THE UNIVERSITY OF SHEFFIELD

V. PEPPER

THE DESIGN OF FOREST LANDSCAPES

Volume II

Ph.D.

March 2002

THE DESIGN OF FOREST LANDSCAPES

Volume II

Victoria Pepper

Thesis submitted for the degree of Doctor of Philosophy

Department of Landscape
The University of Sheffield

March 2002

CHAPTER 8 EVALUATION

8.1 Introduction

This chapter re-states the research objectives, summarises the research so far and offers the rationale for an alternative approach to offering forest landscape design advice.

8.2 Research Objectives

The objectives of the study were set out in Chapter 1, section 1.4, and aim to answer the following questions with regard to:

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

- why and how was the present advice introduced and why and how did it become established?
- what factors have influenced its development and content?

2 the advice in theory:

- is the existing advice theoretically sound?

3 the advice in practice:

- who uses the advice and what is their opinion of it?
- how the advice is used?
- how well is the user served by the advice?

4 the development of alternative advice:

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

The discussions of the guideline's contents and the critique in Chapters 5 and 6, together with the findings of the postal survey in Chapter 7 have fulfilled research objectives 1, 2 and 3. This information, together with the results of the Woodland Perception Field Survey analysis in Chapter 9, lends support to the development of alternative design advice which addresses research objective 4.

8.3 Summary of Research

The study began with an exploration of the factors that shaped the introduction, development and nature of the FA's forest landscape design guidelines by considering government and FC policy and objectives over the years and by focusing on the contribution of the individuals responsible for developing the design advice.

This review suggested that the existing advice has been developed in a way that is likely to have produced design advice with a commercial forestry interest bias and which has become divorced from other land-use interests. The investigation also revealed that during its development, the FA's design advice was never seriously challenged or rigorously tested, a fact which became the justification for further investigation and led to the critical review of the guideline contents.

The analysis of the amount and type of advice offered in the guidelines and the evaluation of the contents of each report, found that although the different design guidelines offer a good deal of relevant, helpful design advice it is not always complete, consistent or logical. The advice offered in the reports also, at times, appears to exist out of context in landscape design terms and is therefore unlikely to be responding fully to the existing users'

needs. The review concluded that the range and details of the advice offered by the guideline reports may actually limit their usefulness as a design aids.

The critical discussion that followed questioned whether the FA has been successful in achieving their objective, which is to provide sound advice on the theory, process and practice for forest landscape design. The doubts raised through the critique were then tested using the postal survey of user views. The findings revealed that, although the existing advice is well used by the majority of the respondents, as a total package the guideline reports are at times offering incomplete and inappropriate advice to some forest landscape designers, in a form that is not as helpful as it has the potential to be.

In an attempt to address the shortcomings of the existing guidelines and enable the development of an alternative approach to forest landscape design advice, a field survey was undertaken. The Woodland Perception Field Survey was conducted to provide detailed information on the visual changes that an individual's viewpoint distance has on the appearance of woodland in the landscape. The findings of this survey are intended to lend support to the formation of a new theoretical framework within which alternative design advice can be offered.

8.4 Rationale

The following explains the nature of this theoretical framework.

- The FA offers forest landscape design advice related to the location of the scheme or to its planting objective, that is upland, lowland and community woodlands. For each of these contexts the design advice encourages visual design solutions that are dictated by the same pre-

determined visual design criteria, represented by the design principles: shape, scale, visual force, unity, density and spirit of place.

- However in order to fulfil the FA's multi-purpose planting objectives for all woodland types and locations, the logical solution is to allow the visual design of the woodland landscape to be a direct product of the design process. This would allow a design solution that has reached its visual form through an appreciation of all the issues related to woodland planting and management. These issues would include the proposed planting objectives, the physical and visual site conditions, the implications of any proposed or existing use and/or management operations, the site's ecological value, its cultural significance and the issue of visitor perception.

