. It could be argued that if the FA had not been working in isolation the standard landscape practice design process may have been introduced sooner.

Table 5.4: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on the Design and Planning Process - Design Process

Advice on the Design Process.	Reports containing the advice					
	Upland				Lowland	
	1966	1978	1989	1994	1991	1992
Steps in the design process: Develop the brief				/p27		
• Site visit - identify view points			/ p56			
• Define objectives and limitations				/ p27	/ p2	/ p4
• Physical landscape assessment			/ p32	/ p27		/ p4
• Visual assessment of landscape patterns			/p32	/ p27	/p2	/ p4
• Sensitivity and character assessment			/ p32	/ p27	/ p2	/ p56
• Question appropriateness of planting			/ p32	/ p27		/ p56
• Is land form or vegetation dominant?						/ p56
• Balance design criteria						/ p56
• Concept			/ p32	/ p27	/ p2	/ p56
• Design shape and margin			/ p32	/ p27	/ p18	
• Define open space system			/ p32	/ p27	/ p18	
• Establish scale of the woodland					/ p18	
• Consider shape, scale and diversity						/ p56
• Has planting achieved Unity?						/ p56
• Design areas of woodland to create interlocking shapes					/ p18	
• Harvesting plan				/ p27		
• Detailed design			/ p32	/ p27		
Design process for felling and restocking						
• Site visit and check application						/ p56
• Identify landscape character						/ p56
• Quality of landscape and capacity for change						/ p56
• Felling and restocking detailed design						/ p56
• Consider effects of felling systems and species choice						/ p56
• Is design acceptable						/ p56
• Fell and restock						/ p56
	A		B		C	

However, the content of some of the lowland advice suggests the design solutions are likely to be influenced through the design process. This may be a conscious decision on the part of the FA to control the design of the forest landscapes instead of allowing forest design to be a product of the survey and analysis process. Bell defends this approach by stating the FA's objective is to guide designers in order to prevent them making the 'worst mistakes' (personal communication), but this approach does not allow the design process to fulfil its function

- **Trends**
  (upland 1966 and 1978 advice cf. upland 1989 and 1994 advice, columns A&B)

The analysis stage of the design process has increased in importance over time.

The advice on the content of the design process offered by the 1989 and 1994 reports is consistent on a number of points. The process proceeds from a survey and analysis stage to the concept and then the design and detailed design stages, with both reports placing the decision on the appropriateness of planting at the end of the survey and analysis stage.

- **Upland and Lowland Differences**
  (upland 1989 and 1994 advice cf. lowland 1991 and 1992 advice, columns B&C)

The advice on the design process differs between upland and lowland reports and is only clearly discussed in the 1994 upland report (p27).

The 1994 upland report sets out the design process as the development of the brief, followed by a physical and visual site survey, an assessment of the site's sensitivity and character which is then followed by the appraisal of this

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information identifying opportunities and constraints. Then there is a decision on whether planting is appropriate, the development of the concept and finally the detailed design which is tested against cost parameters. The contents of these stages are covered in the other reports but tend to be mixed up with the survey and analysis advice. The 1994 advice introduces the development of the brief and the consideration of function, site opportunities and constraints, economic factors and operational systems into the design process, factors which were absent from other reports and, in doing so, brings the FA more into line with standard landscape design practice.

The 1992 LLD report on the other hand, sets out the 'assessment and design process' for new woodland planting and the design process for felling and restocking in flow diagram form (p56). The process here deals only with the visual implication of new planting and leads directly to a visual design solution. The process suggests a site visit and identification of view point, analysis of landscape character, analysis of the site's capacity for change and questioning whether planting is appropriate. It moves on to ask whether land form , land use or vegetation is more dominant, which then leads to the design concept. The concept is balanced against aesthetic, operational and cost factors and the design is led by the detailed design criteria of shape, scale, diversity. The design solution is then tested asking 'has the detailed design achieved acceptable unity?'.

The lowland advice places greater emphasis on achieving a visually acceptable design solution when establishing woodland, perhaps because there is perceived to be greater opportunity for public benefit in lowland woodlands. This appears

to be logical except that upland woodlands are more likely to be experienced in a visual way because of their obvious visibility and because they are often private and commercial whereas lowland woodlands are more likely to be experienced in many other ways - for example; their ecological value, their cultural associations or their sequence of spaces, thus prescribing a visual design solution which seems to be limiting designers' opportunities.

Both upland and lowland reports agree that the detailed design stage should include designing the plantation shape and margin, defining the open space system and establishing the scale of the woodland. The lowland advice is more prescriptive, stating that areas should be designed to create interlocking shapes (1991 CW, p18) and requiring that the design should achieve unity (1992 LLD, p56). The temptation to dictate the design solution through the design process probably stems from the FA's experience in knowing what is and what is not visually acceptable in landscape terms. However, this approach does not allow the design to respond to the character of individual sites easily or completely.

It is surprising that upland advice does not contain the felling and restocking design process which seems more relevant to large scale upland forestry operations and particularly in landscapes with high visibility like the upland mountain ranges.

- **Lowland Differences**
  (lowland 1991 and 1992 reports, column C)

More advice is offered in the 1992 LLD report, with more detailed approaches for new woodland and felling and restocking. This is perhaps explained by the perceived production-based nature of lowland afforestation as against the recreational nature of CW plantations.

5.5.2.2 Design Concept: Table 5.4.1

• General

No advice is offered in upland reports probably because historically forestry in the uplands has been a commercial concern. Now that timber production is no longer a primary objective in existing and new woodlands, offering advice on design concepts may be more appropriate and useful. The guideline advice here seems to be lagging behind current policy objectives.

• Trends

Not an issue

• Upland and Lowland Differences

Not an issue

• Lowland Differences

The 1991 CW report offers advice on design concepts for formal woodlands, parkland and European town forests while the 1992 LLD advice considers design for game and deer which is consistent with their respective main design objectives. The advice on a wide range of design concepts is more useful to those designing woodlands for public benefit. Offering this advice by landscape type seems illogical when concepts are so clearly linked to design objectives.

5.5.2.3 Site Survey and Appraisal: Tables 5.4.2 and 5.4.3

The site survey and appraisal category looks at text advising on the content and scope of the survey and of the assessment stage of the design process.

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Table 5.4.1: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on the Design and Planning Process - Site Survey

Advice on the Site survey	Reports containing the advice					
	Upland				Lowland	
	1966	1978	1989	1994	1991	1992
• Collect all relevant information on the site and surrounding area						/p4
Operational- Harvesting systems				/ p27		
• Felling ages				/ p27		
• Pattern of land ownership					/p5	
• Site access				/p27	/p2	
Natural- ecological value				/p27	/p2	/p2
• Geology		/p8			/p2	/p2
• Topography					/p2	/p52
• Soil				/p27	/p2	
• Climate		/p8		/p27	/p2	/p19
• Special features e.g. outcrops			/ p9	/ p7	/p17	/ p52
• Nature of existing vegetation		/ p8				/p52
• existing open space system					/p24	
• species and age of existing woodland				/p27		
Aesthetic - Elements of diversity			/p9	/p7		
• Record the visual landscape character	/p5	/p6	/p9	/p27	/p4	/ p5
• Intrinsic beauty of scene			/p13			
• Human enjoyment			/p13			
Cultural - archaeological value				/p27		
• Man-made structures & materials						/p52
• Cultural and historical associations			/p9	/p7		/p52
• Conservation requirements			/p13			
• Identify what people want					/p2	
• Existing land-use		/p8	/p13			
• Recreation opportunities				/p27		
	A		B		C	

Table 5.4.2: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on the Design and Planning Process- Design Concept

	Reports containing the advice					
	Upland				Lowland	
Advice on the Design Concept	1966	1978	1989	1994	1991	1992
• The Concept is derived from broad landscape influences together with the balance of woodland and open space			/ p32			
• Urban fringe buffer: woodlands can form an ideal buffer between town and agriculture		/ p45				
• Reclamation: woodland can reclaim waste or misused land		/ p45	/ p27			
• Design for Recreation: pay attention to the internal structure and views.						/ p39
• Design for Game: Design for Game should follow the same design principles for all small woodlands						/ p50
• Designed formal layouts - defined as a formal framework of treed avenues, considered valuable for the visual and aesthetic effects which can be achieved.					/ p10	
• Designed park land- defined as formal park land relying on asymmetrically balanced compositions mass and open space, valuable for the visual and aesthetic effects which can be achieved.					/ p10	
• Deer parks and forests - defined as informal plantations controlled by grazing, to create 'a living forest tapestry'.					/ p10	
• European town forests - defined as a mix of formal and informal planting, valuable for improve the local environment and provide recreational facilities.					/ p10	
	A		**B**		**C**	

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Table 5.4.3: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on the Design and Planning Process- Survey Appraisal

Advice on the Survey Appraisal	Reports containing the advice					
	Upland				Lowland	
	1966	1978	1989	1994	1991	1992
• Analyse regional and site character	/p6,7	/ p8	/ p9	/ p9	/ p13	/ p5
• Appraise site sensitivity			/p9	/p7	/p13	/p23
• Appraise the aesthetic implications of woodland structure and management					/ p20	/ p23
• Appraise how woodland structure can benefit recreational woodland design					/ p20	
• Appraise the potential and function of an open space system					/ p23	
• Appraise the size of woodland in relation to conservation needs					/ p18	
• Appraise the long term timber operation requirements					/ p23	
• Take into account climatic conditions when siting woodland						/ p19
• Consider the practical aspects of farm work when planning farm woodlands						/ p19
Public consultation						
• People should be involved in deciding how the woodland will look					/p8	
• A programme of publicity, information & education, will help people accept landscape changes					/p8	/p2
• Local preference surveys should be done.					/p8	/p2
• The public should be consulted and their views considered					/ p8	/ p2
• The views and wishes of landowners should be taken into consideration					/ p5	/ p2
	A	B			C	

• General

The advice on the survey and appraisal stages of the design process is presented in a confusing way and distributed throughout the text. It is not presented and explained as a stage in the design process nor is the scope and content consistent between reports, with some survey and appraisal information determined by landscape type, as in upland and lowland and some determined to an extent by planting objectives, The 1994 upland report offers the most comprehensive list of survey requirements but it appears illogical that this advice should differ in any way between reports except in the case of survey information on existing woodland where there is none at all.

In the early advice the scope of factors to be assessed at the survey stage is limited to information on the visual patterns formed by the landscape's character. Over time this advice has become more comprehensive taking in the physical, visual landscape and functional considerations. The survey advice has become more detailed and specific and has come into line with current landscape practice but it is sometimes incomplete and stated inconsistently. The appraisal advice is limited and focuses on the assessment of landscape character.

The upland 1989 and 1994 reports differ greatly in the nature of their survey information. While both agree on the importance of cultural and historical associations and of recording elements of diversity, the 1989 advice concentrates on aesthetic aspects of the landscape for analysis and the significance of the existing land-use, while the 1994 report gathers information on the physical landscape, the aspects of the site related to existing woodland and forestry operations and notes archaeological value and recreational opportunities. These differences, while appearing arbitrary, reflect the diminishing importance of

the aesthetic approach to the forest landscape design process. What has been left out of the 1994 upland advice suggests the survey would be incomplete. There seems to be no good reason why information on the existing open space system, conservation requirements and existing land-use should not be valuable.

All reports agree that an appraisal of landscape sensitivity is important. Sensitivity is defined as how well a particular landscape can accept change and is described as a function of a landscape's character; its intrinsic quality, visibility and the number of people who see it. The idea was introduced in 1989 in response to the efficiency and timber production policies of the 1980s which recognised the need to prioritise landscape design advice in relation to budget constraints. Non of the guidelines explain how to assess sensitivity, how to proceed in a highly sensitive landscape or when a landscape's sensitivity rules out planting. The appraisal of sensitivity therefore only has limited value as survey information.

* **Trends**

The initial 1966 advice concentrated on the visual appraisal of landscape character and the 1978 report commented on the need to ascertain the geology, soil, climatic conditions and the nature of the existing vegetation on the site and record any special features in the landscape. However, neither report sets out the scope of the landscape survey and their approach is consistent with the general nature of the advice being offered in the early years. The scope of the site survey has increased over time in upland reports and has become more comprehensive and specific to take in the physical, visual and functional landscape.

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The general style of the 1978 advice became more specific and instructive by 1989. Much of the 1978 advice was re-labelled, for example, in 1989 assessing 'element diversity' replaced the 1978 appraisal of land form, water, rock features, wildlife, recreation, archaeology and views. Further advice was also introduced including the assessment of present land use, conservation, heritage value and human enjoyment. The scope of the 1994 advice goes even further, recommending the appraisal of forestry and management operations and the species range and age of existing woodland. However, the inconsistencies persist, with no mention of appraising regional landscape character or of appraising present land-use in the current 1994 advice.

Advice on the need for an appraisal of the landscape's character and appraising landscape sensitivity has however been consistent over time.

- **Upland and Lowland Differences**

Both upland and lowland advice includes in the survey information on the physical landscape, local climate, visual character, ecological value and cultural associations.

The lowland advice does not include surveying operational systems which seems illogical and now out of context with current objectives promoting larger woodlands for timber production in the lowland areas.

The upland advice does not include the assessment of man-made features, survey information on the existing open spaces, information on visitor needs or the pattern of land ownership, all of which could be appropriate and relevant to upland proposals in some situations.

Both upland and lowland advice recommends an appraisal of the landscape's character and all reports suggest that an appraisal of natural factors (land form and vegetation), human factors (field patterns, settlements and buildings) and aesthetic factors (shape, scale and colour) will reveal a landscape's character.

Only the lowland advice suggests using the visual design principles to help analyse landscape character. In the upland advice the VDP's are used more as an aid to design solutions which could be seen as confusing.

Only the 1992 LLD advice includes cultural and historical associations in the factors contributing to landscape character. This may be because the 1992 report has moved in accord with current thinking which acknowledges the cultural aspects of landscape. The advice is not included in the more recent 1994 upland report because this is a virtual reprint of the 1989 report and therefore represents old advice.

Both upland and lowland reports suggest an appraisal of landscape sensitivity.

* **Lowland Differences**

The 1992 LLD report states 'collect all relevant information on the site and surrounding area' p4, but only considers the pattern of land ownership, geology, topography, soil, special features, existing vegetation, landscape character, man-made structures and cultural and historical associations. The vagueness of this statement is reasonable if the design work is being carried out by a trained designer who is familiar with the survey and analysis stage of the design process. However, any foresters or land managers using the lowland woodland guidelines and who may not be so familiar with the design process, may have benefited from a fuller explanation.

The 1991 CW in contrast offers more information but is also selective, for example, the CW report excludes the need for a survey of existing vegetation. The differences between reports could be explained by the assumption that CW proposals are for planting where no woodland currently exists.

The 1991 CW report also excludes the need for a survey of cultural or historical associations. This seems unhelpful, as a record of how a site is used both formally and informally and the cultural association attached to a site would seem very important information for a designer, in order to avoid user conflict and unacceptable change, particularly in woodlands designated for public benefit.

Only the 1991 CW advice suggests recording the pattern of land ownership however this could be relevant to lowland sites where the potential for future expansion may have a bearing on the woodland design even in commercial or farm woodland projects.

Only the 1991 CW report suggests surveying public preferences and then places emphasis on identifying any aesthetic problems of a site. This emphasis reflects the urban fringe situation of community woodlands and their public amenity objectives.

Both reports agree that the survey should record visual character. Both also suggest using the VDPs to analyse the components of the landscape which will help to identify a landscape's character.

The 1991 CW report notes the need for an appraisal of landscape sensitivity but does not define the term (p2). Not explaining the term is unfortunate as it is not a term widely used outside forest landscape design. This is unusual in this report

where the tone is generally explanatory. The reason may be that landscape sensitivity is thought to be less relevant where the character of a landscape is bound to change by the introduction of a community woodland. The assumption seems to be that planting trees is the most preferred landscape solution and any such changes would thus be acceptable, which is not necessarily true. If appraising landscape sensitivity is a relevant and important stage in the appraisal process it should be as important to CW design advice as to any other landscape design advice.

The 1991 CW report offers more advice on the appraisal stage related to woodland management and forest operations which seems appropriate for users who are more likely to be designers than foresters. The consideration of conservation needs and of recreation opportunities related to woodland structure is not included in the 1992 LLD advice.

5.5.2.4   Public Consultation: Table 5.4.3

This section looks at text on raising public awareness and on public participation, including information on people's preferences and perceptions of woodland.

• General

Although forestry does not lie within planning control the development of indicative forestry strategies does offer a certain amount of support to public and environmental interests. Public consultation on afforestation schemes therefore is primarily to assure public benefit rather than offer protection. This aspect of design advice seems limited and incomplete and is not included in the design process.

• Trends

No advice is offered in upland reports which is as expected given the predominantly commercial nature of upland woodlands, although recreational opportunities are a factor to be considered in the site survey (1994, p27).

• Upland and Lowland Differences

The design guidelines suggest that the views of local residents and visitors should be taken into account when designing lowland woodlands but not upland woodlands, even though most concern has been voiced over commercial upland afforestation in the past. It could be inferred that the FA believe that consultation is most important where woodlands are for amenity rather than commercial use and further that the FA consider public consultation to be an optional stage in the design process. This may be reasonable in certain situations but some may argue that public consultation should be compulsory in a state owned industry.

• Lowland Differences

Consulting the public is confined to lowland advice and it is consistent throughout. Collecting information on local residents' and visitors' views seems most relevant where public use and enjoyment are the primary woodland objectives, as they are in the 1991 CW guidelines. However, if consultation is seen as a part of the design process, which arguably it should be, given the public benefit objective of current FC policy, then this advice is applicable to all reports.

5.5.2.5   Summary of Advice for the Design and Planning Process

A weakness with this advice is the way it is being communicated. It does not appear to be consistent and it is not defined or presented in a use- friendly way.

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The stages in and content of the design process do not always appear to be complete, balanced or logical and this review raises questions about the FA's understanding of the design process, such as whether the advice on the design process has developed sufficiently and in context. The nature of the design process advice again raises the validity of offering design advice by landscape type, that is for upland and lowland landscapes.

The tone of this aspect of the advice is inconsistent and confusing. It swings from general statements for example 'collect all relevant information on the site and surrounding area' 1992 LLD, p4, to specific statements on detailed design issues - 'design areas of woodland to create interlocking shapes' 1991 CW, p18.

5.5.3　　Design Practice

This section looks at text detailing the contents of the FA's design advice on how to design forest landscapes in practice. This information is categorised by the FA's five main design objectives and these are:

- design advice to achieve forest integration, (section 5.5.3.1; **Table 5.5**);

- design advice for recreation and amenity objectives, (section 5.5.3.2);
  - improving the visual landscape (section 5.5.3.2.1; **Table 5.5.1**)
  - recreation (section 5.5.3.2.2; **Table 5.5.2**)

- design advice for nature conservation objectives, (section 5.5.3.3; **Table 5.5.3**);

- design advice on forestry techniques and operations, (section 5.5.3.4; **Table 5.5.4**).

- design advice for reclamation objectives, (section 5.5.3.5; **Table 5.5.5**);

5.5.3.1 Designing for Integration: Table 5.5

This section includes text where the function of the advice is to integrate woodland planting and forestry operations into the landscape and with local character, including design techniques to create 'natural' looking forest landscapes.

- **General**
  (trends and upland and lowland comparisons, all columns)

In part one of the analysis, section 5.3 Table 5.1 showed that a high proportion of the advice is allocated to design for integration. The need to integrate forestry into the landscape in a more visually acceptable way was Crowe's principal objective and it has remained an important objective over time. The design advice aims to establish 'integration' by achieving the appearance of naturalness or 'unity' (interlocking shapes) and attempts to realise this through the use of shape, line, pattern, choice of species and the relationship of these visual characteristics to local landform and landscape patterns.

The 1966 and 1978 advice states that planting should reflect both regional and detailed landscape character. This advice is excluded from the 1989 and 1994 upland advice but then reintroduced into the 1992 LLD advice. Although designing with reference to landscape character has always been a theoretical objective, this approach simply became impossible during the 1980's, because the scale of planting taking place was dramatically changing the character of some landscapes particularly in the uplands. The advice is absent from the 1991 CW advice.

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Table 5.5: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on Design Practice- Integrating Forestry

Advice aimed at Integrating forestry	Reports containing the advice					
	Upland				Lowland	
	1966	1978	1989	1994	1991	1992
• Planting should reflect regional and detailed landscape character.	/p31	/p18			/p9	p1,12
• The **Pattern** of planting should relate to land form.	/p18	/p18	/p15	/p13	/p13	/p10
• Keep characteristic contrasts between planting and open ground.	/p6	/p27	/p10	/p8	p7,19	/p13
• Use 2/3rds woodland to 1/3rd open space for a balanced composition.			/p6	/p4	/p14	/p8
• Design should respond to whichever pattern is dominant in the landscape e.g. woodland, field or land form, or create a pattern using interlock, coalescence or overlap.					p19, p25	/p11
• On undulating ground keep open space in hollows and new woodland on rising ground.						/p13
• **Shapes** of planted areas should reflect changes in soil and topography.	/p18	/p27				
• Shapes should be irregular and avoid symmetry and straight lines.	/p28	/p24	/p10	/p8	/p32	/p11
• Shapes should relate to land form with high points in hollows or gullies and low points near ridges and spurs.	/p20	/p18	/p10	/p10	/p18	/p26
• Where hedgerow pattern dominates plantation shape needs to be irregular						/p11
• A more geometric plantation pattern can be used where hedgerows dominate			/p30			
• Where hedgerow trees dominate new woodland should reflect the scale & irregularity of the hedgerow pattern, & a smaller scale geometric layout can be adopted on flat land.			/p30			/p11
• Where hedgerow trees dominate woods need not follow landform						
• Shapes, including species patterns should interlock for unity and integration.			/p10,24	/p8, 22	/p17	/p21
• Successful design is judged by the creation of naturalistic shapes and forms.			/p10	/p8	/p9	/p6
• The **Size** of the plantation should reflect the scale of the land form.		/p18	/p30			
• The scale of the woodland unit must relate to the scale of the landscape and its elements.			/p6	/p4	/p14	/p7
• Scale should increase from small scale to large scale near the sky-line.			/p6	/p5	/p14	/p7
• Avoid straight **Lines** and edges, they should be curved or diagonally aligned.	/p28	/p24	/p11	/p14	/p6	/p13
• Straight lines are acceptable where they relate to filed pattern.	/p20	/p18	/p11	/p9		
• Mix broadleaf and coniferous **Species** in drifts throughout the plantation.	/p14	/p27				
• Species mixes should be irregular.			/p24	/p22		/p21
• Species patterns should reflect the dominant pattern, either ground vegetation or local land form.			/p24	/p22		/p21
• One species should appear dominant by 2/3rds.			/p24	/p22		/p21

All reports agree that the pattern and shape of planting and forestry operations should relate to landform and retain the characteristic contrast between planting and open space. However, this advice is contradicted in the 1989, 1994, 1991 and 1992 reports, which all suggest the use of the 2/3rds woodland to 1/3rd open space rule.

All reports agree that designed shapes should follow land form rising in hollows and falling on convexities and spurs. This advice is very specific but it does not acknowledge landscape character and is not useful in flat landscapes but it is consistent over time and offered for both landscape types. The impression is that this particular piece of advice has continued to be offered because in some situations it produces an acceptable design solution.

Both upland and lowland advice states that shape designs should also respond to the dominant landscape pattern. In upland areas this is specifically intended for the shape of species mixes but in lowland areas this covers the design of all shapes and represents the FA response to designing in landscapes where the topography does not obviously offer a cue to the designer.

All reports agree that the designs of forest landscapes must avoid straight lines on the landscape, for example roads and rides should run diagonally. However, they state straight lines are acceptable where they relate to field pattern but this is contradicted in the 1991 CW report which states 'in open landscapes straight woodland edges look artificial, even when following former field boundaries' p6.

The 1989 and 1992 LLD advice states that woodlands in hedgerow landscapes need not follow landform and may adopt a small scale geometric layout in flat landscapes. The exclusion of this advice from the 1994 upland report is one of the few differences between these reports and is probably explained by its inclusion in the lowland report, where it seems more appropriate.

- **Trends**
  (upland 1966 and 1978 cf. upland 1989 and 1994, columns A & B)

The advice offered for upland afforestation has remained remarkably consistent over time. The changes and developments that have taken place reflect the adoption of an essentially visual design approach, which lays the emphasis on a two dimensional pattern making technique to integrate woodland into the landscape and with local landscape character.