- Visual design is nevertheless an important aspect of forest landscape design, as every component of the physical woodland and woodland activity has a visual consequence. Furthermore the significance of a woodland's visual form, the appearance of its individual elements and its relationship with the landscape, alters with the viewpoint and distance of the observer and the importance of these changes is relative to the degree to which the woodland is seen and experienced.

- Hence it would be better to offer visual design advice based on an understanding of the design process and the visual design opportunities and constraints related to woodland planting, use and management activities. Advice that takes into consideration the changing visual implications of these activities under different circumstances, while encouraging the designer to weigh VISUAL design effort against each scheme's functional, ecological, and cultural value.

The following chapter describes and presents the findings of the Woodland Perception Field Survey and discusses the survey findings in terms of the support they lend to an alternative approach to offering design advice for forest landscapes.

CHAPTER 9 THE WOODLAND PERCEPTION FIELD SURVEY

9.1 Introduction

At present the FA offers different forest landscape design guidance for different contexts: upland, lowland and community woodlands, with this advice predominantly visual in nature. Woodland landscapes that reflect upland characteristics can be found in both upland and lowland landscapes and woodland landscapes that reflect lowland characteristics can be found in both lowland and upland. There is, therefore, no clear or consistent relationship between a wooded landscape's location and the visual character it exhibits, so offering design advice on this basis may leave a designer uncertain as to the most appropriate advice to apply.

An alternative approach may be to re-categorise woodlands by their visual appearance rather than by their location or planting objective. If it can be shown that all woodlands have a visual form that alters with distance and view point of the observer (and does so in a broadly consistent manner, no matter the size, type, or context of the tree cover), it may be possible to present this observation as a basis on which design advice can be logically offered and applied.

9.1.1 Hypothesis

The study therefore suggests the hypothesis that people visually perceive forests and woodlands in the landscape in one of three ways depending upon their viewpoint, these are:

- **in the far distance:** where the woodland is perceived as a part of a two dimensional **(2D)** landscape pattern and where it represents a

simple, two dimensional coloured shape within the larger pattern of colours and shapes which composes the visual landscape;

- **in the middle distance:** where the woodland is perceived as a three dimensional (3D) form within the landscape, with a height, width and volume, and
- **in close proximity:** where the woodland is perceived as a **Place**, with a ground plane, a canopy level and physical enclosure.

A survey was designed to test whether there is sufficient evidence to support the hypothesis. The aim of the Woodland Perception field survey therefore was to identify and evaluate any visual relationships that may exist between awareness of different woodland elements in the landscape, and the view point at which the assessment is made

9.2 Survey Methodology

9.2.1 Objectives of the Survey

The data produced by this survey needs to support an alternative approach to offering design guidelines, that will allow the alternative advice to be relevant and appropriate within the existing framework of FA objectives and constraints.

The objectives of the survey are therefore defined by the following:

9.2.2 The Scope of the Current FA Advice

The current FA advice is designed to meet all FA policy objectives - from public enjoyment to timber production - and all planting objectives - from

recreational use to land use diversification. The current advice is considered relevant to all situations such as upland and lowland sites and aims to ensure designers achieve best practice in woodland design. Any alternative approach would therefore be expected to address all of these issues.

9.2.3 The Needs of the Designer

The FA's principle objective for offering design advice in the guideline publications was, and still is, to communicate design skills to anyone involved in the design of forest landscapes. The principle aim of any alternative advice would therefore be to provide information that is appropriate to user needs, whatever the users previous training and experience.