Only the 1966 and 1978 advice states that the shapes of planted areas should reflect changes in soil. The early acknowledgement of the relationship between forestry and the ecological environment has been phased out, probably because it conflicted with efficient forestry operations.

No specific advice is offered on scale in 1966. The 1978 report simply states that the size of the plantation should reflect the scale of the land form. The 1989 report agrees but offers more advice suggesting how to use scale to control the visual impression of the extent of forest cover, 'scale should increase from small scale to large scale near the sky line' (1989, p6 and 1994, p5). The growing importance of this advice in upland reports reflects the FA's use of the design advice to try to ameliorate visual problems with integrating large scale forest plantations during forestry's boom years.

The advice on species mixes is one of the few aspects of the advice which has changed over time. The 1966 and 1978 reports suggests an overall species mix produces the best result in large scale flat landscape. This advice is dropped from subsequent reports and by 1989 the advice has changed and become very specific. These reports suggest that trees should be planted in single species groups and that these group mixes should be irregular then also suggest that one species should appear dominant by 2/3rds and that species patterns should reflect the dominant landscape pattern, be irregular in shape and interlock. These changes may also reflect the practical operational difficulties that harvesting an overall species mix would present.

- **Upland and Lowland Differences**
  (upland 1989 and 1994 advice cf. lowland 1991 and 1992 advice, columns B & C)

Current advice for both upland and lowland landscapes places the emphasis on integrating forestry by the design of shapes which include plantation blocks and edges, felling coups, open space and the pattern of species mix. Specifically it is suggested that shapes should follow land form or field pattern - whichever is dominant -rising in hollows and falling on convexities or spurs and be irregular, generally diagonally aligned and designed to achieve interlocking patterns. In general the advice states that all lines created on the landscape should be curvilinear or irregular and run diagonally and that species patterns should follow land form or vegetation pattern - whichever is dominant - and be irregular in shape.

The upland and lowland advice is generally consistent with the reports illustrating the same text with examples of their techniques applied in upland and lowland landscapes.

The lowland report offers more overall advice and more detailed advice on design but the emphasis is still on designing to achieve unity.

Upland and lowland advice agree that naturalistic shapes are preferable although this seems less important in lowland landscape where it is more difficult to judge shape on flatter, closer landscapes.

Both upland and lowland advice agrees that species pattern should reflect the dominant landscape pattern, either land form or vegetation pattern and that one species should appear dominant by 2/3rds in a species mix. This advice could be contradictory.

- **Lowland Differences**
  (lowland 1991 and 1992 advice, column C)

The 1992 LLD report states planting should reflect regional and detailed landscape character but this was not included in the 1991 CW report.

More advice is offered on integrating forestry practices in the 1992 LLD report but the aims and techniques are the same for both.

No advice is offered on species mixes in the 1991 CW report which is logical if less importance is being placed on integrating because community woodlands are intended to bring about landscape change.

Only the 1992 LLD report contains advice for new woodlands in hedgerow and open landscapes with specific advice for design in gently undulating ground,

flatter ground, rounded, humpy land form and scarp and dip slopes. This advice was developed to address design issues in lowland landscape where upland advice had been proved to be inappropriate. Although the lowland advice offers this additional advice for different types of land form the approach is the same - designing shapes to relate to land form or landscape pattern.

The advice on designing in hedgerow landscapes differs between lowland reports with the emphasis in the 1991 CW advice being on the conservation aspect of hedgerow scenery rather than on designing to replicate their visual pattern. This difference is consistent with the lower priority placed on visual design which is evident in this report.

5.5.3.2 Design for Improving the Visual Landscape: Table 5.5.1

This section looks at text offering advice on using planting design to improve the scenic value of the landscape.

• **General**

The FA's prime objective in visual improvement was to try to alleviate the visual problems of large scale blanket afforestation by creating the impression of naturalness. Over time the upland advice has adopted a number of basic techniques and have applied them universally, that is to most situation and whatever the design issue.

Generally, in both upland and lowland reports the design advice intended to improve the appearance of the landscape has been consistent. It aims to achieve a natural looking landscape through the design of irregular and varied shapes and spaces by avoiding any geometric or symmetrical shapes and straight lines on the landscape.

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Table 5.5.1: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on Design Practice - Improving the Visual Landscape

Design advice for Improving the Visual Landscape	Reports containing the advice					
	Upland				Lowland	
	1966	1978	1989	1994	1991	1992
• All landscapes are improved by a proportion of deciduous and broadleaf trees - introduce small enclosures of broadleaf's where public have access	/p13					
• Use larch to model and highlight land form	/p13	/p21				
• In flat country leave a belt of hardwoods along roads, in hilly areas feather into conifers.	/p13	/p28				
• Use hardwoods on access routes, stream-sides and camp-sites.	/p13					
• Use broadleaf's to emphasise land form, mingle light foliage larch and broadleaf's with the darker foliage of conifers.	/p14	/p28				
• Deteriorating **shelter belts** on sky-lines are unsightly without maintenance and better felled						/p18
• Edge belts of different species or retained trees are unsatisfactory, edge belts of broadleaf's around conifers can be intrusive.						/p33
• Avoid 'whippy' one-sided trees they are unsightly.						/p38
• Retain broadleaf woodlands where they make most impact on views.	/p13	/p28				
• **Pylons and service corridors** - improve appearance by designing a corridor of varying width, irregular edges and spaces with low tree and shrub planting.		/p25	/p18	/p16	/p33	/p47
• Design interesting sequences of spaces along routes, a varied edge with views. Emphasise changes of landscape character en route.			/p29	/p26	/p28	/p41
• Bring edges closer to road bends and steep hills where constricted space enhances the sense of movement. Move edges back on gentle alignments with features near roads.			/p29	/p26	/p28	/p41
• **Views** - woodland should draw the eye to feature views, curve away from fore or middle ground of panoramic views, develop canopied or filter views with management, create a series of views along roads.			/p21	/p19	/p21	/p40
• **Stream-sides** - design irregular edges to link across open space at key points forming a succession of glades.			/p19	/p17		/45
• **Lake side's** - promontories are best as open space allowing views across water.			/p20	/p18	/p27	/p46
• A planting ratio of 1/3 to 2/3rds is considered to look the most 'pleasing' ratio.			/p6	/p4	/p14	/p7
• **Small open spaces** - should add interest, diversity and soften abrupt vertical edges and emphasise focal points. Avoid geometric or symmetrical shapes.			/p20	/p18	/32	/p48
• Leave **features** such as rocks and crags unplanted.			/p9	/p17	/32	/p48

• **Trends**

Only the early advice, in the 1966 and 1978 reports , put the emphasis on the use of broadleaf tree species to improve the appearance of afforested landscapes. This advice was dropped in 1989 in favour of improvement through the re-design of shapes and spaces rather than the use of tree species. This is consistent with the economic requirements at the time, which demanded the use of fast growing conifer species. It is interesting to note that the review of the Broadleaf Woodland Policy in 1985 did not result in additional design advice being included on the best use of these trees. The growing importance of the pattern making approach in forest landscape design also meant that immediate visual improvements could be achieved by shaping felling coups and re-shaping forest edges which was more effective than waiting for broadleaf species become established.

The advice on the treatment of pylon corridors introduced in 1978 has remained consistent to the word and involves improving their appearance by creating irregular spaces, curving forest edges and introducing low shrub planting along their length. This advice became necessary when large scale blanket afforestation practices found that pylon corridors were visually intrusive and considered unattractive. It is surprising that the advice has remain important since this problem has diminished.

Advice on roadside design has become more detailed in response to the more enlightened approach to forest landscape design over time. In 1966 a simple belt of hardwoods was considered sufficient to improve the appearance of conifer plantations. Current guidelines, 1989 and 1994, have reviewed this advice and

now recommend a sequence of spaces along route ways with varied edges and views which emphasise changes in landscape character where possible.

The advice on treatment of views introduced in 1989 is unchanged in 1994. The advice suggests creating different types of views using spatial structure, for example canopied views and filter views.

The advice on stream sides, verges and rides, introduced in 1989, has also remained consistent for upland situations. Guidelines recommend designing irregular edges, varying widths and creating a succession of irregular glades.

The advice on lakesides introduced in 1989 is unchanged in 1994. An interlocking pattern of trees and open space is said to give best results, while allowing views across water. Promontories are stated to be best as open space. This is one of many examples of value judgements being applied to the visual landscape.

Advice on small spaces introduced in 1989 is unchanged in 1994. The advice suggests varying width of space, avoiding symmetrical and geometric shapes and adding to the interest and diversity of edges with shrub planting.

Advice on leaving areas around landscape features unplanted, introduced in 1989 in the wake of blanket afforestation, was unchanged in 1994 even though its importance had diminished. This is consistent with the 1994 report being virtually identical in form and content to the 1989 report and is another example of how the advice has failed to respond to changes in context.

• Upland and Lowland Differences

The lowland advice is generally consistent with the upland on this issue although the lowland advice is more detailed, probably in response to the need for communicating the advice to non-designers. It is the same advice and seems rather limited considering the possibilities for designing with plants, colours, textures, forest systems, other elements and functions that are available to the designer of forest landscapes.

The striking similarity between upland and lowland advice suggests the advice has been reproduced without giving clear thought to the nature of the different landscapes for which the FA have issued design guidelines. It appears that advice that the FA felt applied in lowland situations was simply bolted on to existing upland advice

Both upland and lowland advice agrees that the ideal planting ratio of 1/3 to 2/3rds is considered to be the most ideal ratio although it is explored in more detail in lowland reports. This advice was probably introduced following criticism of large scale blanket planting, which spoiled the appearance of hillsides but has remained even though it may contradict landscape character particularly in small scale lowland landscapes.

The advice on the treatment of views is consistent between upland and lowland reports, although more detailed in lowland advice. This advice does not seem to respond to the difference in nature of the views experienced in upland and lowland situations. For example, lowland views are more likely to require (but not exclusively) the designer to mask urban intrusion or aid visitor orientation. The advice here seems limited and is not responding to landscape type.

The advice on the treatment of roads is consistent but more detailed in lowland reports. Once again the character of lowland roads are different enough to warrant different advice, for example, they are more likely to be fenced off, hedged or wall-lined, in enclosed landscapes and possibly with urban views.

The advice on the treatment of lakesides is consistent between upland and lowland reports although more detailed advice is offered in the lowlands.

The lowland advice on pylons is consistent with upland advice. However, this advice should perhaps have diminished in importance where, for example, lowland sites are close to urban areas and their presence is probably more acceptable. Other factors which are more likely to need integration and masking in these situations are traffic, roads, built up areas, noise, lighting and people.

Only the lowland advice considers design of shelter belts which seems more appropriate in upland situations.

- **Lowland Differences**.

The 1991 CW report does not include the advice on shelter belts

The 1991 CW report also excludes the advice on visual improvement to streamsides. The advice instead is more practical and concerned with conservation issues. It suggests that access should be designed for maintenance and inspection and that a 5m bank of vegetation should be retained, 50% in sunlight and with broadleaf edge mix, p26. This inconsistency reflects the confusion over the content of the reports generally. It suggests that the reports are unsure whether they are offering advice exclusively for visual aspects of

design as they traditionally have, or whether they are advocating a more holistic approach, which they logically should. The difference of approach between the two main report authors, Bell and Swabey, seems to explain this confusion.

5.5.3.3 Design Advice for Recreation Table 5.5.2

This section looks at text offering advice on foot paths, games pitches, children's play areas, car parks, structures, buildings, bridle ways, picnic areas etc.

- **General**

Little advice has been offered on recreation in the upland reports which is surprising to note as recreation and amenity has grown in importance as a policy objective. The advice over time and for upland and lowland woodlands also seems limited suggesting that some of the advice has not developed in context.

- **Trends**

The advice on recreation in the upland reports is not consistent over time. No advice was offered on recreation in the 1966 advice.

The 1978 report offered general advice stressing the need to avoid urbanisation in structures and signage and intrusion from car-parks and camp-sites. It also proposed the preparation of a recreation plan attached to multi-purpose forests to identify features, views, access, wear capacity, footpaths, bridle ways and links to areas beyond the forest. The idea of this plan was dropped from subsequent reports. Production of this type of plan would probably now be considered part of the design process. However, this area of advice has never been properly addressed in the upland reports and early commercial forestry

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Table 5.5.2: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on Design Practice - Recreation and Amenity Objectives

Design advice for Recreation and Amenity Objectives	Reports containing the advice					
	Upland				Lowland	
	1966	1978	1989	1994	1991	1992
• Produce a multi-purpose landscape plan identifying features, views, access, wear capacity, foot-paths, bridle ways and links to areas beyond the forest.		/p42				
• Do not let recreational services detract from attractions, avoid visual intrusion from camp-site and car-parks.		/p43				
• Picnic areas, car-parks and small open spaces design to be minimum 3x tree height and max. 10x tree height, avoid geometric or symmetrical shapes. Emphasise any focal points.			/p19	/p18		/p48
• Sub-divide spaces into secluded sunny bays for sitting & picnicking or as sites for toilets & information points.					/p30	
• Roads - plan to avoid use as short cuts or fast sections, avoid conflict with other recreational use. Views must be designed on a broad scale and relate to average speed of the traffic.					/p28	/p41
• Footpaths - provide sequential character, structures and spaces. Create circular walks. Consider safety and avoid user conflict.					/p29	
• Provide access points to take in user routes.					/p29	/p39
• Design forest rides that are good for walkers.					/p37	/p44
• Provide unambiguous, well placed and relevant signs. Use view-points to help orientation.					/p29	
• Create generous parking areas with a clearly defined circulation pattern.					/p43	
• Streams and ditches require culverts or bridges - simple timber slabs are sufficient for small crossings.					/p44	
• Facilities for play - aim to provide physical activity, social and educational play.					/p46	
• Small buildings - use simple forms, materials and finishes in keeping with colours and textures and sign clearly.					/p47	
• Small structures - locate picnic tables in bays close to car park, locate bins discreetly.					/p48	

practice may have considered the provision of recreational facilities a low priority.

The 1989 report introduces more specific advice on the design of small recreational spaces and car-parks, in particular the dimensions of the open space required, but the advice is minimal. The advice is consistent in the 1994 advice which is surprising to note given the growing emphasis on recreational benefit in all FC woodlands and the enormous recreational opportunities that exist in some of the upland forests.

• **Upland and Lowland Differences**

Both upland and lowland reports offer advice on picnic areas, car parking and recreational spaces and the advice is consistent. While the upland advice only considers the spatial structure of these areas however, the lowland advice gives the aspects of design greater importance by offering more detailed advice covering design shape and spatial structure, location, use of materials, signage and circulation.

• **Lowland Differences**

The 1992 LLD offers minimal advice, specifically on forest roads, rides, small spaces and access points. This is consistent with the perceived low key recreational objectives of lowland woodlands although it does seems limited and may not be as useful as it could be to non-designer foresters creating multi-purpose lowland forests.

In contrast the 1991 CW report offers a wide range of detailed advice from; access roads, rides, paths, parking and recreation spaces to buildings, structures, signage and facilities for play. However, the individuals creating community or

urban fringe woodlands are more likely to be design trained and, as a consequence, aware of the related design issues and this may mean much of the advice is superfluous to some users.

5.5.3.4 Design for Nature Conservation: Table 5.5.3

This section looks at text offering advice on the creation and conservation of habitats, for example open water, wetlands and grassland, also on the preservation of landscape features, for example ancient trees and hedgerows.

- **General**

The advice offered on nature conservation is relatively small given the potential of design to increase a woodland's conservation value. Using forest landscape design to accommodate nature conservation is clearly an objective but the advice is limited and the referencing of other sources of information is poor. By focusing the design advice on the manipulation of the visual landscape the guidelines may have missed the opportunity to encourage designers to use conservation as a cue to the design solution. An approach which would enable designers to tie a woodland's visual form to natural process in a logical and appropriate way.

- **Trends**

The importance of broadleaf woodland to encouraging wildlife and good health in a landscape stated in the 1966 and 1978 reports has since been dropped from upland advice.

The 1978 concept of retaining indigenous growth near watercourses and rock outcrops for conservation purposes was subsequently dropped. This reflects the increasing concern with the visual landscape, where planting layouts and tree species were chosen with visual rather than conservation objectives in mind.

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Table 5.5.3: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on Design Practice. - Nature Conservation Objectives; Forestry Techniques and Operations

	Reports containing the advice					
	Upland				Lowland	
Design Advice for Nature Conservation objectives	1966	1978	1989	1994	1991	1992
• Retain **broadleaf woodlands** to encourage wildlife and good general health of the landscape.	/p13	/p38				
• Protect streams and open **water** which are for wildlife.		/p31	/p20	/p17	/p27	/p45
• Retain indigenous growth near water courses and rocks.		/p39				
• Take the opportunity to create new wildlife habitats in the woodland's **open spaces**					/p34	
• Vary **forest structure**, age, species and retain old trees.		/p39				
• Vary widths of verges, stream sides and **edges** to increase conservation value.		/p31	/p16	/p13		
• Designers can contribute to ecological value of edges by using a diverse range of ground vegetation and by varying age, species and density of tree cover in an irregular designed edge.					/p25	/p37
• Recognise the ecological value of ancient **hedgerows** and hedgerow trees. Exaggerate the diversity of the hedgerows, copy density in local vicinity.					/p38	/p38
Advice on Forestry Techniques and Operations						
• Select a species that will produce good **timber** on a given site.		/p27				
• Conifer and broadleaf species can be mixed where early financial return is desired in a broadleaf woodland.		/p29				
• The need for a flow of timber supply can be used to advantage as long as a longer rotation stand can contribute to the landscape.		/p32				
• **Coup design** - where pre-thinning severance lines is practicable a well furnished edge can be revealed at the final felling.		/p37				
• Broadleaf's established with conifers is rarely necessary except in exposed uplands, for economic reasons.		/p29	/p24	/p24		
• Wind throw risk may inhibit felling of irregular coups. Avoid long straight internal edges.		/p26	/p26	/p24		
• Depending on site fertility, allow 8-15 years between felling adjacent coups.		/p26	/p24			

The 1978 advice also suggests varying the structure, age and species in woodland planting and retaining old trees in the interests of conservation. The idea is dropped from subsequent upland reports. This advice was probably considered impractical in commercial forestry practice.

The 1978 report suggests varying the width of stream sides, verges and edges to increase conservation value and protecting watercourses and open water in the interests of wildlife. These ideas are carried forward to the 1989 and 1994 advice and remain the most important conservation features in forest landscape design in upland reports. For the FC this is the area of where nature conservation concessions can be incorporated into commercial forest design without making major changes to existing forestry practice and therefore the consistency of the design advice is probably to be expected.

Over time the upland reports have minimised conservation advice and this is consistent with the introduction of the Forest Nature Conservation Guidelines published in 1990, which are intended to provide comprehensive advice on this issue.

* **Upland and Lowland Differences**

Lowland advice differs from upland in recognising the ecological value of ancient hedgerows and hedgerow trees.

Lowland advice introduces the advice on improving the ecological value of the woodland edge through structural and species and age diversity .

Both of these lowland introductions reflect the difference in perception of the

nature of upland and lowland woodlands. Lowland woodlands are considered less likely to have commercial objectives and therefore more likely to be valued for their multi-purpose function. Design practices weighted in favour of nature conservation are probably thought to be more appropriate here.

• Lowland Differences

The advice offered in lowland reports is consistent, although the 1991 CW report places more importance on creating wildlife habitats in open spaces, which is more possible in the less commercially run CW schemes and offers more detailed advice on water features, which is consistent with the high recreational value of water bodies in amenity woodlands.

5.5.3.5   Forestry Techniques and Operations: Tables 5.5.3 & 5.5.4

This section includes advice offered on woodland management, forestry operations and silvicultural systems.

• General

In the FA's efforts to keep visual and practical design advice separate, the breadth of the contents has become limited to the extent that forestry operations appear divorced from forest landscape design in the guideline advice. Not surprisingly, the reports seem to have a problem differentiating between visual advice and practical advice because the two are so closely related and the resulting advice is often confusing.

This situation may have come about because the design advice has traditionally been treated as a separate issue in forestry practice, where visual design guidance was bolted on to existing advice simply because it represented information foresters did not have available. Now that the individuals designing

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Table 5.5.4: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on Design Practice - Forestry Techniques and Operations cont.

Advice on Forestry Techniques and Operations cont.	Reports containing the advice					
	Upland				Lowland	
	1966	1978	1989	1994	1991	1992
• **Fencing** - use high-tensile steel fencing along roadsides.			/p22	/p20		/p50
• The alignment of gradient **drains** is determined by the need to remove water efficiently while avoiding erosion and sedimentation of water courses.			/p23	/p21		
• Plastic **tree shelters** enables trees to establish quickly but fencing and herbicide are cheaper and look better.			/p25	/p23		/p49
• The simplest **structure** to achieve in a community woodland is even aged stands of varying ages.					/p21	
• **High forest** - the stock in these woods can be managed to control the crown development and stem diameters and amount of light reaching the shrub and herb layer.					/p21	
• Woods with several canopy layers, or managed by small scale felling to give age diversity have a high level of interest.					/p21	
• Under-storey of hazel, beech or hornbeam can increase visual carrying capacity of woodland with their low dense growth.					/p21	
• **Coppice woodland** - managed on a rotational basis, this system could establish within 20yrs of planting if the right species are chosen.						/p22
• Within the relatively short cycle of felling in adjacent areas coppice stands can create a spatially diverse woodland.						/p22
• Coppice-with standards system - combines coppice of even age, grown as underwood with standards of uneven age treated as high forest.						/p22
• Consider maintenance implications of choice of woodland management system.						/p22
• Shorten establishment by using some fast growing nurse species. **Nurse crops** can be silviculturally beneficial to other species.		/p29				/p23
• Designing **regeneration systems** - there are some constraints on shape and layout of seedling fellings, group regeneration systems involves the gradual removal of older trees around natural or created gaps in the woodland.						/p31

forests are not necessarily foresters the advice on this subject seems limited and limiting. Providing comprehensive advice on those forestry operations and techniques which may have design implications, would allow a designer the opportunity to explore the relationship between form and functions when looking for a design solution, for example, the economic implications of design decisions are absent from all the advice even though forest landscape design can have significant economic implications .

Practical forestry advice is however well represented in various other FA guidelines and notes but more obvious referencing may be useful.

* **Trends**

Advice which offered practical guidance and considered the implications of forestry management and operations in design terms was not introduced until 1978.

The 1978 advice warns of the risk of wind-throw when designing felling coups. The advice, although minimal, is carried forward to the 1989 and 1994 reports. This is the only piece of advice which has remained consistent but it is a significant design problem in commercial forestry with visual implications for the designer.

Advice in the 1978 report, which suggests mixing broadleaf and conifer species for an early return from a broadleaf woodland, is dropped from the 1989 advice. The subsequent advice states that broadleaves established with conifers are rarely necessary except in exposed upland areas for economic reasons. Forestry techniques have changed since Crowe's day and the change in early advice reflects a more informed approach to design.

The 1978 advice which states a basic need to select species which will produce good timber on a given site is also dropped from subsequent reports, probably because the FC were more interested in planting targets than timber quality and conifers will grow in all situations and are the most economically viable species.

The 1978 advice on taking advantage of felling regimes to retain longer rotation stands where they are making a valuable landscape contribution, is dropped from subsequent reports. In developing the guidelines it seems that forest management advice, although full of design implications is considered less important to the user over time.

The 1989 report introduces the use of specific fencing and tree shelters to cut down visual intrusion in the landscape and also design advice on drainage, this particular advice reflects the recognition of the visual design implications of this particular forestry operation. The advice is repeated in the 1994 report.

• **Upland and Lowland Differences**

The upland advice on the use of specific fencing and tree shelters to cut down visual intrusion in the landscape appears in the 1992 CW report but surprisingly is not included in the 1991 LLD report which relates to forestry operations where the visual effects are likely to be obvious to a larger number of people.

The 1991 CW report introduces advice on forestry systems and management techniques including structural diversity, felling regimes and regeneration systems. The advice is brief, more of an exploration than explanation. The advice, once again, seems to have been written for the design of upland forests by commercial foresters who already have this information.

The upland advice offered on drainage in the lowlands and on the timing of adjacent felling coups is cut from the lowland advice. These omissions are consistent with the assumption that lowland forestry is small scale and less likely to be commercial planted or managed.

• **Lowland differences**

The 1978 idea of establishing woodland with a nurse species is reintroduced to 1991 CW advice which is aimed at the area where timber yield and establishing a woodland atmosphere quickly is important.

Only the 1992 LLD report offers practical advice on fencing and tree guards. The decision to cut this advice from the 1991 CW seems arbitrary.

The 1991 CW advice does not include designing regeneration systems presumably because establishing new woodland is the objective.

5.5.3.6   Design Advice for Reclamation Objective: Table 5.5.5

This section includes advice on design for planting design on sites reclaimed for woodland.

• **General**

The advice on design for reclamation only appears in the 1991 CW report where this type of site is more likely to be proposed for afforestation. The advice lists derelict industrial sites, disused railways, open cast coal mines, mineral spoil heaps, gravel works and refuse disposal sites as possible sites where trees can be established.

Table 5.5.5: Summary of the key advice given in Forestry Commission Design Guidelines over the period 1966 - 1994 on Design Practice - Reclamation

	Reports containing the advice					
	Upland				Lowland	
Design advice for Reclamation	1966	1978	1989	1994	1991	1992
• Derelict **industrial sites** - remove large solid and toxic material, address draining surface. Add nutrients if required.					/p38	
Disused **railway lines** - tree growth and species is unlimited. Track beds are useful for access routes and cycle ways.					/p39	
• **Open cast coal mines** - adjust profile for naturalness. Exaggerate planting along margins to increase impact of simple land form. Designing large scale water features can offer the opportunity to develop a more emphatic land form.					/p39	
• Mineral spoil heaps - stability and drainage are important, planting must have acceptable shape, reflect land form and landscape scale.					/p40	
• Gravel works - re-work shapes and profiles, planting in phases to lessen impact of excavation.					/p41	
• Quarries - stabilise any hazardous surfaces. Shape quarry face to reflect land form and scale. Re-shape in sympathy with local area and plant to blend with local vegetation.					/p39	
• Refuse disposal sites - effective capping and extra overburden may be an issue here. reference for further information given.					/p42	

The actual advice is limited considering the complexity of some of the issues related to such sites and referencing for further information is minimal. The advice that is offered is a mixture of practical issues, possible objectives and visual design suggestions which are consistent with the design advice offered for all other situations, for example design with reference to land form, local landscape scale and vegetation and lessening the impact of land-use.

There is no specific advice offered in this guideline for designing urban fringe woodlands or addressing the particular problems designers may encounter in these areas, for example fly tipping and established desire lines. Community woodlands are more likely to be established in these landscapes than on reclaimed land and while guidelines have been produced by the national Urban Forestry Unit these are not referenced here.

• **Trends**

Not an issue

• **Upland and Lowland differences**

Not an issue

• **Lowland differences**

Not an issue

5.5.3.7   Summary of Advice for Design Practice

The FA's objectives are clearly stated: the Authority works to conserve and improve the environmental value, biodiversity, landscape and cultural heritage of Britain's forests and to develop opportunities for woodland recreation and promoting public understanding of and participation within these forests.

While it is difficult to say to what extent offering designers design advice will affect the fulfilment of these FA objectives, it is likely that most of these objectives can be addressed in some way through the design of the forest landscape. The review of the advice, however, suggests that the scope and content of the existing advice is too limited and too heavily weighted in favour of addressing the visual quality of the landscape to achieve it's full potential. In addition the tone and form of the guidelines present such specific and formulaic design advice that designers may well be discouraged from pursuing other design possibilities and find it harder to grasp the philosophy behind forest landscape design.

The consistency of the advice over time suggests two further concerns. Having made the distinction between advice for upland and lowland forestry the details of the design advice is remarkably similar. The content of the advice does not appear to be sufficiently different, taking into account the significant differences between these landscape types both in their physical and visual appearance and the way they are perceived and experience by people. This consistency begs the question 'how can the same advice produce woodland which is integrated with the landscape in areas of very different landscape character?'.

The consistency of the advice also shows the guidelines may have failed to reflect recent developments in the understanding of landscape aesthetics and of user perception and attitudes towards woodland landscapes and environments. This situation makes the advice appear out of current context and sometimes at odds with other land-use systems and philosophies.

The upland advice has over time become more concise and prescriptive while the lowland advice has become more exploratory and advisory and goes to lengths to explain and communicate design ideas. All advice is presented in a basic rather than complex manner but the upland advice is concise while lowland advice is elaborate. In the past the tone of the advice, particularly in the upland reports, was linked to forestry problems and the need to control the design of afforested landscapes during these difficult periods. The tone of the lowland reports is more in line with the reports' objective of being guidelines.

5.6   Summary of Analysis (Part 2)

The study of the contents in part 2 suggests it is difficult to identify the theory and guiding principles behind the practice of forest landscape design as it is represented in the FA's reports. In addition, although more recent advice is moving into line with current thinking, the design process used in the guidelines is sometimes incomplete and inconsistent in both content and tone. As a consequence the design advice offered does not appear to allow design solutions to be a product of the design process and is, at times, formulaic, limited in scope and content and unable to fully respond to planting location or planting objective.

5.7   Conclusion: Contents Review

Although the different design guidelines offer a good deal of relevant, helpful design advice the current advice being offered appears to suffer from the following weaknesses:

- the theoretical framework appears weak

- the advice is not always consistent or logical

- the advice at times seems incomplete and unbalanced

- the advice sometimes struggles to remain in context with current landscape thinking, and

- the advice does not always appear to respond to user needs.

As a teaching aid the value of the current advice to the designer is limited by an underdeveloped theoretical framework, a confused and inconsistent design process and a form that may not allow the designer to control the design.

These problems in turn limit the guidelines' ability to fulfil their objectives, they limit the quality of advice offered, the appropriateness of their approach and usefulness as design aids.

In light of the Contents Review the following Critique (Chapter 6) discusses some of the key issues which are dictating the nature of the current advice and questions whether the advice should be considered sound. The questions raised by the review are:

- is the FA's interpretation of landscape aesthetics and landscape design theory, in relation to the forest landscape design advice, convincing and relevant?

- Is a visual design approach to forest landscape design the most appropriate and workable approach?

- Is advice based on a preconceived notion of beauty, value judgements and assumptions about people's preferences likely to be sound and acceptable?

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- How satisfactory is the FA's definition of landscape character and how reliable is the relationship between landscape character and design advice for 'integration'?

- How sound are the Visual Design Principles?

- Is offering separate advice for upland and lowland situations logical?

- How appropriate is the form and tone of the guideline advice and is the form of the advice the best way to achieve the FA's objectives?

CHAPTER 6   THE FORESTRY AUTHORITY'S DESIGN ADVICE: CRITIQUE

6.1   Introduction

The following critique considers the development of the FA's approach to forest landscape design and identifies a number of key issues which question how appropriate and sound the advice offered is likely to be.   In particular the critique questions the preoccupation with scenic beauty and landscape aesthetics, the interpretation of landscape character and the content of the Visual Design Principles.   It also discusses whether the form of the advice is the best way to achieve the FA's design objectives and if the advice is, in practice, easy to understand and implement.   The critique concludes by considering the extent to which the issues raised in the critique support the research questions.

6.2   The Nature of the Existing Design Advice

The discussion so far has established that it was, to a large extent, external pressures that dictated the FA's original design objectives (section 4.2.2).   This led to a visual design approach to forest landscape design which could address the visual impact of forestry operations in upland landscapes and improve the FC's public image.   The early designers responded to these objectives by introducing design techniques which aimed to identify the local landscape character and to integrate afforestation into the landscape in a visually sympathetic manner.   The emphasis from the beginning was to achieve 'integration'.

As the early advice developed it defined 'landscape character' in visual terms which could be most usefully identified and explained by the recognition of the two-dimensional pattern it created on the landscape. Forest landscape design therefore originally worked to integrate planting by matching the design of new plantations to the existing landscape character pattern or alternatively, by imposing a two-dimensional pattern which was considered more aesthetically pleasing. The nature of patterns and shapes used in this process was also required to achieve the impression of 'naturalness' and the landscapes they produced were intended to be as attractive as possible. This design advice was compiled and published in guideline form in order to communicate forest landscape design to the FC's foresters who, up until this point, had not received any landscape design training.

The next section discusses why the advice has taken this particular direction and where the nature of this development calls into question the validity of some aspects of the current advice.

6.3   Landscape Aesthetics and Design Theory

The move to apply landscape design to a basic land-use activity like forestry was an unusual step for the FA to take, particularly as it's approach developed by placing the emphasis on the visual rather than functional implications of forestry operations in the landscape. Two factors led to the adoption of this visual design approach; first, the objectives and constraints placed on design advice through the separation of form from function in forestry activity: second, the development of a theory based on a preconceived notion of beauty.

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6.4   The Development of a Visual Design Approach

The nature of forestry itself, particularly large scale commercial forestry, made anything other than a visual design approach problematic. The need for economic viability in timber production was so constraining in the early years of the FC's afforestation programme that designers found only minor modifications, for example to the tree species mix or planting density, would be tolerated by foresters, because of fears of reducing the timber quality or the market value of a crop (Campbell, personal communication) . For the same reasons they found that ecological and nature conservation enhancements were also limited, being largely confined to the plantation and water course edges, however the design advice they developed took advantage of these opportunities where possible, (Crowe S., 1966 and 1978).

However, as the designers struggled to improve the acceptability of the FC's activities, they discovered that major improvements could be made to the visual appearance of forest plantations and in turn the public's perception of forestry practices. They could achieve these improvements addressing the shape of the plantation, species mixes and felling coupes and by controlling the pattern forestry created on the local landscape. In this way the design advice managed to progress by promoting an aesthetics-led design approach. This concentrated on exploiting the landscape's visual qualities and forestry's two dimensional, pattern making potential in the landscape.

As a consequence the advice became focused on responding to the visual rather than natural or cultural landscape. With design objectives focused on promoting scenic beauty the designers looked to eighteenth century design aesthetics to provide the theoretical support for their design decisions, which

was of particular interest to Bell, (personal communication). By basing their advice on the fine artist's established rules of balance and proportion, the designers reasoned that they could compose visually satisfying landscapes. Encouraged by the objective to make afforested landscapes attractive the designers pursued the concept of ideal beauty, (Campbell, personal communication).

Although these rules seem generally more appropriate to two dimensional concepts such as landscape paintings, the distant upland landscapes lent themselves well to shape and pattern composition and some attractive, acceptable images were created on the Northumberland landscape at Keilder. This success served to reinforce the FA's ideas and it is not surprising therefore that the design advice continued to developed along these lines with the introduction of the visual design principles, (Forest Landscape Design, 1989). Although more recent advice has tried to move away from the emphasis on aesthetics-led design, these design principles, which embody such ideas, are so firmly established that they remain central to the current approach, (Upland 1989; CW 1991; LLD 1992 and Upland 1994).

On a very simplistic level one of the problems with approaching forest landscape design in this way is that the landscape and the elements within it are not always primarily perceived as a two dimensional image or pattern. The visual composition of a scene changes with the viewing direction, elevation and distance of the observer. With movement through the landscape, pattern is constantly re-composed and clearly this is something over which the designer can only have limited control. Where a landscape is flatter, low-lying or nearby, the observer may not be so aware of landscape pattern. Other factors may become more important in these landscapes and a woodland is more likely to

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be experienced as a three dimensional form and as a place. It seems unlikely therefore that advice based heavily on addressing the visual effects of forestry in the landscape by attention to two dimensional images and patterns will be appropriate or complete in all situations. In general the advice may be less appropriate in lowland landscapes than in upland landscapes

Whether it is still reasonable to think of afforested landscapes in two dimensional terms, when the nature of forestry in this country has changed direction in recent years, also brings into question the usefulness of the design advice. Thus, how useful is design advice which concentrates on the visual implications of forestry activity, when developments in FA objectives, initiatives and incentives seek to influence the nature of afforested landscapes and environments in a more holistic way?

Timber production is no longer the prime motivation in woodland establishment in many cases and the unpopular practice of large scale blanket afforestation of uplands landscapes, the activity which originally raised the issue of design advice, is less of a concern. Woodlands are being proposed on sites where achieving 'integration' and the appearance of 'naturalness' are not as important or appropriate as in the past, this is particularly the case in the urban fringe and in cultivated landscapes. Lower rates of forest establishment and the new initiatives have placed more emphasis on the forest experience, recreational use, the needs of wildlife and ecological diversity. These aspects of woodland design demand more than a visual approach and a much greater understanding of woodland as a three dimensional environment if design opportunities are not to be missed.

The visual design approach had a logical beginning based on early FC objectives and constraints but it is more difficult to justify this approach as time has gone on. If designing forestry into the landscape is considered an appropriate activity (discussed further in Chapter 10), an aesthetics-led design approach is a perfectly valid way to achieve forest landscape design, where objectives require landscapes to be attractive and offer visual enjoyment and visual improvements. This approach, however, is not useful or relevant in some situations and is limited in others. Over the past thirty years a more holistic approach to landscape design theory has emerged raising issues that can, and need to, be addressed by design. These include the perception of fear in woodlands and problems of vandalism with which an aesthetics-led approach is not well equipped to deal. An approach which places the emphasis on visual design regardless of objectives or location, could be considered as out of context, limited and unlikely to fulfil every objective.

6.5 The Implications of Advice Based on a Preconceived Notion of Beauty

Initially Campbell's remit was to produce design advice which could communicate the theory and practice of forest landscape design to the FC's foresters. However he embarked on the task well aware of the very specific problems the FC were encountering with their plantation style. Criticism was focused on the contrast and landscape changes caused by the introduction of large scale forestry planting which used non-native species planted in single species geometric blocks. As he was under pressure to address these problems and provide solutions which would improve the FC's image, it is not surprising that the design advice he produced reflected these concerns above those of developing a more inclusive theory for forest landscape design.

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As Campbell and his design team experimented on existing plantations with their design ideas, they began to see the implications of their efforts and what could be achieved in terms of rectifying existing problems and creating attractive forest landscapes. These findings were translated through the advice in the guidelines into a vision of what the designers considered constituted an attractive landscape. This vision became defined by advice which clearly reflected design decisions based on their personal assumptions of what constituted scenic beauty.

By the time the 1989 guideline was published the FA's vision of scenic beauty clearly aimed to reflect the aesthetic qualities of a landscape. The guidelines advise designers to strive for balance, proportion and harmony in a forest landscape through the careful manipulation of line, shape and pattern in the design. The principle design objective was to achieve visual integration. The details of the advice promoted the impression of naturalness: of uncultivated landscapes, which seemed logical where they were imposing forest planting in the uncultivated uplands. To achieve these ideal landscapes the advice worked to avoid conspicuous change or extreme contrast and to reduce any obvious visual intrusion by human or forestry activity for example pylon corridors, roads and rides, (Upland 1989, p18; CW 1991, p33; LLD 1992, p47; 1994, p16). Where planting was taking place in farmed landscapes the advice also aimed to reflect an image of a well managed, healthy environment with complete hedgerows, shelter belts and perfect specimens trees, (for example Lowland 1992, p33) and, in doing so, discouraged incongruity, imperfection and individuality in afforested landscapes.

The following quotes, taken from the current Upland (1994) and Lowland (1992) guidelines, give an example of the way this vision is often communicated through the advice:

- 'When a landscape is seen as being divided into two different parts, a ratio of one third to two thirds is often the most satisfying' (Upland 1994, p4: Lowland 1992, p7)

- 'Woodland shapes should have curved edges. These are always better than straight lines' (Upland 1994, p8)

- 'Side margins look best in the form of gently curving diagonals' (Upland 1994, p11)

- 'Regular spacings look artificial, treatment must be bold if it is not to be visually insignificant' (Upland 1994, p13)

- 'Mixing adjoining species at the boundary to make a soft transition is desirable' (Lowland 1992 p20)

- 'Edge belts of different species or retained trees are usually unsatisfactory. Groups of irregular size and spacings are better' (Lowland 1992, p33)

One of the basic concerns with design advice based on a preconceived notion of scenic beauty is the subjective nature of the concept of scenic beauty. While factors that constitute a landscape's character can be assessed more objectively, for example soil type, land-use and distinctive features, those factors that constitute scenic beauty are likely to be heavily influenced by personal

preference. They represent a subjective measure of aesthetic appeal experienced by the observer and influenced by 'an instinctive appreciation of a landscape's aesthetic qualities', and by 'personal experience, cultural conditioning and familiarity' (Warnock S. and Brown N., 1998).

The fact that the FC's original vision of afforested landscapes was based on a preconceived notion of scenic beauty was not necessarily a conscious decision by the early designers but rather a result of their efforts to fulfil the objectives they were given.

Lucas recognised the problem of relying on subjective criteria. His paper 'Assessment of the Landscape and its Application to Forest Design' (Lucas O., 1978) states, 'it is neither true nor useful to say that appreciation of landscape is purely a matter of individual taste...It is vital to remove landscape appraisal from a totally subjective response by an elite. There will always be some individual response to a particular landscape but a clear language of design allows us to identify what is objective, what is subjective, and where we agree to disagree. It also allows policy makers to set aims, goals, constraints and standards for forest landscapes'. The design advice meanwhile was contradicting this view. Revealing an approach which suggested that the FA as policy makers had set aims, goals, constraints and standards for forest landscapes by imposing a subjective response by an elite, thus revealing a 'clear language of design' that was bound to be influenced by subjective assumption.

The consistency of many of the value judgements through time and between upland and lowland advice suggests that the current advice is still heavily based on the FA's original vision and assumptions. This situation helps to explain some

of the incongruities that exist between present objectives and the nature of the FA advice and it raises further questions about the validity of the FA approach to forest landscape design.

There are three significant implications for advice which works to support a preconceived notion of beauty:

6.5.1   Effects on the Nature of the Advice

The success the early designers achieved in re-designing the original problem plantations set the standard and vision for forest landscapes. Although the style of forestry practice which was producing these unacceptable landscapes has since ceased, the design advice that developed was and to a large extent still is, aimed specifically at improving the appearance of extensive, coniferous plantations in large scale, distant, upland landscapes. To-day this vision seems particularly inappropriate when applied to small scale, lowland landscapes where the aim is often to produce accessible and multi-purpose woodlands. Advice developed for a particular type of landscape tends to be inflexible and limited and does not readily allow sensible design solutions to different design objectives or to areas of very different landscape character. Indeed complying with the detailed advice may work to contradict character in many cases, as for example 'Woodland shapes should have gently curving edges. These are always better than straight lines' (Upland 1994, p2). If a design cannot relate to a landscape's character, visual integration becomes more difficult and as integration is a prime objective of the design advice, it seems the guidelines may have difficulty fulfilling their own design objectives with advice based on this vision.

6.5.2   Effects on the Theory for Landscape Design

To produce a coherent theory for forest landscape design the FA would need to produce a system of ideas which can explain forest landscape design in abstract terms: a system of ideas that is soundly based on general principles.

Any theory the FA develops for forest landscape design is going to be undermined by their vision of scenic beauty simply because their basis of reasoning is open to subjectivity and preference. It is possible that decisions made on this basis could reflect bias, or even appear dubious or irrational in some cases as, for example, 'On gently undulating ground ... it is usually better to keep open space in the hollows and new planting on rising ground' (Lowland 1992, p13), and inflexible or incomplete in others as for example, 'Rectangular coupes are not acceptable' (Lowland 1992, p26).

While the basis for the advice seems weak, the fact that it is shaped by the FA's own vision and objectives for forestry expansion rather than by principles or truths widely held by the landscape profession weakens the theory further. Design decisions influenced by a particular cause are unlikely to encourage equal weight to be given to all issues concerned with forest landscape design and may well result in designs which are not be in the best interest of all parties.

6.5.3   Effects on Communication of Design Skills

The FA's advice has not developed a theory for forest landscape design as such but rather created a practical method for designing forests.   Instead of producing a theoretical system which allows design decisions to be made based on an understanding of a design theory. The FA has developed a procedure that

works to engineer a specific response to the design of forest landscapes, that is to achieve scenic beauty through a series of judgements and instructions.

The guidelines therefore fail in their objective to teach non-designers to design because they are only teaching non-designers to reproduce the FA's vision of forest landscapes. With the FA's system the forest landscape designer is not encouraged, nor on occasions at liberty, to make an informed judgement on an individual proposal or respond to opportunities thrown up by the survey and analysis stage of the design process. The guidelines are, in short, too prescriptive as, for example, in the advice 'field pattern may be ancient ...or it may be more recent...Where both patterns are present, give priority to the older.' (LLD 1992, p22). It is not possible to take the advice and be sure it will be appropriate for all objectives, nor for areas of different landscape character.

6.5.4   Summary

The guidelines contain a great deal of useful advice drawn from the FA's years of experience in designing forest landscapes but the implication of producing design advice based on a vision of scenic beauty and value judgements is that the advice appears theoretically unsound. If this is so, it will fail in its objective to communicate a design theory to non-designers and moreover, the detailed advice produced in response to this vision could be judged as biased, limited and outdated.

6.6   The Issue of Landscape Character

Although the FA has always been clear on it's design objective, in order to achieve it's vision of scenic beauty the guidelines advice does not always sit

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comfortably along-side the FA's other concerns, in particular the requirement to reflect and respect landscape character. The relationship between these issues continues to create inconsistencies. In fact through time the FA's definition of what constitutes landscape character, how character is assessed and the role it plays in design have become significant sources of contradiction within the advice.

When Crowe joined the FC, her over-riding objective was to reduce the impact that forestry activity was making in the landscape. In tackling the problem, she recognised that individual landscapes reflect a particular visual character or pattern defined, she concluded, by 'the configuration of the ground and the scale of its variations: the existing type and pattern of vegetation and land-use and the prevailing colour of the rock, soil and structures' (Crowe, 1966, p5). By being aware of these patterns when making design decisions she found that forestry could be more sympathetically placed in the landscape. Crowe's original advice to the FC foresters, with regard to landscape character, was simply to respect and preserve the existing character (Upland 1978, p6) which was not surprising since upland planting was then taking place typically in highly valued landscapes.

Campbell (personal communication) too could see the advantages of being able to identify character but particularly the advantages of using character as a cue for design. He found that forest planting could be more effectively integrated into the landscape when the plantation pattern was designed to replicate the visual local landscape character pattern. Plantations in this form, he believed appeared far more 'natural' in appearance than the unrelated rectilinear shapes of many of the early afforestation schemes.

As the advice evolved the FA's design objective focused on integration through achieving the impression of naturalness and its definition of landscape character became firmly focused on the two-dimensional visual pattern inherent in individual landscapes. This emphasis on the visual, rather than the natural or cultural, aspect of character was clearly a response to the main opposition to upland afforestation which was directed at forestry's visual intrusion, but it also reflected the constraints of early FC practice on design. The introduction of large scale coniferous afforestation into treeless landscapes could not hope to accommodate all of the natural or cultural factors relevant to such a proposal, as the existing characteristic ecological communities could not be respected or preserved under these circumstances no matter how careful the design. So although ecological and cultural activities were recognised as contributing to landscape character, their contribution became a part of the visual landscape pattern rather than representing ecological value or meaning in a landscape. This particular emphasis is reflected in Campbell's development of the six 'key' visual design principles of shape, scale, visual force, unity, diversity and spirit of place, introduced into the 1989 upland advice, to help designers identify characteristic landscape patterns.

While the FA's forest landscape design advice has generally maintained this approach, the landscape profession has also been looking at the issue of landscape character in the landscape design process. Through time the importance the profession placed on the role of character in the design process and in design decision making has grown considerably, to the extent that landscape character has become of major importance in the planning and design of modern landscape development. This is reflected in the DoE's 1997 revised planning policy guidance, The Countryside Environmental Quality and

Economic Social Development, (PPG7), which indicates a character-based approach to landscape designation.