9.2.4 The Need to Offer Visual Design Advice

The need to address visual design issues in forest landscape design has to remain a major consideration simply because the visual appearance of forest landscapes is linked to FC objectives, under which the FA have a duty to

> 'Conserve and improve the bio-diversity, landscape and cultural heritage of our forests and woodlands'
>
> **and**
>
> 'Develop opportunities for woodland recreation'
>
> (FA mission statement 2000)

9.3 Choice of Method

In order to make a decision on the best technique for collecting the relevant data a review of the methodological literature, (available in 1994) was undertaken. This review reveals a body of research influenced by the numerous objectives and disciplines of those interested in the experience of landscape. The subject has become further complicated in that these

different approaches all exist under the umbrella term of landscape assessment and include studies as diverse as an ecological site classification for forestry (Pyatt G., 1995) and the assessment of children's preferences for different landscape types (Bernaldez F.G., Gallardo D. and Abello R. P., 1987). A number of studies have attempted to record the state of landscape assessment research at various times (including James B. and Baines J., 1988, Landscape Research Group 1988 and Land Use Consultants 1991).

The literature indicates that in the past, landscape assessment methodology has tended to develop through the efforts of practical projects rather than academic research. These projects are geared to addressing real issues and producing practical results, for example, those assessments undertaken to identify environmentally sensitive areas (ESA's) for policy and management initiatives, or assessments designed to identify the constraints and opportunities for land use change and conservation offered by the community woodland schemes. The development of an appropriate methodology to achieve these objectives has often been integral to the study and usually represents some form of progress in research and practice.

Key practical projects that had a significant impact on the advancement of landscape assessment methodology at that time included

- the Assessment and Conservation of Landscape Character: the Warwickshire Landscapes Project, for the Countryside Commission (1987), which helped develop and refine the Countryside Commission's first approach to offering advice;
- the assessment for the North Pennines Area of Outstanding Natural Beauty (1986) which was instrumental in setting out the basis for AONB designation and also introduced the concept of a statement of landscape quality to support a designation;

- the landscape assessment work carried out by ADAS on the Somerset Levels (MAFF 1989) which contributed to the blueprint for AONB assessment and guideline advice and
- the landscape assessment for Staffordshire complied by the FC, in association with Staffordshire County Council, which provided the foundation for the FA's Landscape Assessment for Indicative Forestry Strategies guidance (Price G., 1993)

The Countryside Commission represents the leading authority on the practice of landscape assessment and offers up-to-date advice in their advisory booklet Landscape Assessment Guidance (1993). However, they continue to develop assessment methods and techniques and have completed the New Map of England project (part of the Countryside Character Programme) (Countryside Commission, 1995), piloted by LUC, which has explored the current trend in computer technology with the use of the computer-based GIS system for recording and analysing landscape information.

The Landscape Research Group's Review of Recent Practice and Research in Landscape Assessment (1988) has categorised these practical studies into 3 types;

1 **Landscape classification:** describing and classifying the nature and range of landscape types.
2 **Landscape descriptions and analysis:** concerned with presenting information about a landscape, analysing form, content and interrelationship between components.
3 **Landscape evaluation:** attaching a value to a landscape type, feature or experience, whether numerical or otherwise.

The proposed survey draws on the methodologies developed for visual landscape assessment methods in categories 1 and 2

9.3.1 Objective and Subjective Research

This field of practically based research has provided a sounding board for academic research, which in turn has responded by addressing the on-going questions of concepts, principles and theories linked to and directing these various studies. Robinson D.G. et al, (1976), Kaplan R., (1975), Sidaway R., (1990) have all undertaken studies aimed at evaluating the developing methodological styles and techniques that have been employed over the years.

The recognition of the psychological dimension of landscape perception (Appleton J., 1975; Zube E.H., 1984 and later Bourassa S., 1991) has served as a catalyst, bringing about the paradigm shift which landscape assessment methodology is currently experiencing. It is a perspective which represents a fundamental change in the way we understand the landscape of experience and has forced the re-evaluation of research styles. In particular this has raised the question of objective and subjective approaches in assessment strategies, which has implications for the relative value of quantitative and qualitative data for recording and measuring landscape experience. The academic discussion relating to the question of whether landscape assessment should be a subjective or an objective activity is relevant to this study.