Although the FA itself has recently developed its own guidelines for landscape assessment for Indicative Forestry Strategies (FC, 1993), including a system of character assessment more in line with current thinking, this development has been slow to filter through to the forest landscape design guidelines. The FA has clearly come to accept that character is more than visual, for example 'the elements which distinguish character may be natural.., human.. or aesthetic', (Upland 1994, p7) and to accept that character is an important consideration in the design process. However, this development seems to have given rise to inconsistencies and uncertainties on the issue of character and its relationship with the visual design principles within the current reports. (LLD, 1991; CW, 1992 and Upland, 1994)

The relationship between forest landscape design and character is never clearly stated but does seem to be related to the planting objectives of the different reports. Thus, the 1994 Upland report (aimed primarily at commercial forestry) states that 'by recognising character it is easier to assess whether it will be altered significantly by land-use change, such as establishment of woodland' (p7). In contrast the 1992 Lowland report (more concerned with multi-purpose lowland woodlands) simply suggests that a design should be 'adequately rooted in the existing landscape character' (p5). Whilst the 1991 Community Woodland report states 'understanding landscape character. . . is necessary so that the design of new woodland reinforces it.' (p3). All the reports agree that identifying landscape character is part of the design process but it is not central to design decisions in all of them.

There is also some confusion as to how character is assessed. Under the section Design related to Landscape Character the 1991 Community Woodland Guidelines state that the 'Visual design principles are used to analyse the components of the existing landscape and so identify its character' (p13) and, in similar vein, the 1992 Lowland report advises that an understanding of the VDP's ensures that a design can be 'adequately rooted in the existing landscape character' (p5). However the most recent report (Upland, 1994) no longer seems so certain of the relationship between the VDP's and character, or whether designing to replicate or accommodate character is a design objective. The Upland 1994 advice drops the word 'visual' from the 'design principles' and makes no reference to their purpose. Instead, the only direct reference to landscape character comes under the appraisal process and simply states that the elements which distinguish character can be 'natural (land form and vegetation), human (field patterns, settlement and buildings) or aesthetic (shape, colour, scale) elements' (p7), and that character should be 'carefully assessed' (p7) before design work starts.

So while the concept of character has evolved within the landscape profession and indeed been accepted by the FA, it appears that the importance of character and the implications of its current definition and role have not been treated consistently, updated or fully integrated into some areas of the FA's design advice. What is more, while some of the advice stresses the importance of acknowledging character, the reports continue to offer detailed design advice which is likely to compromise or even contradict character. Thus Community Woodland Design 1991 states that, 'Unity' (is) an essential aim of landscape design' and unity is achieved by designing compatible shapes on the landscape which can 'interlock and unite the forest with the surrounding landscape' (p17). Creating this type of landscape pattern however may be totally out of character in, for example, farm land characterised by small scattered copses.

6.6.1   Summary: the Issue of Landscape Character

Increasingly the FA's general advice acknowledges the advantages of designing in sympathy with a site's character and more importance is now being placed on character as a factor in the design process. However, much of the detailed advice currently offered in the guidelines still reflects the FC's original design objective of integration through naturalness. This design objective relies on an understanding of character in primarily visual and two-dimensional terms. Designs which result from this limiting process are less likely to be fully integrated into the landscape and take account of the many different facets that should properly be considered in the design process.

The overwhelming impression is that the developments in the concept of landscape character have been tacked onto the existing advice without a re-evaluation of the implications for that advice. These observations suggest that advice based as it is on an unresolved or incomplete definition of landscape character and it's role in the design process, could be unbalanced and limited and therefore not necessarily as theoretically sound or as useful as it might be.

6.7   The Visual Design Principles

The form of many of Britain's forest landscapes is undeniably a product of the FA's design advice and is largely directed by the visual design principles: shape, scale, visual force, diversity, unity and spirit of place. Since their introduction in 1989, these principles have remained central to the advice and are presented in such a way (particularly in the 1994 Upland report) that they could be mistaken for representing the theory, process and practice of forest landscape design. The following section looks at each principle in turn and questions whether they offer a sound bases for design advice.

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6.7.1   Shape

The advice for shape has remained remarkably consistent through time and between publications. All publications consider woodland shape to be important to forest design, in fact current advice states that shape dominates other design factors. The emphasis placed on shape has its roots in Crowe's original design response to the appearance of large scale, upland, coniferous afforestation and this is perhaps understandable. However, the emphasis now seems misplaced considering the changes in forestry practice and FA objectives over the years and may lead designers to miss more obvious design cues and opportunities.

The detailed design advice for woodland shapes (this includes all shapes whether determined by species mix, felling coupes, open spaces or plantation shape) is said to be led by the analysis of land form and visual forces. However all reports dictate that woodland shapes should be irregular and asymmetric rather than geometric and that forest shapes should be designed to rise in landform hollows and fall on convexities except where a strong landscape pattern of shapes already exists. These requirements are further directed by certain assumptions about what influences people's perception of the landscape and value judgements on their preferences for woodland design, such as 'diagonal shapes and lines on the landscape are more pleasing' (1994, p2, 1989, p4).

One of the FA's objectives in offering advice is that it would provide designers with a guide to forest landscape design and a standard which could be universally applied thus the same advice is offered for shape in both the upland and lowland reports. While the FA points out that 'shape is influenced by overall proportions, viewing direction and the nature of the boundary edge,' (1994, p2) shape is also influenced by distance and changing view points with movement

through the landscape. This brings into question whether it is appropriate to place the same emphasis on shape, where the view of upland landscapes could be said to be more often expressed as elevations while lowland landscapes are often more evident as plans, or indeed offer the same advice on shape for all landscapes.

We are told that shape has a powerful effect on the way the landscape is seen and is therefore a 'dominant design factor'(1994, p2), but this is only the case where shape can be perceived. Close to a woodland, in flat landscapes, within landscapes and passing through landscapes, shape may in fact be less important than other factors such as colour, tree species and enclosure. The nature of the advice for shape does not appear to be flexible enough in a country with diverse landscape types and may prove particularly inappropriate in many lowland situations.

The tone of the advice for shape is prescriptive. In following the detailed advice a designer could easily over-look the opportunities offered by the survey and analysis stages of the design process and then contradict landscape character, particularly in cultivated landscapes. The nature of the advice for shape is formulaic to the extent that it could result in the development of a particular style of woodland development and so fail to fulfil both its naturalness and integration objectives.

6.7.2   Visual Force

During the 1980's, Campbell searched for a design language to help communicate design theory to non designers. He was impressed by Garrett's book Visual Design: a problem solving approach (1967) and her concept of visual force.

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While developing these ideas he made the connection between the visual forces present in upland land form and similarities in the relationship between the shape and form of natural forest growth in upland landscapes. It was at this point that visual force was introduced as a design cue for integrating forestry into upland areas and a leading principle of forest landscape design.

The concept of visual force has a theory based in the fine arts, graphics and architecture. It describes the phenomenon whereby the eye is drawn from one part of a view or design to another. In forest landscape design the appreciation of visual force is directly related to land form.

The FA's landscape designers maintain that there is a hierarchy of visual forces in any landscape about which a high degree of consensus can be reached, the eye and mind responding predictably to the 3-D shape or form of the landscape.

The FA designers believe the eye and mind respond as follows:

i   the eye is drawn downwards on spurs and ridges and convexities;

ii   the eye is drawn upwards in gullies and hollows and on concave slopes and

iii the degree to which the eye and mind respond is in proportion to the strength of the feature and its size.

Designing to follow lines of visual force will, the FA designers state, create a 'well unified relationship' (1989, p4; 1994, p2; CW, 1991, p13,) between land form and plantation and avoid ' visual conflict' (CW, 1991, p13). They recommend that 'woodland should be designed to follow visual forces' by specifically 'rising in hollows and falling on spurs and ridges' (1989, p4; 1994, p2; CW, 1991, p13; LLD, 1992, p6) and this applies to all sites where land form is noticeable even in landscapes 'of low relief' (CW, 1991, p13).

The FA designers justify using visual force as a cue for design because natural vegetation patterns are frequently observed to follow land form forces and forests which obey visual force in land form 'match our expectations of what a natural landscape looks like' (1989, p4; 1994, p2; LLD, 1992, p6). These observations may be appropriate for designs in mountainous landscapes and areas where the ground rises above the natural tree line but seem less likely to be relevant to many of the sites currently being targeted for afforestation by the forestry industry, that is, lowland and cultivated landscapes or those near urban conurbations where the shapes and forms of natural vegetation have long been obliterated and where applying the FA's advice may contradict local character. Indeed the typical lowland landscape has for centuries been rectilinear with the looser and curving boundaries characteristic of natural vegetation patterns largely absent.

Bearing in mind that the objectives of the guideline advice is to communicate design, one of the problems for the designer is that visual force can be created by elements other than land form (for example, contrasts in landscape colour, tone and shadow cast by vegetation, and by the built form, particularly in urban fringe or cultivated landscapes). One of the problems with attempting to design to visual force is that, like shape, visual force alters with the position and height of the view-point, with the distance of the observer and with light conditions highlighting land form.

The advice on visual force has remained consistent since it's introduction in 1989 in both upland and lowland reports but the emphasis on this principle now seems less relevant and appropriate, particularly in the lowland reports. As a

means of understanding and assessing the visual landscape, the ability to recognise visual force can be helpful in identifying design constraints and opportunities. Advising designers to follow visual forces, however, dictates a visual-led decision on design where others factors may be equally relevant, for example, soil conditions, micro climate and local woodland character both visual and physical.

So while the principle of visual force may be useful to forest landscape design, the detailed advice for visual force could be judged incomplete, sometimes inappropriate and open to misinterpretation. The tone of the advice may also present a problem in that it is so prescriptive it could result in standardised designs which lack individuality. The problem is likely to be greatest in cultivated and lowland landscapes.

6.7.3   Scale

While it is useful for a designer to be aware of relative sizes in landscape design, the FA's interpretation and advice on scale makes it an unnecessarily complex and difficult principle with which to work.

A good deal of the controversy which accompanied the FC's early activities was in response to the drastic visual changes that the sheer size and extent of it's upland plantations were bringing about in the landscape. On the distant highly visible, treeless upland landscapes, the visual impact created by the FC's plantations was enormous. The early designers found that this afforestation could be more successfully integrated into the area if the scale of plantations and the scale of plantation shapes in some way reflected the scale of the surrounding landscape pattern. The relative size of the plantations was

therefore an important consideration in design and the advice on scale was introduced to address this issue.

The guideline definition of scale is straight forward: 'scale is a matter of relative and absolute size and has a major effect on perception' (1989, p6; LLD, 1992, p7; CW, 1991, p15; 1994, p4). The advice on designing with scale, however, is vague and more of an exploration than an explanation of the principle. The designer first has to grasp that the FA's terms denoting large scale and small scale differ from normal understanding, thus on plans and maps the larger the scale the smaller is the area covered. But to the FC, the large scale implies large area. Having got to grips with the terminology, the designer has then to accept that plantations should be designed to match the scale of the landscape (and landscape here means the visual, two dimensional landscape pattern) even though the perception of scale changes with the view point, eye level and movement of the observer.

The detailed advice offered for scale is also vague and at times confusing and appears unhelpful in terms of communicating design advice or theory. For example, although all reports state 'the scale of a forest should reflect the scale of the landscape', the scale of the landscape does not necessarily govern or reflect a landscapes character. For example, a landscape could be wide and open but support small dispersed woodlands. Applying FA advice to this could result in large sweeps of forest to reflect landscape scale, a result that would conflict with local landscape character both visual and physical.

At times the advice seems contradictory. For example, the advice states that small shapes may appear out of scale when viewed from a distance in a large landscape but also that small scale ancient field patterns require smaller scale

woodlands, regardless it seems of existing landscape scale. And at times the advice appears limited, thus if the relative size of a plantation is dictated by the scale of visual landscape pattern, the design cannot readily contribute to other aspects including optimum size for wildlife habitats and recreational activities.

The advice on scale in the lowland reports is more detailed. Bell has developed Crowe's and Campbell's observations on scale by considering proportions of woodland cover to open space. The detailed advice describes the techniques of coalescence, nearness and enclosure. This involves organising the proportion of woodland to open space in a landscape and grouping smaller elements together so as to achieve the desirable scale (of pattern) in design. The aesthetics-led 1/3 to 2/3 rule (1989, p6 ; LLD 1991, p7; CW 1992, p14; 1994, p4), states that planting to open ground in the proportion of 1/3 to 2/3 (or vice-versa) creates a pleasing (or satisfying) effect while 1/2 to 1/2 is 'unbalanced and unsatisfying' or produces 'a feeling of unnatural symmetry' (1989, p6 ; LLD 1991, p; CW 1992, p8; 1994, p4). Again this advice could easily contradict landscape character and seems less likely to be useful advice in any other than highly visible forest plantations that are seen at a distance and essentially in 2-D. But Bell argues that this advice 'provides a useful rule which non-professionals can go and apply without making huge errors' (personal communication).

Bell attributes the proportions rule of thumb to Repton (unspecified) and maintains it is appropriate to forest landscape design because it promotes the asymmetrical balance and proportion found in the landscape. Based on the golden section and logarithmic spirals developed by the ancient Greeks, (unspecified) these proportions, Bell claims, create patterns which are evident throughout the natural world, from the arrangements of plant petals to the

spiral arms of galaxies. He believes 'there are fundamental numbers in the universe which those proportions relate to and with which people are more comfortable' (Bell, personal communication).

Bell has elevated Crowe's simple observation on scale made in response to blanket afforestation, that is, respect the scale of the local landscape, to a design principle and supported it with a theory taken from art aesthetics. This development may at best promote the impression of naturalness and scenic beauty but this is not necessarily useful or appropriate in all circumstances.

The detailed advice offered on scale in the guidelines reveals an aesthetics-driven, pattern-making technique developed for upland landscape problems and more applicable to landscapes perceived as two dimensional patterns. The problem with applying this type of visual design system to forest landscape design is that it cannot relate to the local character or land-use activities unless they reveal a visible pattern. It is therefore less appropriate in lowland, urban and cultivated landscapes where the landscape pattern is not evident and where advice promoting pattern-making seems a pointless exercise. Too much emphasis is placed on scale in the current publications and the advice offered is not only difficult to understand and apply but unnecessary in many landscapes. Lee's research (Lee T.,1990) considered the issue of landscape scale and his findings high-light one of the problems with attempting to provide universally applicable design advice on scale. He concludes ' It is clear that the concept of scale , insofar as it applies to distant landscapes is highly equivocal. The position is substantially better when close landscapes are assessed but...the correlations are no more than average. It may be that there are differences in the interpretation of this dimension. For example, what is it that is in or out of scale?'.

6.7.4   Diversity

When Crowe and Campbell developed Forest Landscape Design advice they had a clear objective to address the issue of landscape diversity. One of the main criticisms of the early plantation design was the way large scale, upland coniferous afforestation practices were obliterating other landscape features such as rocky out-crops, mountain streams and view-points. While Crowe and Campbell recognised the value of respecting these diverse elements in the landscape, diversity has developed into a design principle which actively promotes rather than simply preserves the diversity of afforested landscapes, thus, 'it is worth while creating diversity in an otherwise uniform landscape' (1989, p8 ; LLD 1991, p9; CW 1992, p16; 1994, p6).

Bell justifies this development by saying, "diversity is trying to achieve a richness and variety within a design. We know that there are very basic physiological responses ... if we are looking at something say a blank wall, the retina cells of our eyes start to get tired looking at one thing of the same colour - the more there is to look around the more our eyes change and are stimulated...so at a basic level (diversity) keeps us awake and alert, stimulating the brain and keeping the eyes active" (personal communication). Visual diversity in a design, he believes, will prevent visual boredom and result in more acceptable forest landscapes.

Through time the idea of landscape diversity appears to have been elevated to embrace a psychological need (based on generally accepted psychological evidence, (see for example Bishop, ID and Hulse, DW 1998; Burgess, J 1995). It is though questionable as to whether it is useful or appropriate to link this need to forest landscape design or to expect forestry to be trying to offer this level of user satisfaction in all situations. But Bell is quite clear on the aim of the advice

offered on diversity. He says, "Britain as a whole is a very diverse landscape; rocky types, land form types, climatic areas, natural vegetation, cultural landscapes, all give us a very rich diverse landscape and we want to reflect that" (personal communication).

The current detailed advice on diversity is still driven by the original need to break up the visual pattern created by extensive block planting of coniferous forest and it continues to use the example of tree species mix design to illustrate diversity.

Diversity is defined as 'the number and degree (or attributes) of different features (or elements) in a landscape or design' (1989, p8; CW 1991, p16; LLD 1992, p9; 1994, p6) but how this is assessed is not addressed. The advice suggests the designer should take the opportunity to introduce diversity and that a high level of diversity is acceptable if one element is dominant. It does though warn that excessive diversity can lead to 'restless confusion in a landscape design' (1989, p8 ; CW 1991, p16; LLD 1992, p9; 1994, p6). The lack of coherent advice to accompany this principle's definition may leave the designer wondering what action to take. Thus promoting diversity may introduce a conflict of interest. There are landscapes where introducing or increasing diversity would be inappropriate both visually, physically and ecologically and indeed many are thought to be attractive and valued for their uniformity, moor, heath and fenland being notable examples. And the advice's warning that excessive diversity can lead to restless confusion in a landscape design is not necessarily the result of the diversity of elements. It could as easily be that the elements simply juxtapose rather than harmonise.

The original concept of respecting landscape diversity was simple and logical and a useful consideration in the analysis of a landscape's visual and physical character. But the usefulness of the idea has been compromised by trying to create a principle from a simple precaution. The concept is not easy to apply universally and, as it is described, does not seem to represent a fundamental tenet in the understanding of forest landscape design. The detailed advice on diversity seems limited, confusing and illogical. It may lead to designs which contradict a landscape's visual character or ecological value and is unlikely to always fulfil the FA's objectives, both in terms of integrating forestry and educating designers. The current advice on diversity appears out-dated and superfluous.

6.7.5 Unity

Unity is a very simple concept introduced to support the FA's pattern making approach to forest landscape design. The term unity is not defined but the advice states that it is achieved by designing compatible or similar shapes (using external margins, open spaces and species patterns) which interlock with each other and relate to landscape scale and visual forces, thus, interlocking shapes are the key and 'a high degree of interlock gives more unity to a design' (CW 1991, p17; LLD 1992, p10).

The resulting pattern of interlocking shapes is intended to soften the contrasts in colour, texture, shadow and tree height which introducing forestry into a landscape can create. However, in diverse landscapes, particularly (but not exclusively) in lowland areas or landscapes with existing tree cover and on urban fringes which are already visually diverse, the need to achieve unity is less likely to be an important design issue. Unity is only significant in

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landscapes where the pattern of the landscape can be judged. Thus, it is more relevant to distant views and high view points where the landscape is perceived as a pattern and more important where large scale afforestation is taking place.

The guidelines state that unity is an 'essential aim (or object) of landscape design' (1989, p8; CW 1991, p17; 1994, p6), but the technique may also be totally unnecessary or inappropriate in many situations. The problem with unity is that it does not cope well with character and it will contradict many landscapes because few do interlock in this way. No advice is offered on how to achieve unity in areas of very different landscape character in or on the relative importance of the principle related to view point and eye level. Unity cannot respond to levels of complexity, incongruous features or appropriateness.

Unity is another aspect of the advice originally developed to cope with the problem of integrating large areas of forestry into the treeless uplands and is therefore less relevant to current forestry practices than it was in the past. It is a design technique concerned only with the visual appearance of plantations. The advice does not consider any equally effective and possibly more appropriate means of tying woodland into the surrounding landscape which could be achieved through, for example, management systems, cultural associations, species selection and recreational networks.

The concept of unity is sound but the advice is limited. It may help to fulfil its design objectives in some landscapes but more generally it is superfluous and not significant enough to be an essential aim of forest landscape design.

6.7.6   Spirit of Place

The advice defines spirit of place as something 'unique to a particular place' (1989, p 6; CW 1991, p17; LLD 1992, p10; 1994, p8), which it states should be valued and preserved. Spirit of place could be interpreted as some quality that gives meaning to a place but, as it is defined in the guidelines, spirit of place simply represents the aesthetic effects and atmosphere created by the physical arrangement of landscape elements and the effects of light (the example offered is 'waterfalls') (1989, p 6; CW 1991, p17; LLD 1992, p10; 1994, p8),. The lowland reports (CW 1991, p17; LLD 1992, p10) go further to include 'historical connections'.

The FA's definition seems limited. It does not take advantage of the significance that can be given to a location for example by links to cultural activities or myth as for example, Robin Hood's Sherwood Forest. It does not suggest that meaning or atmosphere can exist and be created through a site being associated with certain features and activities such as sun traps, fishing banks, kingfisher banks, bluebell woods or children's play. It does not explore the opportunities offered by for example, avenues of trees, seasonal colour spectacles, nature trails or sculpture exhibitions which can all lend a sense of atmosphere and give meaning to a place.

The advice warns that spirit of place is easier to conserve than create (1989, p8 ; CW 1991, p17; LLD 1992, p10; 1994, p6). It can, however, be created through design and suggestions as to how it would be useful, particularly to those designers needing to give a forest integrity and tie forest planting into the cultural landscape. This is particularly relevant to recreational forests and planting in the National and Community Woodlands.

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The principle of spirit of place seems limited in both the definition of the term and the advice offered. Forest landscape designers, particularly those without a design background, may not recognise the design opportunities or, in fact, the constraints that creating or preserving spirit of place can place on a design.

6.7.9   Summary: Visual Design Principles

The objectives of the visual design principles are to define landscape character and help integrate forestry into the local landscape. The suggestion is that these six principles are the most important factors in forest landscape design. There is some confusion as to whether they are a) design principles and as such the governing factors in forest landscape design; b) aids for analysing landscape character; or c)a means for offering design advice.

a) Design Principles

Developed to address upland forest design issues, the visual design principles do not successfully make the transition between upland and lowland type landscapes. As principles they are applied in a universal manner and the advice does not recognise that they are less appropriate to some landscapes and inappropriate to others. The Visual Design Principles therefore do not necessarily provide the 'key ' to forest landscape design or deserve the title of 'principles'.

b) Analysis Aids

The visual design principles as an assessment and analysis technique are capable of producing a reasonable assessment of the visual landscape   They can help a designer to understand the visual complexities of a landscape and help decision making based on these visual qualities. In this respect they are most relevant in distant landscapes where a landscape pattern can be identified but

they remain limited in all cases by their failure to address colour, texture or three dimensional form in the landscape.

As a technique for producing an assessment of landscape character, the visual design principles are again limited because the nature of the visual design principles is entirely visual. Even though the advice accepts that natural components and human activities play a part in defining character, only the visual effect of these components is recorded. Thus the visual but not the ecological implications of a species mix would be revealed and considered relevant to landscape character assessed by the visual design principles.

c) Design Advice

While the design advice offered through the principles relating to shape, scale, visual force, unity, diversity and spirit of place can help to integrate woodland into the 2-D pattern of some landscapes, the advice is prescriptive and likely to result in a stylised design which is not necessarily related to the visual or physical character of the landscape. The consequence of applying such advice could be an inappropriate design which does not fulfil the FA's own integration objectives.

6.7.10   Conclusion: Visual Design Principles

The visual design principles are simply out of date and have become superfluous if not misleading in their present form. They were developed in response to the FA's original design objectives and to perform the function now done by a standard visual landscape assessment. The concepts of landscape character, landscape design and particularly landscape assessment techniques, have advanced to the stage where the package of visual design principles is no longer

applicable or complete. The visual design principles are in general too prescriptive and in part plainly misleading and they do not provide a sound basis for offering forest landscape design advice.

6.8   The Form and Tone of the Advice

Although Bell claims in design terms "there are some fundamental things which apply to all places" (Bell, personal communication), the advice offered is organised into reports which address forest landscape design in upland and in lowland situations separately.

As Swabey explains (personal communication), the lowland advice was introduced by the FA to address the inadequacies of the existing upland advice in lowland situations. The existing advice was not evaluated or up-dated at this point and the new advice was simply labelled lowland advice. The main problem with this presentation is that the scale and diversity of Britain's landscape means that upland landscapes can, and often do, exhibit lowland characteristics and vice-versa. Thus, upland landscapes can have strong field patterns while lowland landscapes can be uncultivated. It may not be helpful to offer design advice in terms of geographic situation. The consequence for the guideline advice is that the advice is often inappropriate and in some circumstances incomplete. Thus, upland advice has no guidance on farm operations and it is not as reliable or as useful as it could be to the designer in this particular form.

6.8.1   The Presentation of the Design Advice

The current FA design guideline series has developed a slick format containing a high ratio of photographs, sketches and diagrams to text. The development of

this style suggests a conscious attempt to produce guidelines that are accessible and user-friendly and aimed at a wide and intelligent, but not necessarily design-orientated, audience. This form of presentation may not however be necessarily helping the FA to achieve its objectives.

The contents of the guidelines have become confused. On the one hand, they appear as a teaching aid for people trying to get to grips with the theory and process of forest landscape design and, on the other, as a vehicle for delivering design solutions for forest landscapes. The problem rests as much on the tone and presentation of the advice as on the actual contents. Bell explains the problem: "we have a constant tension between a need to give people cookbook solutions so they can go out and apply something without making too many blunders and the need to be flexible so you do not produce a standard design and not take into account the wide range of landscapes...so what we try to do is tread a route between that and give people guiding principles which do not produce a design, but help you to understand the landscape and how to design it" (personal communication).

Unfortunately the cookbook solution is exactly what the reports are likely to have achieved. The nature of the advice is not user-led (it still carries too much of the original advice which was developed with different objectives in mind) and because the design theory is weak, the likelihood is that people will pick up the guidelines and find that the presentation of the reports, with their easy access headings, photographs and diagrams, invites dipping in.

The tone of the guidelines occasionally reveals a confusion between exploration and explanation of forest landscape design theory. Yet the tone of the detailed

advice is often specific and formulaic which, when combined with value judgements, could hinder the designer from making informed design decisions or from understanding the theory behind forest landscape design. The advice in its present form may not be the best way to achieve FA objectives.

6.9 Current FA Design Advice which exists in Addition to that Offered in the Design Guidelines

Although the latest design guideline report was published nearly a decade ago, it is still considered relevant and applicable by the FA. However the FA has felt the need to include design advice within its UK Forestry Standard (1998) which sets out best-practice for the forestry industry. The advice offered here reflects on the contents of the guideline reports, and because it was published relatively recently, it is also important in determining whether the FA's design advice is considered appropriate and whether it has responded to context.

The design advice which is offered in the Standard, including any advice which has design implications, is summarised and set out in Tables 6.1-6.6, under headings consistent with the Standard. The tables indicate where this advice is consistent with that offered in the guidelines and comments on any changes and additions. Where these changes are significant they are discussed in the following section.

6.9.1 The Influence of Ecological Issues

The Standard's advice on forest design appears more strongly influenced by ecological issues than is reflected by the guideline advice for forest landscape

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Table 6.1   Summary of Design Advice offered in the UK Forestry Standard (1998) cf FA Guidelines

Design advice, including advice with design implications offered in the UK Forestry Standard 1998				
General forest design:	Advice consistent with uplnd 1994 guideline	Advice consistent with CW 1991 guideline	Advice consistent with LLD 1992 guideline	Implications of changes or additions for the guideline advice
Diversity of structure can be achieved through design of open areas, by changing species.	consistent	consistent	consistent	
Diversity of structure can be achieved by silvicultural practices at the felling & restocking stage.	consistent	consistent	consistent	
Incorporate designated and protected site sensitively in the design .	consistent	consistent	consistent	
Consider effects on designed landscapes.	consistent	consistent	consistent	
Avoid fragmenting semi natural habitats.	addition	addition	addition	This new advice could contradict the existing pattern making approach to designing the woodland layout and felling regime, and advice requiring layout to follow landscape character.
Fit margins to land form and tie in with existing features e.g. streams & hedges.	consistent	consistent	consistent	
Position rides, roads to relate to land form and to allow space for edge habitats.	consistent	consistent	consistent	
Consider access when designing utility corridors.	addition	addition	addition	Not stated in the advice, although this aspect of the layout design should normally be considered if the design process is clearly understood.
Allow 10-20% of open space within the area, use for wildlife habitats & recreation.	consistent	consistent	consistent	

Note for all tables: consistent indicates advice that is consistent with that in the FA's design guidelines; addition indicates advice that is not included in the FA's design guidelines; and changes indicates advice which differs from that given in the FA's design guidelines. Where table is blank no advice is offered.

Table 6.1.1   Summary of Design Advice offered in the UK Forestry Standard (1998) cf FA Guidelines

Design advice, including advice with design implications offered in the UK Forestry Standard 1998				
General forest design con:	Advice consistent with uplnd 1994 guideline	Advice consistent with CW 1991 guideline	Advice consistent with LLD 1992 guideline	Implications of changes or additions for the guideline advice
Create additional open space within woodland & design to develop internal edged, structural diversity & flexibility for management - design to harmonise with land form and site variation.	consistent	consistent	consistent	
Allow for future impact of tree growth on open space. Consider views, designed landscapes, access routes & rights of way.	consistent	consistent	consistent	
Separate new planting of invasive species from existing native woodland to prevent seed dispersal.	addition	addition	addition	Advice on species choice & layout is confined to the visual pattern they will eventually create in the design guidelines, this advice may not be compatible with the Standard's which is directed by silvicultural demands.
i) Select species suited to site conditions, objectives & woodland setting.	addition	addition	consistent	The selection of species to suit conditions is not advice offered in current advice although it was Crowe's early advice. The current advice is still reflecting design advice for predominantly coniferous plantations. The standard's advice could conflict with guideline advice as the layout of species to site conditions may have different visual implications to a layout designed to landscape character or prevailing landscape pattern.
Consider how existing & new access & use of the land can be managed.	consistent	consistent	consistent	
New conifer woodlands should incorporate broadleaf trees & shrubs in large woods for diversity.	consistent		consistent	
Multi age or continuous cover silviculture requires the choice of suitable species.		addition	addition	The use of different silvicultural systems has major implications for the visual appearance of the woodland, particularly colour and texture but this is not considered in the guidelines.

Table 6.2   Summary of Design Advice offered in the UK Forestry Standard (1998) cf FA Guidelines

Design advice, including advice with design implications offered in the UK Forestry Standard 1998				
Standard Note 1: General Forestry Practice	Advice consistent with uplnd 1994 guideline	Advice consistent with CW 1991 guideline	Advice consistent with LLD 1992 guideline	Implications of changes or additions for the guideline advice
ii) Promote timber quality by adopting tree spacings close enough to induce straight stems, exceptions are made for amenity planting.	addition	addition	addition	Normally specify a minimum stock level of 2,250 evenly distributed trees per hectare - grants are linked to spacings. The design opportunities offered by varying planting density are constrained by the granting system but are becoming more flexible for recreational objectives. The design opportunities this offers are not considered in current guidelines.
Diversify the landscape & habitat of conifer woodlands by design of open ground & use of native broadleaf's species, where suitable for other management objectives.	consistent	consistent	consistent	
Plant at least 5% of the area of any new conifer woodland with broadleaf's for ecological diversity.	consistent		consistent	
Increase the amount of broadleaf trees & shrubs present in existing conifer woods in the course of restocking.	consistent		consistent	
Increase diversity in uniform conifer woods. Use species to diversify age, structure, pattern & colour.	consistent		consistent	
Consider visual implications of species mixes, layout, growth rates & thinning.	consistent	consistent	consistent	
Avoid obtrusive or geometric species patterns.	consistent	consistent	consistent	
Adjust edge structure to improve landscape appearance.	consistent		consistent	
Erect fences on alignments which respect the landscape.	consistent	consistent	consistent	

Table 6.2.1   Summary of Design Advice offered in the UK Forestry Standard (1998) cf FA Guidelines

Design advice, including advice with design implications offered in the UK Forestry Standard 1998				
Standard Note 1 cont General Forestry Practice	Advice consistent with uplnd 1994 guideline	Advice consistent with CW 1991 guideline	Advice consistent with LLD 1992 guideline	Implications of changes or additions for the guideline advice
Ensure road and ride & open space management promote or are sympathetic to wildlife conservation.	consistent	consistent	consistent	
Consider tree harvesting operations.	consistent	consistent	consistent	
Ameliorate impact of roads and bridges to respect landscape character.	consistent	consistent	consistent	
Standard note 2 creating new woodlands				
For integration consider setting & environmental impact of new planting.	addition	addition	addition	Environmental impact is not a term usually used although it is covered in visual terms by the concept of landscape sensitivity. Environmental impact/ sensitivity should be covered by the design process.

Table 6.3   Summary of Design Advice offered in the UK Forestry Standard (1998) cf FA Guidelines

Design advice, including advice with design implications offered in the UK Forestry Standard 1998				
Standard note 3: Creating new native woodland	Advice consistent with uplnd 1994 guideline	Advice consistent with CW 1991 guideline	Advice consistent with LLD 1992 guideline	Implications of changes or additions for the guideline advice
Design to encourage a natural eco-systems to develop.	addition	addition	addition	This advice has visual design implications. The eco-systems covered in the guidelines are open spaces, edge habitats & water bodies. The advice only considers what eco-systems occur or are sustained as a result of spatial layout, tree species & stand management, there is no design advice that reflects an understanding of woodland as a part of a wider eco-system, for example, protecting or promoting wildlife corridors or the distribution of local or national flora and fauna.
Base design of open ground on conservation potential & site diversity.	consistent	consistent	consistent	
Plan a network of open space including streams, ponds, roads & rides.	consistent	consistent	consistent	
Link new open ground to adjoining open ground habitat.	consistent	consistent	consistent	Implied through examples of designs but not stated.
Plant external and internal edges irregularly and with decreasing planting density towards edges.	consistent	consistent	consistent	
Leave unplanted areas where native trees will colonise		consistent	consistent	
Base choice & layout of species on local pattern & refer to national vegetation classification.	addition	addition	addition	The National Vegetation Classification is not mentioned in any guideline probably because in the past FC plantations were predominantly commercial & therefore coniferous. This reference could be useful for species choice in amenity woodlands, the guidelines advice seems dated.
Adjust the planting pattern to reflect site conditions.	addition	addition	addition	It is surprising that the standards suggest adjusting the planting pattern to reflect site conditions when it also states species layout should follow site conditions.

Table 6.4   Summary of Design Advice offered in the UK Forestry Standard (1998) cf FA Guidelines

Design advice, including advice with design implications offered in the UK Forestry Standard 1998				
Standard note 4: Felling and restocking planted woodland	Advice consistent with uplnd 1994 guideline	Advice consistent with CW 1991 guideline	Advice consistent with LLD 1992 guideline	Implications of changes or additions for the guideline advice
Vary density to produce a diverse structure or better timber. Keep irregular spacings between groups of trees.	consistent	consistent	consistent	
Some wet or rocky areas would be better not planted.	consistent	consistent	consistent	
Re-space & thin trees to an irregular pattern if an even canopy develops.	consistent	consistent	consistent	
Manage to create irregular structure.	consistent	consistent	consistent	
Look at developing age & species structure as a chance to increase diversity.	consistent	consistent	consistent	
Broadleaved woodlands				
In larger woodlands distribute groups of different age broadleafs.	addition	addition	addition	This specific advice is new but would follow the established advice on the design of the groups.
Appraise the effect of felling systems on boundaries & the environment.	addition		consistent	Not included in the upland 1994 advice but should be covered by the design process.
Consider social & recreational impacts within the woodland & wider countryside.	addition		addition	Not included in either report but again should be covered by the design process, (the CW guideline does not offer advice on felling as is expected).
Broadleaf woodlands should be restock with broadleaf's, but conifer mixes are acceptable for economic objectives.	addition		addition	Advice on this aspect of design is not included in the guidelines although changes in species when restocking has design implications.
Identify internal and external features in need of improvement.	consistent	consistent	consistent	
Avoid clear felling, let new areas regenerate to thicket stage first.	change		change	Both the LLD & the upland 1994 reports give advice for clear felling, which there appears to be a presumption against in the Standards - out dated advice
The location of retention's need careful landscape consideration.			consistent	Should be covered by the design process

Table 6.4.1   Summary of Design Advice offered in the UK Forestry Standard (1998) cf FA Guidelines

Design advice, including advice with design implications offered in the UK Forestry Standard 1998				
Standard note 4: Felling and restocking planted woodland	Advice consistent with uplnd 1994 guideline	Advice consistent with CW 1991 guideline	Advice consistent with LLD 1992 guideline	Implications of changes or additions for the guideline advice
Conifer woodlands				
Improve diversity of structure.	consistent		consistent	
On old blanket plantations improve design increase diversity of structural & species.	consistent		consistent	
Takes account of landscape & ecological needs, retain some groups & individual trees.	consistent		consistent	
Manage crop edges to improve their future appearance.	consistent		consistent	
Identify areas managed under continuous cover system & build into the forest design	addition		addition	Should be covered by the design process.
Improve open spaces, streams, broadleaf woodland & semi-natural habitats.	consistent		consistent	
Increase structural age diversity by selective felling.	consistent		consistent	
Adjoining crops should not be felled before restock is 2m.	addition		addition	The guidelines offer this advice by stand age rather than height.
Shape & scale of felling areas should be appropriate to land form.	consistent		consistent	
Where felling areas exceed 30 h in lowlands and 100h in uplands increase proportion of broadleaf's & or open space & or variety of conifer species.	consistent		consistent	Areas not stated but attention to broadleaf proportion, open space and species mix is consistent.
Retain existing veteran trees.	consistent		consistent	

Table 6.5   Summary of Design Advice offered in the UK Forestry Standard (1998) cf FA Guidelines

Design advice, including advice with design implications offered in the UK Forestry Standard 1998				
Standard note 5: Managing semi-natural woodland	Advice consistent with uplnd 1994 guideline	Advice consistent with CW 1991 guideline	Advice consistent with LLD 1992 guideline	Implications of changes or additions for the guideline advice
National aims include: to maintain & improve aesthetic value.	consistent	consistent	consistent	This aim is consistent for the management all FC woodland.
Management plans should - maintain or enhance the natural diversity of species, structure & habitats.	consistent	consistent	consistent	
Design should preserve cultural boundaries & features.	addition	addition	addition	Cultural boundaries are not considered in the guidelines
Identify areas of minimum intervention varying in size & proportion.	addition	addition	addition	The concept of non intervention is not considered in design terms although this along with other silvicultural systems has implications for the appearance of a woodland.
Retain veteran trees, if possible include a representative of each species in the wood.	consistent	consistent	consistent	The idea of retaining a representative of each species in the wood is new.
When creating open space design should be based on riparian zones, rock out crops, ride networks, landscape or cultural features & cover a wide range of soil types.	change	change	change	See previous note table 1.1, i
iii) Link small woodlands by creating new native woods.	addition	addition	addition	This has design implications for the layout of new woodland and may contradict existing advice on designing layout to follow land form of the pattern of the local landscape character.
Only extend existing boundaries onto open land after appraising impact on the open space.	addition	addition	addition	Design implications should be covered by the design process.

Table 6.5.1   Summary of Design Advice offered in the UK Forestry Standard (1998) cf FA Guidelines

Design advice, including advice with design implications offered in the UK Forestry Standard 1998				
Standard note 5 cont: Managing semi-natural woodland	Advice consistent with uplnd 1994 guideline	Advice consistent with CW 1991 guideline	Advice consistent with LLD 1992 guideline	Implications of changes or additions for the guideline advice
Planting practice				
Select trees & shrubs species to follow variation in soil, land form and vegetation.	change	change	consistent	See previous note table 1.1, i)
Plant in an irregular pattern influenced by minor variations on site.	consistent	consistent	consistent	
Vary spacings (2.1m for timber) but with gaps between groups to create a varied woodland. Wider spacings acceptable where timber is not an objective.	addition	addition	addition	But no grant aid if rates fewer than 1100 trees per hectare - this is a major constraint on creative design. See previous note table 2, ii)

Table 6.6   Summary of Design Advice offered in the UK Forestry Standard (1998) cf FA Guidelines

Design advice, including advice with design implications offered in the UK Forestry Standard 1998				
Standard Note 6: Planting and managing small woods	Advice consistent with uplnd 1994 guideline	Advice consistent with CW 1991 guideline	Advice consistent with LLD 1992 guideline	Implications of changes or additions to advice in the guidelines
Choosing a suitable site				
Link wood to other woodlands, landscape features & wildlife habitat.				See previous note table 5, iii.
Woodland site must be in 'harmony' with local character.	consistent	consistent	consistent	
Protect archaeological sites & strengthen historic designed landscapes.	consistent	consistent	consistent	Strengthen historic designed landscapes is covered in the FA Practice Note Woodland in Designed Landscapes
Design to be sympathetic to land form especially in hilly areas.	consistent	consistent	consistent	
Consider easy access & short distance for community woodlands.		consistent		
Consider access for future management.		consistent	consistent	Should be covered by the design process.
Design and planting				
Choose species suited to site & objectives			consistent	See previous note table 1.1, i
Choose simple designs & avoid complex species mixes.	addition	addition	addition	This statement could conflict with guideline advice on retaining species variety & planting to local character.
Choose species that grow at different rates for flexibility.		consistent	consistent	
For edges choose species which will develop an irregular edge habitat.	consistent	consistent	consistent	
Allow room for woodland field layer vegetation to develop at edges.	consistent	consistent	consistent	
In recreational woodlands internal design is also important.		consistent		Minimal advice is offered on internal design in upland & lowland reports, suggesting the guidelines are not providing the advice necessary to support the standards.
Careful design can reduce areas which need to be closed for hazardous operations.	addition	addition	addition	No advice is offered on this aspect but any design implications should be covered by the design process.

design. As a consequence the guideline's preoccupation with landscape aesthetics is in danger of contradicting some aspects of the Standard advice.

Designing to encourage a natural eco-system to develop, (Standard, p34) is a requirement of best practice in creating new native woodlands. The eco-systems covered in the design guidelines are open spaces, edge habitats and water bodies. The guideline advice only considers the eco-systems that occur, or are sustained, as a result of spatial layout, tree species selection and stand management. There is no design advice that reflects an understanding of woodland as a part of a wider eco-system, for example, protecting or promoting wildlife corridors (Standard, p40), avoiding the fragmenting of semi-natural habitats, (Standard, p32) and basing species choice for new woodlands on the National Vegetation Classification, (Standard, p34). This new advice has visual design implications and could contradict the guidelines existing pattern making approach, as a plantation layout designed to respond to eco-system requirements may have a different visual appearance to a plantation layout designed to reflect landscape character or the prevailing visual landscape pattern.

The same is true of the Standard's advice to select woodland species to suit site conditions (Standard, p32 and p34). This advice is not offered in current guidelines, although it was one of Crowe's early suggestions and is still reflecting design advice for the predominantly commercial coniferous plantations of the 1980's and 1990's. Once again, the Standard's advice could conflict with guideline advice as the layout of species to suit site conditions may have a different visual appearance to a layout designed to reflect character or visual landscape pattern.

6.9.2 The Influence of Functional Issues

The Standard's advice appears more strongly influenced by functional issues than the aesthetic pattern making concerns of the guidelines.

The use of different silvicultural systems has major implications for the visual appearance of the woodland, particularly the woodland colour, tone and texture, (dictated for example by stand age and structure, species mixes, canopy level, planting density and felling regimes) but this relationship is not considered in the guidelines. Guideline advice on species choice and layout is confined to the visual pattern they will eventually create. Thus, it is possible for the Standard's advice to 'choose simple designs and avoid complex species mixes' (Standard, p40) to conflict with guidelines, which simply require designs to reflect the pattern of the local landscape character.

In the past the design opportunities offered by varying planting density have been constrained by the granting system. However silvicultural systems which require specific planting densities (normally specified as a minimum stock level of 2,250 evenly distributed trees per hectare) to achieve an acceptable timber quality, are becoming more flexible for recreational objectives (Standard, p27/28). However, the useful design opportunities this policy change offers are not considered in current guidelines which suggests the advice is becoming out-dated.

6.9.3 Internal Design of Woodlands

One further aspect of the best-practice advice is the importance the Standard places on the internal design of woodlands, (Standard, p40). Advice on designing woodland interiors is minimal in both the Upland 1994 and LLD 1992

reports and suggests the guidelines are not placing the same emphasis on particular aspects of forest design as the Standards are, or providing the advice necessary to support the Standards.

6.9.4   Summary

Some of the advice given on best practice in the Standards makes the design guidelines appear out-dated and furthermore indicates that they are, at times, offering contradictory and therefore inappropriate advice.

6.10   <u>Summary and Conclusions of the Critique</u>

The FA guidelines set out to provide non designers with enough information to understand and discuss the theory and process of forest landscape design and be able to apply these ideas in practice. The critique of the advice has shown that the theoretical framework for forest landscape design is weak, incomplete and out-dated and that it is not likely to be providing the designer with a theory which can be used independently of the guidelines. The advice on the design process and forest design practice is also found to be limited, formulaic and in some instances inappropriate.

In addition, the critique suggests that both the form and tone of the advice, which are central to the success of the guidelines as design aids, may not be fulfilling the FA's objective of providing professional and non-professional users with helpful advice in the best possible form. The validity of these criticisms is best judged by collecting and assessing the opinions of the guideline users, in this way the critique provides the justification for a survey of the user group.

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CHAPTER 7 <u>USERS' ASSESSMENT OF THE FA'S DESIGN</u> <u>GUIDELINES</u>

7.1   <u>Introduction</u>

Chapters 5 (content analysis) and 6 (critique) questioned how sound the theory and content of the guideline advice appears to be and how successful the publications are as design aids.   Chapter 7 sets out to establish the value of the existing advice to the woodland designer by presenting the results of the postal questionnaire and evaluating the findings.

The chapter begins by outlining the objectives and scope of the survey, goes on to describe and explain the sampling strategy, the choice of method and how the data was collected and analysed.   This is followed by a presentation of the survey findings.

7.2   <u>The Objectives of the Survey</u>

Research Objective no. 3 (Chapter 1, section 1.4) aims to evaluate how useful the FA's design guideline advice is to the professional forest landscape designer. The information required to answer this question and to take the research study forward defines the objectives of this survey.   The data collected needs to establish:

- how widely the advice is consulted, how extensively used and by whom;

- whether the FA's advice is considered to be appropriate and to establish what, if anything, is considered to be missing, what is superfluous and what is inappropriate or unacceptable;

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- if the advice is presented in the best possible form and

- the nature and use of any alternative design advice being applied by designer.

7.3   The Scope of the Survey

The scope of this survey aims to cover two main areas of interest:

- The work of the woodland designer:

  the survey considers the group of individuals who are working within organisations considered to be in the fore-front of UK woodland planting at the present time.

- The design advice offered in the FA's Design Guidelines:

  the survey also considers the woodland designer's experience of the FA's design guidelines.

The study does not attempt an evaluation of the product of the advice, that is, whether the FA has achieved its objective whereby attractive, satisfying designs are produced through the application of its design advice. This is because, firstly, the primary objective of the guideline advice was, and still is, to communicate forest landscape design skills and not to offer a formula for producing acceptable design schemes and secondly, evaluating the appeal of a scheme is not necessarily a measure of how well the design advice has been communicated to the designer. Indeed, the success of a scheme depends on a number of other variables including the nature of the site and its setting, different planting objectives, the skill of the individual and their personal interpretation of the advice.

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7.4   The Sampling Strategy

In order to be able to judge the value of the FA's advice, the survey data needed to be collected from a sample defined by the guidelines' intended audience. Bell states quite clearly that the advice is aimed "at professionals who are preparing some sort of plan" (personal communication). To ensure that the sample contacted were individuals whose work is relevant to the research topic, a purposive sampling strategy was adopted and the sample was drawn from subjects known to represent the population of professional people involved in the planning and planting of woodland in the UK. This population was identified through the literature review and discussions with forestry and landscape organisations.

7.4.1   The Contact Sample

The nature of the population involved in forestry and woodland planting places a number of constraints on the size and structure of the contact sample. While it is possible to identify the type of organisations and practices likely to be working on woodland schemes, the nature of these organisations and the diversity of the projects they undertake, make it impossible to establish the total national population of individuals involved in forest landscape design. For example woodland planting schemes may or may not make up a proportion of the work of landscape architecture practices.

The sample size therefore cannot represent the total population or be structured to reflect certain characteristics of that population, for example it cannot reflect the national proportion of private and public organisations. In view of this fact the decision was made to maximise the available population by targeting as many of the organisations and practices as

possible who are known to be engaged in planting schemes, and acknowledge any bias this method may introduce into the data set. The main priority was to achieve a sufficiently large sample for significant results to be obtained without the sample being too large in relation to the available resource.

The sample was constructed by contacting the following individuals and groups:

- all offices of the Forestry Authority, (FA) each of which has a landscape architect advising on forest landscape design within their region

- all Forest Enterprise, (FE) offices where the forest manager is responsible for the design of forests within their Conservancy

- the National Forest office and all Community Woodland, (CW) offices, where landscape architects and project officers are responsible for promoting and delivering the national Forest and Community Woodland Initiatives

- all Farm Woodland Advisory Groups (FWAG), where farm woodland officers advise on the establishment of woodland planting

- all Woodland Trust Offices, where woodland project officers are responsible for the management of woodlands and for any new planting

- all Agricultural Development Advisory Service (ADAS) offices, where project managers and officers offer advice on woodland planting

- all Groundwork Trusts, (GT) were included because woodland planting projects generally make up a proportion of their work, and each Trust has a resident landscape architect likely to be involved in this work

- various local authority offices, (both District and County). Here, as elsewhere for organisations where forestry or woodland establishment is not necessarily being undertaken, a check was made to ensure that woodland schemes did make up a proportion of their work. In the case of local authority offices, those selected were offices where woodland strategies had been prepared or where the office was involved in forestry initiatives, for example Community Woodlands

- the private landscape architecture practices targeted were those also known to be involved in woodland planting. For example Weddles was selected in view of its Civic Trust Award for establishing the wooded landscape on the Drax Power Station site

- private forestry practices - potentially a large group, were selected from those members of the Institute of Chartered Foresters (ICF), the national body representing professional foresters, who specifically advertise forest landscape design or amenity forestry among their services.

The resulting contact sample is made up of 210 individuals, all professional people working for example as foresters, forestry consultants, landscape architects, woodland project officers, forester planners and forest managers, within a wide range of organisations and practices. These individuals represent the group of people most likely to be responsible for any forest design or management work, and ultimately responsible for the physical and

visual form of forest and woodland planting. In addition, in order to allow the comparisons of the use of the guidelines in upland and lowland situations those contacted are geographically spread throughout the UK and operating in both upland and lowland regions

Table 7.1 Contact Sample: its Structure and Return Proportion

Organisation	Respondents			
	contact	response	contact return	response return
	number	number	proportion	proportion
Local Authorities	30	23	0.77	0.15
Forestry companies	18	15	0.83	0.09
Landscape architecture practices	17	11	0.65	0.07
Forestry Authority	31	26	0.84	0.17
Forest Enterprise	33	23	0.70	0.15
Groundwork Trusts	27	13	0.48	0.09
Woodland Trusts	10	8	0.80	0.05
Farm Woodland Advisory Group	20	12	0.60	0.08
Agricultural Development Advisory Service	7	6	0.86	0.04
National Forest office	2	2	1.00	0.01
Community Woodland offices	12	11	0.92	0.07
Other	3	1	0.33	0.01
Total	210	151	0.72	1.00

NB. The sample construction is weighted in favour of respondents working for the FC. Any statistical analysis of the whole sample would have to acknowledge this bias.

7.4.2   Sample Subsets

As it is impossible to establish the total population of people who may use the FA's guidelines the contact sample was difficult to control. However, it is still possible to categorise the sample into subsets that are linked to the research objectives and that contain numbers great enough to allow a level of quantitative analysis.

Subset 1: Organisation Status

The sample can be categorised by organisation status to allow a comparison between access to, and use of, the guideline advice and the way the individual organisations are funded. The criteria for categorising the sample is as follows:

Public organisations: in this category are those run with government funds. They include the Forest Enterprise (FE) and Forestry Authority offices (FA), local authority offices and the Anglian Woodland project.

Semi-public organisations: are those run with a combination of private or self-generated income (in the form of selling services or private sponsorship) and government aid. This group includes the Agricultural Development Advisory Service (ADAS), the Farm Woodland Advisory Group (FWAG), the Community Woodland and National Forest offices (NF) and the Ground Work Trusts (GWT).

Private organisations: are represented by companies or individuals who operate without government funds, although they may take advantage of government incentives, for example, the Woodland Grant Scheme. This group includes landscape architecture practices, private forestry companies and the Woodland Trusts.

Table 7.2 Structure of Subset 1

Organisation status	Respondents			
	contact	response	contact return	response re turn
	number	number	prop	prop
Public	95	74	0.78	0.49
Semi-public organisations	70	44	0.63	0.29
Private	45	33	0.73	0.22
Total	210	151	0.72	1.00

NB. The make-up of this subset favours pubic organisations. However it is possible to combine the semi-public and private categories to balance the subset where appropriate.

Subset 2:   Operational Objectives

In order to assess how often the design advice is used and how useful different aspects of the design advice are to specific groups of respondents, other subsets were defined. The first, Subset 2, categorises the sample in terms of the organisation's operational objectives. These objectives are defined as either Productive or Protective:

Productive: this category represents those respondents who predominantly work for organisations with production and commercial objectives, for example, commercial timber production and productive land use. It includes private forestry companies and forestry consultants, the FC (both FE and FA), ADAS and FWAG.

Protective: this category groups those respondents who work with landscape enhancement and conservation objectives, for example, landscape reclamation schemes. These organisations include landscape architecture practices, the Community Woodlands and the National Forest projects, the WTs, local authorities, the GTs and the Anglia Woodland Project.

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Table 7.3 Structure of Subset 2

Operational objectives	Respondents			
	contact	response	contact return	response return
	number	number	prop	prop
Productive (production and commercial)	110	82	0.75	0.54
Protective (landscape enhancement & conservation)	100	69	0.69	0.46
Total	210	151	0.72	1.00

Subset 3:   Working Priorities

This subset differs from subset 2 (operational objectives), in that individuals may belong to the same operational objective category but be operating with different working priorities. Thus, while those individuals employed by private forestry companies are working with production and commercial operational objectives, those employed as landscape architects and those as forest officers are likely to have different working priorities, such as conservation and amenity priorities. This distinction is necessary when analysing the usefulness of the various aspects of design advice in relation to the needs of respondents.

The subset identifies working priorities by categorising respondents by job title. Three categories are identified: Landscape and Conservation, Forestry and Farming and Management and Technical. However, because of the inconsistencies between job titles these categories were predetermined after discussions with individual organisations. So although the FE's Forest District Managers are called managers they are in fact responsible for all aspects of forest development, from forest planning and design to implementation and

management. They are therefore categorised under Forestry and Farming rather than Management and Technical, where 'management' is an administrative term, for example, Business Development Manager. The categories are define as follows:

Landscape and Conservation: the priorities of respondents in this group are the establishment, improvement or conservation of the physical or visual landscape. They are likely to be involved in the planning, design, planting and management of amenity woodlands or multi-purpose forests. Their work may include establishing nature reserves, site reclamation, recreation projects involving the general public and the protection and management of valued sites, for example areas of outstanding natural beauty (AONB) and sites of special scientific interest (SSSI).

This category includes the Landscape and Countryside Officers, Forest Project Officers, Forestry and Landscape Management Officers, Planning Officers and Parks Officers within local authorities; FWAG's Farm Conservation Advisers; the GTs' Projects Officers and Landscape Architects; The NF's and CWs' Landscape Team Leaders, Landscape Planners, Projects Development Officers and Landscape Architects.; The FC's Landscape Architects and Recreation Foresters and those Landscape Architects working in private practice.

Forestry and Farming: the priorities of respondents in this group are quality timber production and efficient woodland and land use management. They are likely to be involved in the planning, design, planting and management of working woodlands and forests including farm woodlands.

This category is made up of the local authorities' Forest Officers, the FE's Forestry Officers and District Foresters and the FA's Woodland Officers; Forestry Consultants within ADAS; the Community Woodland's Woodland

Officers and Foresters; the Woodland Trust's Woodland Officers and the Forestry Consultants working for private forestry companies.

Management and Technical: respondents which fall into this group are likely to have priorities which reflect the wider concerns of woodland and forest development, for example the timber market or their organisation's economic performance. Woodland design is unlikely to be their main skill although they still find themselves involved in design work in some way.

This category includes the local authorities' Landscape Managers and Principal Technical Officers; the FE's Harvesting Managers, Agency Managers and District Forest Managers and the FA's Conservators and Operations Managers; the National Forest's Technical Support Officer; the Community Woodlands' Project Development Managers and Co co-ordinators; the GWs' Landscape Programme Managers and the Project Managers, Business Development Managers and District and Regional Managers working for private forestry companies.

Table 7.4   Structure of Subset 3

Respondents working priorities	Respondents			
	contact	response	contact return	response return
	number	number	prop	prop
Landscape and Conservation	78	59	0.76	0.40
Forestry and Farming	68	46	0.68	0.30
Management and Technical	64	46	0.72	0.30
Total	210	151	0.72	1.00

7.4.3   Implications of the Sample

Constraints on the sample size were dictated by the number and nature of the organisations and individuals involved in woodland planting.   As a

consequence, although the questionnaire return was above average, the numbers in certain subsets are still small. Where this is the case the limitations of the data will be acknowledged and significance tests used.

The use of a purposive, non-scientific, sampling strategy has implications for the form of statistical analysis which can be applied to the data set. Inferential statistics are inappropriate as the sampling strategy limits the extent to which wider generalisations can be made from the survey findings, that is, they cannot determine the extent to which relationships appearing in the sample are likely to appear in the survey population. Descriptive statistics however can be used with a purposive sample and the analysis procedures and techniques are described further in Section 7.6.

7.5   The Survey Methodology: Choice of Survey Method

Having explained the objectives and scope of the survey and identified a contact sample of 210 individuals this section describes and explains the choice of survey method.

In an subject area where little information exists the survey needed to collect enough data to establish a framework of facts related to the use of the FA's design advice. This information in turn needed to provide the type, quality and quantity of data that would allow descriptions and comparisons, and the formation of explanations related to the research objective. In addition it would be useful if the survey could generate further relevant information in order to increase general knowledge of the research topic. To achieve these aims three different survey methods were considered:

Interviews:
The nature of the job of those responsible for the design of Britain's forests and woodlands often results in one person working alone within a multi-

discipline office or organisation and as forestry is a land-based activity these offices are as a consequence distributed around the country. For this reason one-to-one interviews were ruled out because although this method would probably collect high quality data it was judged to be impractical both in terms of the number of respondents who could be included in the survey and the practical limitation of time and resource.

Telephone Survey:

Telephone surveys were an option but this approach was also rejected as too time consuming and inconvenient for respondents working in office environments. Such constraints were considered likely to have a significant effect on the quality of the data collected and in particular on any open questions requiring some time, thought or referencing.

Postal Survey:

A postal survey on the other hand could easily reach a larger proportion of the target population and be a more convenient method for the respondent. A postal survey could also take advantage of the fact that appropriate individuals are reasonably straightforward to identify and are likely to be familiar with self-administered questionnaire surveys. In addition many of their organisations have public or semi-public status and with this status comes a degree of public accountability and a responsibility to inform and communicate. After discussion with some of these organisations, it was decided that a self-administered postal questionnaire was likely to produce a reasonable return rate.

The choice of method therefore reflects the needs of the survey and the nature of the target population and concludes that a self-administered questionnaire was the best and most efficient way of conducting this survey, both in terms of the quantity and quality of the data required and of the available resource.

7.5.1 Limitations of the Method

One of the draw-backs of collecting data through a postal questionnaire is the lack of control over who will eventually complete it and this factor has implications for the reliability of the method and the validity of data collected. These same public and semi-public organisations are inundated with questionnaires and the level of importance attached to filling in such time-consuming surveys means that the task may be delegated to junior or inexperienced staff. To minimise this uncertainty time was taken to address questionnaires to a named person within an organisation, the person most likely to be designing schemes; for example, the landscape architects within Groundwork Trusts. In addition both the covering letter and questionnaire clearly stated that the questions should be answered by the individual responsible for any woodland design work.

7.5.2 The Design of the Questionnaire

The questionnaire consists of 18 questions which were designed with both quantitative and qualitative data in mind. The questionnaire therefore uses a combination of closed and open question types. In an attempt to achieve a balance between the amount of time a respondent may be prepared to devote to a self-administered survey and collecting as much information as possible in a single mail shot, the questionnaire was designed to take a maximum of 20 minutes to complete. The questionnaire can be found as Appendix 2(p XXIII). The questions were constructed and arranged in the following way:

1   User Group Information

The first part of the questionnaire (Q1-Q8) collects basic information on the user group. It asks closed questions about the respondent, the organisation he or she is employed by and the main objectives of that organisation. These are followed by questions relating to the respondents status within the

organisation, their previous experience and training and the type of woodland planting schemes the respondent is generally undertaking. Where restricted replies are possible, responses take the form of pre-determined closed categories, grids and lists. This form of response was chosen to help respondents to focus their replies and allows straight forward, relevant information to be collected quickly and this form of response makes a level of quantitative analysis of the data possible.

2 Access and Use of the FA's Guideline Design Advice

The questionnaire moves on to ask respondents about access to the FA's design advice, both the various forest landscape design guidelines and the FA's forest landscape design courses (Q8-Q11). Respondents are required to indicate the degree to which they used the advice and their use of any alternative design advice. Questions 8 and 9 are, as before, closed questions producing responses in the form of lists, grids and categories. However, Q10 and 11 are combination questions requiring a category response followed by a text explanation. This form of question is useful because it allows a quantitative analysis of the data together with a qualitative evaluation to help explain the results.

3 Respondents' Experience of the FA's Advice

The questions that follow (Q12-Q16), require a more subjective response relating to the respondents' personal experience of the contents of the guideline advice. Respondents are asked to consider how useful, appropriate and clear they find the various aspect of the advice to be and further to explain their response. These combination questions again collect data in the form of categories and grids together with explanatory text.

4 User Response

Finally in questions 15-18, respondents are offered an opportunity to comment on any aspect of the topic that they feel may be relevant to forest

landscape design in particular, or the study topic in general. Any new information is not only important to general discussion but also a useful test of the validity of the questionnaire as a means of collecting the right information and addressing the most important issues. These concluding questions were open questions allowing a more flexible, subjective, response to the topic which it is hoped will provide more diverse information and insight.

7.5.3 Piloting

The questionnaire was piloted using eight professional people working in the landscape industry who were familiar with the content of the FA's design guidelines.

In response to their comments on the length and style of the questionnaire, changes were made to the design of question 13 in order to reduce the amount of time taken to complete the entire questionnaire to around 15 minutes. Question 13 concerned the respondents use of the contents of the design advice. Here the categories defining the contents were stream-lined and re-organised to create fewer and more general categories. For example Category E asked about the respondents' use of the visual design principles as a group rather than, as previously, individual principles. This concession was considered reasonable if it made the question quicker to complete and so encouraged respondents to finish the questionnaire.

The pilot group also suggested that more detailed descriptions of the actual advice should be included with Question 13 in order to remind respondents of the contents of the advice, and to help any respondents who do not have the guideline reports available for reference. This suggestion was considered valuable in the interest of collecting accurate data.

Attention was also drawn to question 16 which asks, "Are there any aspects of the design advice offered in these FA's publications which you think may be inappropriate?" Although the wording here presents a leading question it is necessary to get respondents to think critically about the advice. Respondents were not offered the option to comment on 'appropriate' advice because the assumption here is that if no advice is considered inappropriate it must be considered appropriate.

The piloting process raised one further issue. The group noted that for some of the closed questions the questionnaire design made it possible for respondents to answer a question without having to give too much thought to the question, or without having to be particularly familiar with the guideline advice. To redress this problem clauses were added to more questions which asked the respondents to explain their answers.

7.5.4   Distribution and Return

The questionnaire was distributed with a covering letter describing the aim of the research project and providing return postage. The return rate was slightly above average for a postal survey at 72%. Respondents generally completed the entire questionnaire and there were no consistently spoiled answers or non-responses.

7.6   The Data Analysis Procedure

This section explains how the data set was prepared for analysis and describes the analysis techniques used to evaluate this information.

The theory of Social Science research is based on the belief that many of the patterns and regularities that society exhibits are not simply random but have some related cause. Establishing the nature of this relationship contributes to knowledge and understanding of phenomena and represents a key objective in research activity.

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The data analysis techniques that have developed to support this activity are centred on the analysis of variance. This technique allows analysts to identify where and why there is variability in some particular characteristic in a sample or population, with the ultimate aim of being able to establish the nature of such relationships and, where possible, the likelihood of an effect occurring. In this instance and with a purposive sample, the postal survey focuses on establishing and explaining the levels of differences in Access, Use and Usefulness of the FA's design advice, through the use of descriptive statistics.

The first stage in the analysis process therefore was to 'code' the raw date from the postal questionnaire into a form that could facilitate analysis of variance by the computer package 'Excel'. A copy of the resulting coding sheets are given in Appendix 3 (p XXXI). The form of the survey questions included both closed and open questions which were coded in different ways. For closed questions, where it was possible to define the range of responses, respondents were presented with closed categories and lists of alternatives which in effect provided pre-coded answers. In the case of open-ended or unstructured questions, where the range of possible responses could not be predicted, the coding process was more complex.

The responses in this instance were read, re-categorised and re-coded with reference to the original purpose in asking the questions. While this approach inevitably results in the loss of some information, that is, the diversity and uniqueness of responses, and raises the question of reliability in the interpretation of text, it is necessary to allow comparisons of different responses on the same scale. As long as the weight placed on the significance of any findings acknowledges the limitations of this coding process the information provided by open answers can still be useful, (Rose D. and Sullivan O., 1993).

The way in which questions are coded produces variables that can be measured at different levels. In this case the coding process has produced data at both 'nominal' and 'ordinal' levels. Nominal measures indicate where one variables differs from another and here the variable is given a numeric code to indicate this difference, for example, 'Do you have access to any of the following FA's design guidelines?': response, 1 Yes, 2 No.

A score here cannot say anything about the direction or strength of any difference only that it is different. Ordinal measures on the other hand involve some kind of ranking, for example, 'Do you use the FA's Design Guidelines when designing woodland planting': response; 1 Sometimes, 2 Always, 3 Never. This level can identify a variable's position in a rank but cannot offer a basis for measuring the amount of difference between ranks. The level at which variables are measured has implications for the analysis techniques that can be used and the statistical tests that are appropriate.

7.6.1 Analysis Technique

The starting point for the analysis of variance is assuming a null hypothesis, that is, that there is no difference between the observed and expected frequencies of the variables. In order to test this idea of no relationship, or statistical independence, the data was first presented as a frequency distribution. In some cases this process was used to illustrate the variation in a single variable for example Access to Upland and Lowland advice; in others variables were cross-tabulated in order to illustrate the influence of one variable on another and to support a case for causal inference.

Where different sets of data were compared the data was standardised by constructing a percentage distribution, converting each frequency into a percentage or proportion by dividing it by the total number of cases in the

table and for a percentage score, multiplying by 100. If the observations made at this stage suggested a marked difference between observed and expected frequencies a statistical test for significance was applied.

7.6.2   Statistical Tests

The use of statistical tests on a purposive sample, that is where the sample is not necessarily representative of the population - are considered inapplicable from a strictly statistical point of view because it is not possible to compute the standard error of the mean for a non-scientific sample. Statistical tests for significance were not therefore carried out where the analysis was looking at the entire sample.

Where the analysis was considering subsets within the sample population two tests appropriate to non-parametric data (nominal and ordinal level data) could be used. The Chi-square test (X2) compares actual and expected counts in a cross-tabulation and produces a X2 value of at least 0. This value is then compared with the critical values of the standard X2 distribution tables to produce a probability value (p), which determines whether the result is statistically significant. A p. value of less than 0.05 or 5% is considered significant and indicates there is a relationship between the variables, while a larger value is not significant and therefore shows no relationship.

In order for the probability values to be as accurate as possible the X2 test was not performed where any cell had an expected count of less than one or where 20% of the cells have expected counts of less than 5. Further details of the analysis are described with the findings.

7.7 Findings of the Postal Survey

This section presents and discusses the pertinent findings of the postal questionnaire under the following headings: .The Respondents; Respondents' Access to the FA's Woodland Design Advice; Respondents' use of the Guidelines; How Useful the Respondents find the FA's Design Advice and the Respondents' Opinions of the Design Advice. A complete summary of the survey findings - The Results Summary - can be found as Appendix 1 (p I)

7.7.1 The Respondents

This section presents an overall picture of the respondents, their organisations, positions, their training and the type of woodland schemes they are designing.

The postal questionnaire was sent to 210 individuals, 151 completed questionnaires were returned.

Of the respondents who returned the questionnaire 33 (0.22) are working for private sector organisations, 44 (0.29) for semi-public organisations and 74 (0.49) for public organisations. Categorising the main interests of these organisations indicates that 69 (0.46) respondents are working for organisations with landscape and environmental interests and 82 (0.54) for organisations with commercial and production interests.

The position respondents hold within their organisations shows that 59 (0.39) of respondents have forestry and farming working priorities; 46 (0.30) have landscape and conservation priorities and 46 (0.30) have management and technical working priorities

With regard to the respondents' previous training, of the 130 respondents that gave the information, 42, (0.32) have previous training, qualifications

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or experience in the design and planning category; 38, (0.29) in the forestry and agriculture category; 39, (0.30) in the management and conservation category (11 respondents could not be categorised).

The types of woodland scheme the respondents are working on is described by Figure 7.1. Of the 691 schemes recorded, 233, (0.34) were being established with productive objectives and 452, (0.65) with protective objectives (6, (0.01) schemes could not be categorised).

Figure 7.1 Types of Planting Scheme.

Number of Respondents Invloved in Type of Woodland Scheme

Type	Number
Other	6
National Forests	28
Game Woodland	51
Country Parks	53
Reclamation	73
Farm Woodlands	83
Nature Reserves	85
Community Woodlands	98
Commercial Forestry	99
Amenity	115
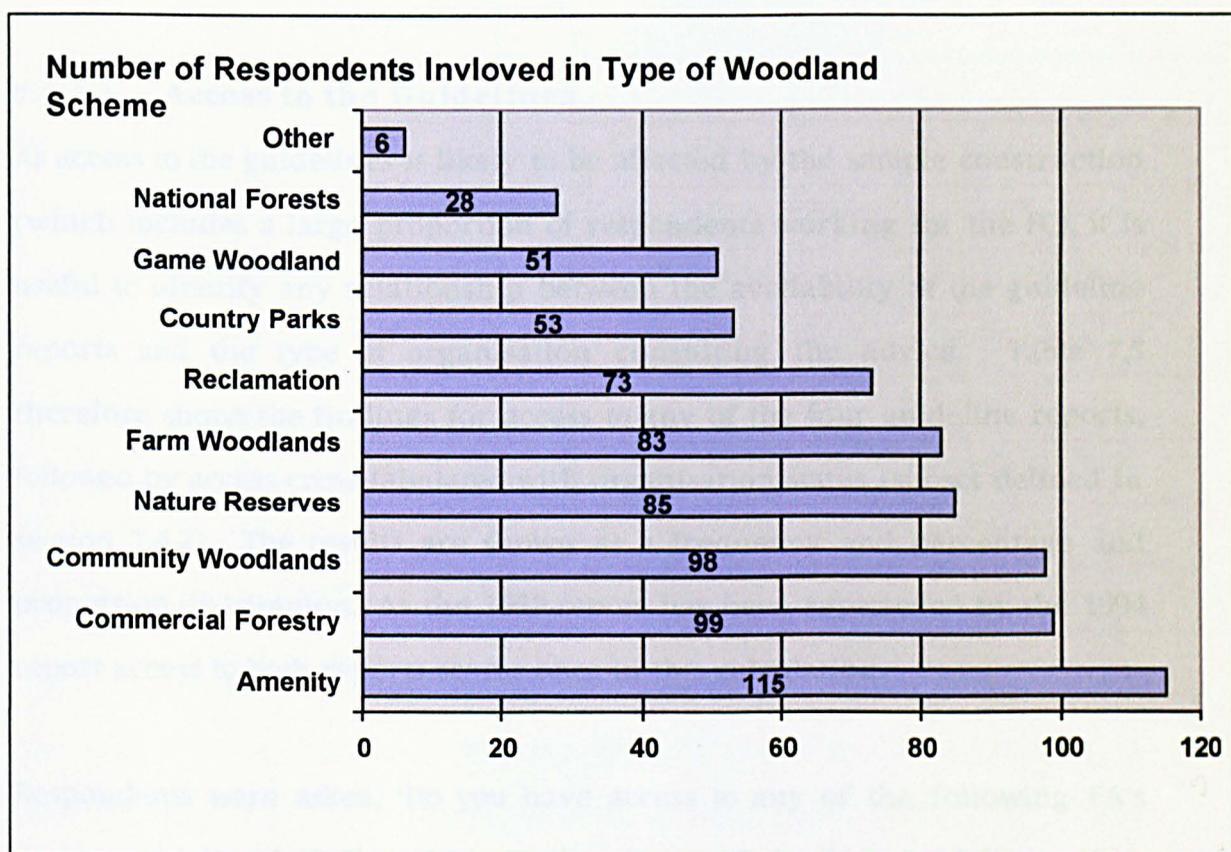
7.7.2   Respondents' Access to the FA's Woodland Design Advice

The level of impact the FA's advice is having on woodland design and the work of designers is largely dependant on how widely the advice is available and how consistently it is consulted. The first part of the analysis shows which respondents have access to the FA's advice, both through taught courses and the guideline reports, and if there is a relationships between access to the guidelines, the organisation respondents work for and the particular guidelines they have access to.

7.7.2.1   Access to the Guidelines

As access to the guidelines is likely to be affected by the sample construction (which includes a large proportion of respondents working for the FC), it is useful to identify any relationship between the availability of the guideline reports and the type of organisation consulting the advice. Table 7.5 therefore shows the findings for access to any of the four guideline reports, followed by access cross-tabulated with organisation status (subset defined in section 7.4.2). The results are shown as a frequency and percentage and proportion distribution. As the 1989 report has been superseded by the 1994 report access to both reports scores once in this calculation.

Respondents were asked, 'Do you have access to any of the following FA's design guidelines' (Q 8) and given the choice of the four guidelines; 1989, Forest Landscape Design Guidelines, 1994, Forest Landscape Design Guidelines, 1991, Community Woodland Design Guidelines and 1992, Lowland Landscape Design Guidelines.

Table 7.5 Access Related to Organisation Status

Access to Reports	All organisations (n=151)		Organisation status (n=151)					
			Private (n=33)		Public (n=74)		Semi public (n=44)	
	number	%	number	prop	number	prop	number	prop
No reports	17	11	5	0.15	2	0.03	10	0.23
Any one report	20	13	4	0.12	9	0.12	7	0.16
Any two reports	16	11	3	0.09	8	0.11	5	0.11
All three reports	98	65	21	0.64	55	0.74	22	0.50

Observations:

These results show that the FA's design advice is widely available to the respondent group, with 134, (89%) of all organisations sampled having at least one of the reports and 98, (65%) of these organisations have all three reports.

The level of status attached to the FA's advice within the surveyed group is indicated by the fact that only 17, (11%), of the 151 organisations are working without access to any of these reports.

When access is cross-tabulated with organisation status the findings show that public sector organisations have greatest access to the reports (0.74), followed by private sector (0.64), followed by semi-public (0.50) which have the least. These findings are significant (CHITEST. p=0.003) and indicate that there is a relationship between organisation status and access to the guideline reports.

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7.7.2.2   Access to Different Types of Advice

Table 7.6 shows the findings for access to the individual guidelines followed by individual guidelines cross tabulated with organisation status, to see if there is a relationship between access to a particular guideline and organisation status. As with Table 7.5, access to both the 1989 and 1994 report scores once in this calculation.

Table 7.6   Access to Individual Guidelines and Access to Individual Guidelines by Organisation Status.

Reports	Access to Reports (n=134)		Organisation status (n=151)					
			Private (n=33)		Public (n=74)		Semi public (n=44)	
	number	%	number	prop	number	prop	number	prop
1989 or 1994 Forest Landscape Design	121	81	27	0.82	64	0.86	30	0.68
1991 Community Woodland Design	110	78	25	0.76	56	0.76	29	0.67
1992 Lowland Landscape Design	97	69	22	0.67	50	0.68	25	0.57

Observations:

Access to the individual guidelines among respondents is comparable between the Forest Landscape Design editions and the Community Woodland Design report (81% as against 78%). The Lowland Landscape Design guidelines (69%) are the least widely available.

This is also the case when access to the individual guidelines is presented by organisation status. For each organisation type the Forest Landscape Design editions and the Community Woodland Design guideline appear to be comparably available, with the Lowland Landscape Design guideline the least widely available.

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7.7.2.3 Attending FA Forest Landscape Design Courses

Access to the FA's design advice is also possible through attending one of the FA taught courses. Respondents were asked, 'Have you attended a FA forest landscape design course?' Q12a. Table 7.7 shows the findings for FA courses cross-tabulated with organisation status.

Table 7.7 FA Course Attendance Related to Organisation Status

FA Course	All respondents (n=151)		Organisation status (n=151)					
			Private (n=33)		Public (n=74)		Semi public (n=44)	
	number	prop	number	prop	number	prop	number	prop
No course	57	0.38	16	0.48	15	0.20	26	0.59
One course	73	0.48	14	0.42	46	0.62	13	0.30
Two courses	21	0.14	3	0.10	13	0.18	5	0.11

Observations:

Over half of the respondents said they have attended a course (62%) and it appears that there is a significant relationship between organisation status and whether courses are attended, (CHITEST $p = 0.0005$ df=4). The greatest number of these respondents work for public sector organisations compared with private and semi-public organisations, (0.62 as against 0.42 and 0.30 respectively). Respondents belonging to semi-public organisations are least likely to attend a course.

Respondents were asked, 'Have you attended a FA woodland design course?' Table 7.8 shows the findings for attendance on upland and lowland courses and then cross-tabulates attendance with organisation status to look for any relationship. This was a multiple-choice question.

Table 7.8 Attendance on Upland and Lowland Courses

FA Course	All Respondents (n=151)		Organisation status (n=151)					
			Private (n=33)		Public (n=74)		Semi-public (n=44)	
	number	%	number	prop	number	prop	number	prop
Upland only	36	24	6	0.18	28	0.38	2	0.04
Lowland only	37	24	8	0.24	18	0.24	12	0.27
Upland & Lowland	21	14	3	0.10	13	0.18	5	0.11
No course	57	37	16	0.48	15	0.20	26	0.58

Observations:

Attendance of either an upland or a lowland course is comparable between respondents (at 24%), however there is a significant relationship between organisations whose employees attend courses and the type of course attended (CHITEST p = 0.0001).

Within the surveyed group, more respondents from public organisations attend upland courses, (0.38 as against 0.24), while those from semi-public organisations attend lowland courses, (0.27 as against 0.04). Respondents from the public sector are more likely to attend both courses than respondents from semi-public or private organisations (0.18 as against 0.11 and 0.10 respectively), (see Appendix 1 methodology note, section 6.3.1, p XIII)

7.7.2.4   Summary: Access

The FA's design guidelines are widely available to all respondents but respondents working for public sector organisations have the greatest access to the reports.

Respondents working for public and semi-public organisations have comparable access to both upland and lowland advice, while those in the private sector have slightly greater access to upland advice.

The level of access to the individual reports, by both the respondents and their organisations shows the <u>Forest Landscape Design</u> and <u>Community Woodland Design</u> reports to be comparable and greater than the level of access to the Lowland Landscape Design report.

The take-up of FA courses is high among respondents. These respondents are more likely to be working for a public organisation and in addition, more likely to have attended an upland course or both courses. Conversely respondents working for semi-public organisations are more likely to have attended a lowland course.

7.7.3   Respondents' Use of the Guidelines

This section records the degree to which respondents use the different reports and whether use of a guideline is related to respondents' previous training, their planting objectives and the woodland's location.

Respondents were asked, 'To what extent do you use the FA's design guidelines when designing woodland planting', (Q9).

Table 7.9 first records respondents' access to each guideline and then cross-tabulates guidelines with the level of use. This is a multiple-choice question: the 134 respondents who have access to the guidelines were asked how often they used the advice: always, sometimes or never.

Table 7.9 Use of the Guideline Reports

Guideline Report:	Access (n=134)		Use of FA Guidelines						
			Use: always		Use: sometimes		Use: never		no response
	num	%	num	prop	num	prop	num	prop	num
Forest Landscape Design 1989 or 1994	124	93	55	0.44	47	0.38	13	0.10	9
Community Woodland Design 1991	119	89	38	0.32	58	0.49	15	0.13	8
Lowland Landscape Design 1992	105	78	34	0.33	51	0.49	14	0.13	6

NB. respondents can score more than once for use because there are four reports.

Observations:

The results show that all of the guidelines currently available are well used, with 76% (102) of respondents saying they use one or more of the guidelines either sometimes or always.

The results show that the greatest use is made of the 1989/1994 Forest Landscape Design report with nearly half, (0.44) of those who have access using the advice always, while the Community Woodland Design and Lowland Landscape Design reports are used more sometimes (0.49). However there is no evidence to suggest that there is a relationship between level of use of a report and which report, (CHITEST p=0.21825).

Of those respondents who have access to one or more of the reports only 8, (0.06) do not to use the advice. This group of individuals is not characterized

by a particular level of experience, position, organization type or planting objectives and includes private foresters, FA conservators, landscape architects and woodland and countryside officers. So it seems reasonable to assume that non-use of the advice is not related to any one factor.

7.7.3.1 Use of the Guidelines by Respondents with Different Training.

Respondents were asked, 'Please state any training/qualifications (stating subject) and/or experience you have' Q5b).

The responses show that respondents involved in woodland have a wide variety of training and experience and are often qualified to degree standard. (Appendix 1, section 2, p IV). Over half, 96 (0,64) of them already have some form of design training and this rises to 132 (0.87) when those individuals with only FA design training are also included.

102 (0.68) respondents provided these details of degree. Of these, 75 (0.74) had one qualification with 27, (0.26) having more than one. A design qualification is the most common qualification, with management and conservation training the most common second qualification.

To see if there is a relationship between previous training and use of the guidelines the respondents were grouped into the following five categories by their degree qualifications; Design/Planning, Forestry/Agriculture, Management/Conservation and other, (these categories are defined in Appendix 4, subset 4, p XL). Table 7.10 shows these scores cross-tabulated with use of the guidelines.

Table 7.10   Use of the Guidelines Related to Respondents' Qualifications.

Previous Training	Use of FA. Guidelines always or sometimes.					
Qualification category	1989/94 forest landscape design		1991 Community Woodland Design		1992 Lowland Landscape Design	
	number	prop	number	prop	number	prop
Design / Planning	29	0.39	29	0.39	20	0.27
Forestry / Agriculture	30	0.40	30	0.40	26	0.35
Management/ Conservation	24	0.32	23	0.31	23	0.31
Other	8	0.11	8	0.11	9	0.12

NB. of the 102 respondents who stated their qualifications, 75 had any one qualification within a category. Only respondents with a score in one category are used in this calculation. No one is counted more than once.

Observations:

The response number for the calculation for qualification and use is small but there is no evidence to suggest that there is a relationship between respondents training and their use of the guidelines (CHITEST p = 0.964677).

7.7.3.2   Planting Objectives, Location and Use of the Guidelines.

Respondents were asked to indicate which type of woodland planting they had been involved in and then to categorise their schemes as either upland or lowland, (Q6, Q7), 85 of the respondents who gave details of the nature of their planting schemes went on to categorise these schemes as taking place in either upland or lowland locations, (see Appendix 1 methodology note, section 4.2.1, p VIII).

The type of woodland planting being undertaken by respondents was then categorised by planting objectives, being either productive, (production and commercial objectives) or protective, (landscape enhancement and conservation interests), following criteria described in Appendix 4, subset 5 (p XL). To see if there is evidence of a relationship between planting objectives and scheme location scores were cross-tabulated in Table 7.11.

Table 7.11   Planting Objectives and Scheme Location

Planting objectives and location of the planting schemes					
Planting objective	Type of scheme (n=150)				
	Upland all		Lowland all		Upland and Lowland	
	number	prop	number	prop	number	prop
Productive	1	0.01	7	0.05	4	0.03
Protective	0	0.00	20	0.13	7	0.05
Both	4	0.03	43	0.31	64	0.43
Total	5	0.03	70	0.47	75	0.50

NB. 85 respondents categorised 150 schemes.

Observation:

The data shows that respondents are working on a wide variety of schemes. The majority (0.67) of respondents work with protective objectives with amenity (0.25) and community woodland schemes (0.21) making up the greatest proportion of these protective projects, (Appendix 1, section 4.2 (p VI)

The findings do show that almost half, 64 (43%) of the respondents have worked on a mixture of upland/lowland and productive and protective schemes while almost one third, 43 (29%) have worked on lowland and productive and protective schemes.

The scores for location of planting schemes were then cross-tabulated with the level of use for the different guidelines (Table 7.12), to try to establish if there is any significant difference in the level of use of the design advice between upland and lowland situations.

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Table 7.12   Location of the Planting Schemes and use of Guideline Reports.

Location and Use						
	Use of Guideline					
Scheme location (n=150)	1992 Lowland Woodland Design		1991 Community Woodland Design		1989/94 Forest Landscape Design	
	number	prop	number	prop	number	prop
Both Upland & Lowland schemes	42	0.28	46	0.30	52	0.35
Lowland schemes	39	0.26	44	0.29	46	0.30
Upland schemes	4	0.03	5	0.03	4	0.03

NB. Scores are for use sometimes + always.

Observation:

As the proportions are so similar for 'lowland' and 'both' categories and also use of the three guidelines, the results suggest that it is unlikely a relationship does exist between use of a particular guideline and planting location.

7.7.3.4   Summary: Use and the User group.

Level of use and individual guideline reports.

The analysis looked at the level of use of the individual guideline reports. The results show that all of the guidelines currently available are well used but that there is no evidence to suggest the level of use, (always, sometimes, never), is related to the individual report. The results also suggest that no one factor appears to connect those respondents who choose not to use the advice.

Use and training

The findings show that among the surveyed group respondents are highly qualified and their qualifications and experience are diverse, even so the majority have had some previous design training. However there is no evidence to suggest that the nature of their previous training or experience has an influence on respondents' level of use of the individual guidelines.

<u>Planting objectives</u>

When looking at the results for planting objective it appears the survey group is involved with a wide range of woodland types. The analysis of scores for planting objective and planting location shows that the majority of respondents are working with both productive and protective objectives on both upland and lowland sites. However, the findings indicate that there is unlikely to be a relationship between a scheme's location and the respondents' level of use of the different guidelines, ie. upland or lowland advice.

7.7.4 How Useful the Respondents find the FA's Design Advice

This section establishes how useful respondents find the FA's design advice. The analysis looks for relationships between the usefulness of the different aspects of the design advice and respondents' previous training, their planting objectives and the usefulness of the advice in relation to the location of their design work. It also considers the perceived usefulness of advice to those who are without access.

7.7.4.1 Useful Advice

Those respondents who use the FA's guidelines or who have attended an FA course, were asked to indicate 'to what extent they find different aspects of the design advice useful?', (Q13). This was a multiple-choice question. The contents of the FA's design guideline advice were categorised under eight subject headings. Respondents could tick none, one or more aspects and Table 7.13 shows the results for aspects of the advice cross-tabulated with level of usefulness.

Observations:

The findings for Table 7.13 shows that respondents find some of the aspects of the advice are more useful than others, (the test used aspect vs not useful + not used / very useful + useful).

Table 7.13   Aspects of the FA's Design Advice and Usefulness to Respondents

Aspects of design advice	Respondents using advice (n=141)		Contents Very Useful		Contents Useful		Contents Not Useful		Contents Not Used	
	number	prop	number	prop	number	prop	number	prop	number	prop
Woodland Planning	100	0.71	19	0.19	73	0.73	8	0.80	4	0.30
Landscape Assessment	115	0.82	61	0.53	51	0.44	3	0.30	22	0.16
Planting Objectives	109	0.77	23	0.21	73	0.67	13	0.12	15	0.14
Visual Design Principles	116	0.82	66	0.57	45	0.39	5	0.40	17	0.12
Detailed Design Advice	114	0.81	34	0.30	75	0.66	5	0.40	4	0.30
Silvicultural Advice	107	0.76	28	0.26	64	0.60	15	0.14	8	0.80
Management Systems	99	0.70	27	0.27	62	0.62	10	0.10	17	0.12
Conservation Strategies	117	0.83	45	0.38	67	0.57	5	0.40	22	0.16

NB. sum 141 =access to the advice is 134 +7 respondents who although do not have access to the guideline publications have attended a course

Landscape assessment and the visual design principles are shown to be significantly more useful to respondents, (CHITEST p value = 0.000002 df =14). In general no aspects are considered not useful by most respondents. However, advice on conservation strategies appears to be considered less useful than other aspects, (scores for useful + not used).

For the majority of respondents who do not use, or have access to, the guidelines the findings suggest that they would welcome the advice and that they believe they would find all aspects of the advice useful (Appendix 1, section 7.1, p XIV)

7.7.4.2 Usefulness of Advice and Respondents' Previous Training

To see if there is a relationship between how useful respondents find the advice and their previous training Table 7.14 cross-tabulates the scores for Aspect with respondent's degree qualifications.

Table 7.14 Useful Aspects and Training

Useful Aspects of the Design Advice	Response (n=119)		Previous training (one or more degree qualifications)					
			Design & Planning (n=42)		Forestry & Agriculture (n=38)		Management& Conservation (n=39)	
	number	prop	number	prop	number	prop	number	prop
Aspects of Woodland Planning	84	0.71	32	0.76	26	0.67	26	0.57
Landscape Assessment/ Appraisal	93	0.78	29	0.69	36	0.92	28	0.61
Planting Objectives	83	0.70	26	0.62	28	0.72	29	0.63
Visual Design Principles	95	0.80	29	0.69	36	0.92	30	0.65
Detailed Design Advice	93	0.78	28	0.67	34	0.87	31	0.67
Silvicultural Advice	85	0.71	28	0.67	27	0.69	30	0.65
Management Systems	78	0.66	23	0.55	26	0.67	29	0.63
Conservation Strategies	98	0.82	32	0.76	33	0.85	33	0.72

NB. Entries = score for 'useful' + 'very useful'

Only 102 respondents gave details of their training, and the 11 respondents who have 'other' training were excluded from this table. This leaves 91 respondents + 28 of these have more than one qualification and can score more than once– but only if their 2nd qualification is not within the same category, total response 119

Observations:

Although the landscape assessment/appraisal and visual design principles advice appears to be more useful to respondents with forestry and agriculture training the test for significance shows that there is no relationship between useful aspects and previous training, (CHITEST p=0.999).

7.7.4.3 Summary: Usefulness

All aspects of the design advice are considered useful by the respondents. However, some aspects, namely landscape assessment and the visual design principles, are revealed to be significantly more useful to the surveyed group. Conservation strategies is the least useful aspect. However, the usefulness of specific aspects of the advice are not found to be related to the respondents' previous training.

Those respondents who do not use the advice, state that all aspects of the existing advice are likely to be useful to them, (Appendix 1, section 7.1 Table App.1.10, p XV)

7.7.5 Respondents' Opinions of the Design Advice.

This section collects information on respondents' attitudes towards the advice, that is, whether the respondents feel the contents of the guidelines are easy to understand and appropriate and if they believe anything is missing from, or superfluous to, the advice. The section goes on to present the statements of explanation given by the respondents on their use of alternative advice and the other issues the respondents feels are relevant to forest landscape design. It concludes by considering the tone of the respondents' comments.

7.7.5.1 Appropriateness of the Advice

Respondents were asked, 'are there any aspects of the design advice offered in the FA's publications that you think may be inappropriate?', (Q16a). The

15 individuals who felt some aspects of the advice are inappropriate were then asked to state which advice. Table 7.15 cross-tabulates aspect with respondents scores for inappropriate.

Table 7.15   Aspects of Inappropriate Advice

Aspects of advice	Aspects that are considered inappropriate	
	(n= 15)	
	number	prop
Woodland Planning	1	0.10
Landscape Assessment/Appraisal	1	0.10
Planting Objectives	2	0.13
Visual Design Principles	1	0.10
Detailed Design Advice	2	0.13
Silvicultural Advice	1	0.10
Management Systems	1	0.10
Conservation Strategies	1	0.10
non response	5	0.33

NB. 134 have access. This was a multiple choice question.

Observations:

Only 11% believe that some of the advice is inappropriate.

Although the sample number is small a strong consensus would suggest a possible weakness in the nature of the advice but among the 15 respondents who question the advice there is no consensus on the aspects of advice thought to be inappropriate.

Even though the response number here is too small to draw any firm conclusions the explanations offered for their response are useful in identifying issues that are relevant to design advice. The statements offered could be categorised as follows:

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- 6 respondents think it is inappropriate to apply the advice in a universal manner, specifically in practical terms and regarding planting objectives, for example, 'The relevance of some of the design principles described is not always obvious in the flat East Anglia landscapes'.

- 3 respondents think that the content of the advice has the wrong emphasis, in particular regarding forestry economics and the nature of design advice. For example, 'Economics are rarely touched on', and 'too much emphasis on external and distant appearance, little emphasis on internal landscape within forests'.

- 1 respondent thought the advice may contain inappropriate ecological advice, for example, 'Their (FA) view of planting alongside burns is suspect in the long term, as natural regeneration will fill the space in eventually'.

2 explanations could not be coded and 3 respondents thought that some aspect of the advice was inappropriate but did not offer an explanation.

7.7.5.2   In-house Woodland Landscape Design Advice.

In order to assess whether the advice is complete respondents were asked, 'Have you produced in-house woodland design guidelines?' (Q11a, 11b). The majority of organisations stated they had not. However 36 (25%) organisations, (2 of them FC offices), have felt the need to produce their own guidelines (Appendix 1, section 6.2 (p XII). The respondents were then asked to state their reasons for producing in-house guidelines. This was an open-ended question and their statements could be categorised as follows:

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Table 7.16   Reasons for Producing In-house Design Advice

Categorised reasons for in-house advice	Response (n= 36)	
	number	prop
The need for local or site specific design advice	12	0.33
To help with the interpretation of the existing FA advice	8	0.24
To provide* missing information	8	0.24
Because respondents design objectives are different to FA's	4	0.11
Other- not able to categorise reason	4	0.11

* see below

Observations:

These reasons are useful in identifying the issues that concern forest landscape designers. The findings show that the most common reason for an office to produce it's own design advice is to provide local or site specific guidance.

The '* missing information' referred to in Table 7.16 covers a broad range of issues, but falls into five main categories:

Missing advice:

- advice on economic appraisal (harvesting and felling);
- design advice aimed at developers;
- advice specifically for urban forestry;
- advice on defining character and
- advice on how to attain 'best practice' and meet environmental standards.

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7.7.5.3 Other Sources of Design Advice

Respondents were asked, 'Do you use any other sources of woodland design advice, FA or other', and to state the source, (Q10a,10b). 72% of the respondents said they do use other advice. 90 statements were offered and could be categorised as follows:

Table 7.17 Sources of Other Sources of Woodland Design Advice.

Source	Response (n= 90)	
	number	prop
Work colleagues (including forestry commission staff)	38	0.42
Other publications (See publications listed Apx 5(pXLII))	31	0.34
Forestry Authority courses	14	0.15
Previous training course notes	8	0.08
In-house design criteria	5	0.05
Personal experience	4	0.04

Observations:

The largest proportion of alternative sources of information comes from the FC and includes FA publications, FA courses and FC employees. Over a third of respondents rely on the experience of work colleagues to provide advice but only 0.04 of respondents are relying on their own experience or previous training.

The nature of the 'other' advice used by respondents is categorised below.

Table 7.18   Other Advice

Nature of advice sort by respondents Other sources of advice offer information on:	Response (n=90)	
	number	prop
Other sources of advice offers: technical and objectives led advice.	43	0.47
Offers local and site specific advice.	22	0.24
Offers general environmental and ecological advice	18	0.20
Offers forest landscape design advice.	7	0.07

Observations:

Half of those using supplementary advice are looking for technical advice, for example wind-throw risk in forest design, and information on specific planting objectives such as urban woodlands.

7.7.5.4 Further Advice

Respondents were asked, 'Is there any further advice, not offered in the FA's guidelines available to you, which you feel would be helpful to forest landscape designers?', (Q17a, 17b). 75% of respondents felt that there was further advice available that could be helpful. The categorised statements are summarised in Table 7.19 as follows.

Table 7.19 Further Advice

Further Advice					
Any further advice	Response (n=129)		Categorised summary of Further Advice	Response (n=75)	
	number	prop		number	prop
Yes	97	0.75	a) Comments relating to design issues	41	0.55
No	32	0.25	b) Comments relating to woodland management & ecology	18	0.24
Non response	22	0.17	c) Alternative sources of knowledge for a designer	14	0.19
			Responses which could not be categorised	2	0.03
Total	151		Total	75	

Observations:

Just over a half (0.55) of respondents' statements relate to further advice on design issues, suggesting that the guidelines do not address all design issues relevant to forest landscape design. While 0.24 of respondents consider that further advice on woodland management and ecology would be helpful and 0.19 of respondents indicated the importance of forestry training and experience in designing forest landscapes. These statements are looked at in more detail below:

a) Comments relating to design issues:

Of the 41 (0.5) comments that related to aspects of forest landscape design:

> 16 statements suggested more advice for specialist planting objectives; 6 of these relate to design for recreational and community use; 6 comments related to forest planting (4 of which requested more advice on small scale plantations) and 4 suggested design advice specifically for urban situations.

> 13 comments suggest more advice on aspects of design related to woodland management, 5 of these comments (all from foresters) agree that advice on the economic implications of design in commercial timber production operations could be relevant.

> 9 statements focused on the need for greater flexibility in the FA's approach to design acceptability and the need for a greater appreciation of the wider issues concerned with forestry operations than is offered at present.

> 3 comments suggested more emphasis on planning strategies and the planning implications of forest landscape design.

b) Comments relating to woodland management and ecology

Of the 18 (0.2) comments which relate to woodland management and ecology:

9 respondents agree that they require more silvicultural advice, specifically on species mixes, ecological assessment and technical planting details. All of these comments came from designers.

c) Alternative sources of knowledge considered useful to a designer:

Of the 14 (0.2) comments:

5 respondents consider experience or field training in forestry or silviculture important for woodland designers.

7.7.5.5   Other Comments

Finally, in an open question, respondents were offered the opportunity to comment on the FA's design advice or on forest landscape design in general, (Q18). This opportunity was offered to ensure that, as far as possible, the research study would be familiar with all those issues considered to be relevant to the design of woodland landscapes by the woodland designers.

Over half (54%) of respondents felt they wanted to comment on woodland design advice. (Appendix 1, section 10, p XVIII) The comments recorded cover a wide variety of issues but 66 (80%) are sufficiently related to be categorised as either general comments (0.58), or specific comments (0.42).

Table 7.20   Other Comments: General

Other comments: general comments category	Response (n= 38)	
	number	prop
a) The design process	18	0.47
b) Experience and training	14	0.37
c) Suggestions for more advice.	6	0.16
Σ	38	0.58

Observations:

The largest proportion of general comments concerned the design process and training and experience.

The 38 (0.58) general statements are further categorised under three headings:

a) Design Process:

Forest landscape design in the context of the forest design process.

18 (0.47) respondents comment on the concept of forest landscape design as a small part of the forest design process. For example, 5 statements considered that aesthetic ideals were wrongly valued above functional and practical aspects of forest design, expressed for example by, 'Too frequently the production of timber is not considered and the design parameters make the economic harvesting of a crop impossible'.

b) Experience and Training:

The importance of experience and training to support the advice.

14 (0.37) of the comments stressed the importance to the designer of training and experience, both in forestry and/or design. Some suggested that experience makes the advice unnecessary, for example, 'There is a danger that guidelines and such publications will be used as a substitute for comprehensive forest training. Design is only one part of woodland planning and cannot be used in place of sound silvicultural knowledge and experience'.

c) More Advice:

Suggestions for additional advice to be included in the guidelines.

6 (0.16) of these comments suggest the inclusion of more advice in the guidelines, with statements such as, ' Need more focus on regional identity and coastal woodland establishment'. However there is no consensus on the aspects of the additional advice required.

Table 7.21 categorises the 28 comments that address more specific aspects of the advice.

Table 7.21   Other Comments: Specific

Other comments: specific comments category	Response (n= 28)	
	number	prop
a) Aspects of 'scale' in the design advice.	8	0.28
b) Advice being inappropriate to respondents work	7	0.25
c) Conservation advice	6	0.21
d) Emphasis of guide-line content	4	0.14
e) A commercial forestry bias	3	0.11
Σ	28	0.42

Observations:

These comments cover a wider variety of issues with no strong consensus on any one point.

The **28** (0.42) comments could be grouped under the following five headings:

a) The design advice related to the scale of plantations:

8 (0.28) comments refer to the relevance of the advice on very small scale plantations schemes, for example, 'design advice is a bit beyond our scale, we carry out small scale planting' and 'we have not planned woodland on a scale necessary to use guidelines'.

b) Advice is inappropriate to respondents' work:

7 (0.25) consider the advice is inappropriate in some way to their work, for example, 'most of the farmers that I advise have already decided which part of the farm they are going to plant up so only internal design becomes relevant'.

c) Conservation advice:

6 (0.21) comments talked about developing or introducing more advice on habitat and conservation, such as 'a recognition for the need for non-intervention areas would be good to see'.

d) The emphasis of the guidelines content:

4 (0.14) comments suggest that the FA's guideline advice lays emphasis on the wrong aspects of forest landscape design, but there was no consensus on particular aspects, for example 'landscape is over emphasised. Its importance varies with location' and, 'Current advice on design could be improved with an understanding of upland soils and wind-throw issues'.

e) Commercial forestry bias:

3 (0.11) suggested a bias towards design for commercial timber production, for example, '(the FA guidelines are) still too focused on plantation techniques from commercial soft wood forestry'.

7.7.5.6   The Tone of the Advice

It is useful to record the tone of respondents comments related to the FA's forest landscape design advice in order to get a feel for the level of user satisfaction with the advice.

The tone of 72 of the 82 'other comments' could be categorised using the following criteria:

a) Neutral - neither pro- nor anti- FA advice,

An example of a neutral comment would be, 'Forest design process is a complex mixture of silviculture, practical application, landscaping and many other factors. it can not be implemented by landscape architects alone...' .

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b) Pro-FA design advice.

This represents comments which support the advice. Examples of some of the terms used to describe the guideline advice here are, 'clear', 'fitting', 'communicating', 'integrated approach' and 'robust product'.

c) Anti-FA design advice.

Here comments are critical of the advice in some way; inflexible, restrictive, inconsistent and difficult are some of the terms used to describe the guideline advice.

Table 7.22   Tone of Respondents' Comments

Tone category	Respondents	
	number	prop
Neutral - neither pro- nor anti-FA advice	38	0.5
Pro-FA advice	15	0.2
Anti-FA advice	19	0.3
Σ	72	

Observations:

These findings suggest that respondents express no particular attitude towards the advice. The majority of observations are neutral in tone, with the remaining statements roughly split between positive and negative comment.

7.7.5.7   Summary: Respondents' Opinions

The majority of respondents, (Appendix 1, section 8.1 p XV) find the guidelines are easy to understand and do not contain inappropriate advice.

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For the minority who think some of the advice is inappropriate there is low consensus in which particular areas but they included the universal manner in which the advice appears to be applied, the weighting of the contents of the advice and the reliability of some aspects of ecological advice. However, numbers here are too small to draw any significant conclusions.

The majority of respondents are not finding it necessary to supplement the FA's forest landscape design advice with their own guidelines. Of those that do, the largest proportion are aiming to provide local or site specific information.

72% of respondents do refer to additional sources for design advice. This is generally supplied by other FC publications, courses or employees. Few respondents are relying on their previous training or experience to provide the missing information. Of those respondents using alternative design advice, over half are looking for technical information and design advice related to specific planting objectives.

75% of respondents state that there is information which they require as forest landscape designers which is not contained in the guidelines and not available to them. The majority of respondents agree that further advice on specific design issues, aspects of woodland management and ecology and forestry training or experience would be helpful to designers. However there is no strong consensus on the particular aspects of further advice within these categories.

Over half of the surveyed group responded to the request for 'other comments' and it was possible to categorise 80% of these comments as either of a general nature (0.58), or specific (0.42).

There was greater consensus on 'general' comments which raised two main points, the first on the need for forest landscape design to be seen as a stage in the forest design process, and the second, the importance of training and experience in both forestry and landscape design for the successful forest landscape designer.

Specific comments were wide-ranging with no strong consensus. The main issues raised here concerned the relevance of design advice in relation to the scale of the scheme; the appropriateness of the advice in relation to respondents' work objectives and the amount and type of conservation advice offered in the guidelines.

The tone of the respondents' comments on the FA's guideline reports is generally neutral.

7.8 Discussion of the Survey Results

The purposive nature of the sample and the fact that numbers available for analysis are small, means that the findings of this survey can only show if and where an association exist among the survey group. The results cannot explain the reason for the existing associations or allow any generalisation to be made but the findings can offer a basis for discussion and a possible direction for further research. This section discusses the FA's forest landscape design advice with reference to the findings of the postal survey.

7.8.1 Access to the Design Advice.

The analysis of the survey data related to access shows that the FA's design advice is widely available, with only 11% of respondents working without

access to any of the reports. The level of access means that the *majority of* respondents in this sample can usefully comment on the contents of the guidelines with the advice being available to public, semi public and private organisations. Those working for public sector organisations have the greatest access to the reports, however this is as expected as the public sector category includes the FA offices, where the guidelines would be available as a matter of course.

The guideline advice appears well distributed, with over half the organisations surveyed having all three reports. Respondents working for public and semi-public organisations have comparable access to both upland (Forest Landscape Design) and lowland advice (Lowland Landscape Design and Community Woodland Design), while those in the private sector have slightly greater access to upland advice. This variation in the score may also be a consequence of the sample, explained by the fact that the category includes the commercial sector of the forestry industry. The working priority of this group is predominantly timber production and private forestry companies still retain significant commercial forestry interests in the upland regions.

Why the upland Forest Landscape Design report is so widely available among semi-public organisations is more difficult to explain, particularly since much of the work of these organisations is neither large scale commercial forestry or likely to be taking place exclusively in uplands landscapes. The fact that this report was the first to become available may account for its popularity, together with an ambiguous title that does not indicate that this advice is intended for use in upland situations. However, while it is possible that some respondents may have access to what could be considered inappropriate advice, (that is access to upland advice when their schemes are

based in the lowlands or vice-versa), this is not likely to be a major problem, as the findings show that only a small proportion of the organisations who have access to the reports are relying on a single type of advice.

The acquisition of guidelines aimed at lowland landscapes by those organisations who already have an upland report may suggest that designers were identifying a problem with applying the existing upland design advice to landscapes of lowland character. However the similarity of the actual advice offered within the upland (1994) and lowland (1992) reports does not convincingly support this idea. Another explanation may be that acquiring lowland advice was in response to the general shift in the nature and objectives of woodland planting in Britain in the late 1980's. Changes to forestry policy and the introduction of the Community Woodland and Farm Woodland Scheme initiatives, both intended to promote planting in lowland landscapes, have had the effect of shifting the focus of woodland planting from upland to lowland sites and may, as a consequence, have increased the perceived need for lowland design advice among designers.

Looking at the level of access to the individual design guidelines, the popularity of the community woodland report is interesting. The findings show that access to the Community Woodland Design and Forest Landscape Design (upland) reports are comparable and greater than the level of access to the Lowland Landscape Design report which is unexpected, as community woodlands only make up 7% of the woodlands designed by the surveyed group.

The explanation for this may be that the community woodland report, (1991) was published before the Lowland Landscape Design 1992 report and for a period of time represented the only available lowland advice. However,

another explanation, suggested by the findings, is that much of the woodland planting taking place has amenity objectives and the design advice for amenity objectives is more fully addressed in the community woodland report. It is possible therefore that the acquisition of the lowland advice is more strongly related to the need for design advice on planting objectives, specifically, amenity objectives, than to the need for advice on different planting locations (upland or lowland) and this has implications for the way the FA's advice is presented, that is, is offering design guidelines related to a woodlands' location the most relevant and useful way to offer advice?

Access to the FA's forest landscape design advice is also available through taught courses and the up-take of FA courses is high among respondents. While the findings show that respondents attending a course are more likely to be working for a public sector organisation, the high scores for attendance are again probably a consequence of the sample. FC employees are automatically sent on forest landscape design courses and employees from other public and semi-public organisations, such as local authorities, receive subsidised places. This situation may suggest that attending a course is simply related to the cost of the course.

The significant findings for the type of course attended and the organisation status of the respondents show that respondents within public organisations are more likely to attend an upland course. It is possible to explain this result by the proportion of FA's foresters in the public sector category who are required to attend a course. The upland course is likely to be more relevant to these respondents because FC interests are still largely concerned with commercial plantations in sensitive upland locations where greater attention to design is required. Interest in the lowland courses from semi-public

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organisations is as expected, being related to the high amenity planting objectives of the semi-public group and the general trend for amenity schemes in lowland areas.

What is worth noting here is that while the majority of respondents have received some design training through attending a course, up to a third of respondents are relying on the contents of the guidelines for their forest landscape design advice. This has implications for the level of information required from the guideline reports and is particularly relevant for private sector respondents who are less likely to have attended a course.

The findings of the analysis on access to the FA's advice are generally as expected and confirm that the forest landscape design advice is so widely distributed that it is likely to play a significant role in directing the respondents' approach to their design work. The fact that so many organisations and individuals have access to the advice also implies there is a need, or at least a perceived need for design guidelines.

In order to control the nature and form of planting schemes and to promote 'best practice', the FA now requires design work to reach a certain standard of design. That is the standard set out in their design guidelines, 'they represent the basic standard which will be expected in any application for grant aid', (1994 Forest Landscape Design). This requirement for designers to follow the FA guidelines in order to qualify for grant aid has created a need and in many cases the necessity, for the FA's own design advice. This situation may help to explain why the guidelines are so widely available and more readily available among semi-public and public sector organisations where grant aid is central to their work.

7.8.2   Use of the Guidelines.

While the findings for 'access' to the guidelines largely appears to be a consequence of the sample and possibly the existing system of grant aid, the findings for 'use' reveal more about the value respondents place on the FA's advice.

7.8.2.1   Level of Use: General

The survey shows that the level of use of the guidelines is high, with many respondents stating they use the advice 'always'. This situation may appear extraordinary given the training and experience of the surveyed group, who are generally highly qualified. It seems reasonable to assume that for some reason respondents are not able to rely on their previous training or experience for the information they need. Although in the current forestry climate designers are being asked to design forest landscapes with very diverse objectives, the level of qualification of members of the survey group (64% of whom have some form of design training) would suggest this should not pose a particular problem to the majority of respondents. There are two possible explanations for this situation.

If current forestry and/or landscape design training courses do not communicate forestry landscape design skills to the degree which would enable designers to reach design solutions, (and landscape design training would not perhaps be expected to do this) designers would find they needed to supplement their existing knowledge in order to come into line with FA standards. In addition, if designers need to design schemes to the standards required by the FA for grant aid, the FA's advice would be the most obvious advice to use.

If on the other hand the FA's approach to designing forest landscapes differs from that widely used by the landscape industry, designers would find that

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when it came to designing schemes for grant aid their design solutions may not fit with the FA's requirements. The solution to this problem would be to ignore any previous training and follow the FA's design guidelines.

Both observations would help to explain why the guidelines are being used to such an extent by such a well qualified group.

7.8.2.2 Level of Use: Specific Guidelines

When considering the level of use of individual guidelines the findings show that all of the current advice is well used. The greatest use is made of the 1998/1994 Forest Landscape Design report with just over a half of those who have access using the advice 'always'. While the Community Woodland Design report is more likely to be used 'sometimes'. The analysis shows that the different levels of use cannot be attributed to previous training .

The design of commercial woodland plantations and in particular upland schemes is addressed by the Forest Landscape Design report. These schemes are likely to require a high level of visual design particularly if they are large scale and highly visible and therefore sensitive landscapes. Here the FA's activities are still under scrutiny it may well be more critical of design solutions. It therefore becomes more important for designers to follow the guideline advice closely and many of those who use this report seem to do so.

The lower level of use of the Community Woodland Design report, which is only used by the majority of respondents 'sometimes', may also be explained by the nature of the planting schemes. In the case of community woodlands, planting schemes are often small scale and in less sensitive areas, such as the urban fringe or on despoiled land, where the importance placed on visual design is lower. Here designers may not feel the need to apply the guideline advice so rigorously.

The relatively low level of use of the <u>Lowland Landscape Design</u> report is, however, more difficult to explain given the changes in forestry practice which favour lowland woodland establishment. It could be attributed to the similarity of the contents of the upland and lowland guidelines (and a large proportion of respondents have access to both reports), or, once again, the report's relatively late publication date.

7.8.3   Useful Advice

The contents of the guidelines offer a wide range of advice related to forest landscape design. Establishing the comparative usefulness of these different aspects of the advice to respondents can help to assess how appropriate and ultimately successful the FA's guidelines are.

The findings show that, as a rule, respondents find the forest landscape design advice to be easy to understand, appropriate and generally useful, with no one aspect of the advice considered not useful. The findings also show that the surveyed group find some aspects of the advice (specifically advice on landscape assessment and the visual design principles) useful to a greater degree.

These two aspects of advice are linked in the guidelines. The advice on landscape assessment is concerned with the assessment of landscape character and the Visual Design Principles are presented, as the tools with which the woodland designers can assess a landscapes' visual character. They are also used as a cue to achieving design solutions. Respondents may find these particular aspects of the advice most useful because they belong exclusively to the FA's approach to design. Unless respondents are FC trained foresters or have attended a FA design course it is unlikely that they would have come across this system of visual design before. The FA have, in effect

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created a need for this advice which may explain why its usefulness does not appear to be dependent upon respondents previous training.

The general usefulness of the other aspects of the advice may be as a result of the broad range of skills needed to design forest landscapes and the fact that few respondents have all the knowledge required to design for multi-purpose objectives. For example a local authority landscape architect may not be as familiar with coppicing techniques as a FC forester, or as familiar with the ecological value of a coppice woodland as an ecologist, but this woodland system represents an option for a community woodland concept and a designer would need their combined knowledge to proceed. Respondents therefore are likely to require very specific advice on many varied aspects of forestry in addition to their previous training and the guidelines appear to be providing at least some of this information.

7.8.4   The User Response

It is interesting to note that because the advice has been consistent over time and was originally introduced to help upland, commercial foresters to design forest landscapes, the results might be expected to show that these are the respondents who continue to find the advice most useful, that is respondents with a forestry or agricultural training, but this is not the case. In fact the majority of the survey group are not foresters, and they are working on a wider range of woodland schemes, the greater proportion most likely to be taking place in lowland landscape and with protective objectives. In view of this fact it seems reasonable to suggest that for some respondents the nature of the current FA advice may be weighted incorrectly.

This disparity, between the nature of the original and current user groups, may go some way to explaining why, with such an apparently high level of

user satisfaction, 36, (25%) of the organisations surveyed have felt the need to supplement the FA's advice with their own guidelines and further more, why 72% of respondents use other advice and information to complement the FA's guidelines.

This is the logical response if the contents of the guidelines and the nature of the FA's advice has, in part, failed to respond to the shift in user needs and planting objectives. The original idea that foresters should be given visual landscape design guidelines in order to avoid the unacceptable landscapes of the post war afforestation program is no longer an issue and not the prime concern for the majority of today's designers. The FA's objective therefore in offering forest landscape design advice simply to teach foresters to avoid the "worse design mistakes" (Bell S., personal communication), now appears to be an inadequate approach.

The focus of the guideline advice has always rested on the visual integration of woodland planting into the landscape and while this advice is considered useful, the findings indicate that respondents now believe forest landscape design is far more complex than a visual exercise, (indicated by the diversity of the advice they are looking for when designing). The respondents' open statements show that they are looking to the guidelines to provide all of the diverse information they feel they need to design woodlands in a more holistic way. This suggestion is supported by the fact that the nature of the missing advice does not reveal a desire for further visual design theory. On the contrary, respondents are indicating a need for a diverse range of additional information, including the need for further and more detailed advice on the economic, ecological, silvicultural, functional and environmental issues related to woodland planting.

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It is important to state here that the FA do believe that forest landscape design is more than a visual exercise and that a good deal of the other relevant advice related to woodland design does exist in separate FA reports, such as the <u>Forest Nature Conservation Guidelines</u>, 1990, (although it is difficult to explain why this report is not referenced in any of the design guidelines). However, the findings of the survey give the impression that respondents see the advice as incomplete and this has implications for the existing form and content of the guidelines. It would be reasonable to argue that the FA's advice on forest landscape design is not currently being presented in the best possible form and, by presenting visual design advice as a separate issue in forestry activity, the FA is limiting the usefulness of the guidelines to this survey group.

7.8.5   Implications of the Survey Findings on Current Practice

The findings of this survey show that respondents are generally convinced by the advice, refer to it frequently and consider it useful. Certain findings leave a question mark over whether the FA's design guidelines are offering enough advice and the most relevant advice in terms of the needs of the present user group.

In terms of the survey results affecting current practice, it would be possible for the FA to conclude that there is no compelling reason to rethink the nature of the advice when the addition of further advice may seem sufficient. However, if the reports are not doing the job they are intended to do, the FA is not achieving its objective in offering design advice. The findings of the postal questionnaire suggest that, in part, the FA's objective has not been met and therefore makes a reasonable case for reconsidering the advice.

7.8.6   Methodological Issues raised by the Survey Findings and Implications for Further Research:

This study addressed the research questions by asking respondents to consider the design of forest landscapes in terms of the nature of existing design advice offered by the FA. This approach may have been inhibiting, given the level of the comments offered by respondents that were unrelated to the FA's advice. An alternative approach, that would allow greater scope for the information collected, would be to consider the issue of forest landscape design and design advice independent of the approach offered by the existing FA guidelines.

A survey that was designed to define the user group and its needs would enable any design advice to be correctly targeted and relevant. In addition, it would be important to establish the nature and detail of the advice these designers would find useful including when and how they would use any guidelines. In this way the survey findings could offer a sound basis for decisions on the nature, content and form of any design advice, related to user group.

Guideline advice as a design aid, however, is only really necessary where previous training falls short of what is needed. A study that could improve our understanding of the nature and content of the previous training received by forest landscape designers would be useful, particularly if it considered whether more effective training would limit the need for supplementary advice. A survey might record if and where approaches to design differ; where and how respondents feel their training is useful and what, if any, additions and improvements could be made to ensure they, as designers, have all the information and skills they require. It would also be useful to consider whether the training they receive is compatible with the FA's methods and standards of design.

7.8.6.1   The Use of a Questionnaire

While the use of a questionnaire to collect information appeared at the outset to be the best choice of methodology, in view of the number of people who could be targeted and the available resources, the findings suggest that the questionnaire may have suffered from two problems:

1   low critical thinking in the respondents – because the FA are widely accepted as the leading authority on forest landscape design,

and

2   the ease with which the questionnaire could be completed without respondents being particularly familiar with the design advice

and these factors have implications for the quality of the data collected.

An option which may help to avoid these problems would be to distribute questionnaires to people who have just completed one of the FA's training courses. In this way the survey could ensure that respondents are familiar with the advice and thinking about its application. The problem here is that the sample cannot be easily controlled, (as this survey shows, respondents from public organisations were better represented, which may be a trend). In addition the FA do not always limit the information taught on each course to the advice offered in the guidelines and therefore it may not be a completely reliable way to judge the advice offered in the contents of the guidelines.

With hindsight, it is clear that such a complex subject was unlikely to achieve the quality of response hoped for. An alternative methodology more likely to produce useful data would be a series of interviews targeting people who have been using the advice over a period of time. Although numbers

would be smaller the sample could be controlled to look at variables such as previous training and planting objectives and more detailed, discriminating information would be received.

Methodological issues raised by individual questionnaire questions are noted alongside the questions in the Results Summary (Appendix 1)

7.9   **Conclusion**

The objective of the postal questionnaire was to establish how widely the FA's forest landscape design advice is available, how extensively it is consulted and by whom, and how useful the professional forest landscape designer finds the guidelines.

The findings of the survey indicate that the advice is widely accessible, well used and is considered appropriate, easy to understand and useful by the majority of the respondents. However, the findings also show that the guideline reports are at times offering incomplete and possibly wrongly weighted advice, in a form that is not as helpful as it could be to every member of the surveyed group. In spite of these contradictions respondents do not appear to be particularly critical or complimentary about the advice.

The postal survey produced some useful information on the general nature, needs and expectations of the user-group and their use of the FA's guideline advice. While these findings lend support to a review of the guidelines, on the grounds that the advice is incomplete and wrongly weighted, the study suggests that a more focused, in-depth method of data collection is likely to provide better quality information, which could then support the development of guideline advice relevant and appropriate to the current user group.

Chapter 8 reviews the conclusions drawn from previous chapters and considers the direction of the study in light of the findings of the postal questionnaire.