Early landscape assessment methodology reveals the appreciation of landscape as a simple reaction to its physical form. This assumption, together with the pressure for assessments to provide a valid and defensible basis from which policy decisions could be made, led to a preference for an objective approach, and to the manipulation of quantitative data and the development of statistical evaluation methods to support assessment studies. As the experience of landscape became commonly considered more than the sum of its physical attributes, landscape researchers began to find objective approaches to landscape measurement inadequate and inappropriate,

particularly when it come to the evaluation of landscape quality, preference or beauty and the exploration of landscape meaning. Researchers are now having to consider where the less rigorous subjective approach is useful and justified.

Jacques D.L., (1980) is forthright on the subject, believing that landscape appraisal is an entirely subjective issue and that 'all such attempts to increase the objectivity of landscape survey are unconvincing'. Hubbard P.L.'s (1994) view on the other hand reflects the findings of more recent thinking and research, (Bourassa S., 1991; Lambe R., 1994; Alcock A., 1993) which suggests aesthetic experience and assessment are not purely a matter of personal taste but culturally based and likely to be indicative of basic environmental values. He refutes the idea that landscape aesthetics is a subjective matter and while not implying that universal standards of beauty or ugliness exist, he does believe that social-cultural differences are identifiable and therefore possible to measure.

Swanwick C., (1991) argues the case for a balanced approach stating that, 'any method of landscape assessment needs to address both the objective and subjective aspects of landscape' and that ' it is neither possible nor desirable to do away with subjectivity in landscape assessment'. The Landscape Research Group (1988) agree, adding the condition that 'methods need to distinguish between objective surveys dealing with the nature of landscape itself and subjective approaches which deal with reactions to it'. They conclude that there is no universally applicable approach and that the methodological style adopted should be designed for the individual case, and reflect the particular objectives of the study. Dunn M., (1976) remains cautious on the use of subjective evaluations, he states, 'Until the reliability and precision of the measurement techniques are demonstrated, there may always be a case for simplicity'.

In an attempt to define an approach which can address the research questions posed by this particular study the survey methodology has borrowed from both camps. It is important to acknowledge that although the Woodland Perception Survey attempts an objective measurement of observers' responses in order to allow the analysis of quantitative data, the initial categorisation of the selected landscapes is based on a subjective judgement of the assessor.

The rationale for collecting quantitative data was not in the belief that the methodology provided a more rigorous or scientific result, but that the identification of a significant consensus would make the survey information more useful to this study, hence if there is no consensus on the three distance categories (2D, 3D and place) or the relationship between the elements within these categories, there is no theoretical basis for offering alternative advice.

9.3.1.1 Professional and Non-professional Judgement

In recent methodological developments there has also been some discussion about the reliability and appropriateness of using professional and/or non-professional respondents in the landscape assessments process. These discussions seem to have been prompted where assessments lead to an evaluation of quality or aesthetics and focus on whether professional preferences correlate with those of the public and the implications any discrepancy may have for policy decision making (Jacques D.L., 1991). Some findings suggest expert and lay assessments are consistent, Laurie I.C. (1975), Arthur L.M. (1977) and Craik K.H.,(1972) while others argue significant differences, Buhoff G.J. and Wellman J.D. (1979) and Anderson T.W. and Shroeder H.W. (1983), Lee T.R., (1990) and Kent R.L.,(1993).

However where a visual assessment for analysis, classification or description purposes is required the existing methods have come to accept that an expert judgement is valid. The Secretary of State's decision on the North Pennines AONB (1985) inquiry served to give credibility to a subjective evaluation by a professional: the process of evaluating landscape, he states, "necessarily involves a subjective assessment and that within the consensus of informed opinion, allied with the trained eye and common sense, the matter is one of aesthetic taste" Uzzell D. (1990) too, argues that those trained in the environment assessors are more objective in their observations and Hubbard (1994) finds professional assessors 'emphasise the objective, physical qualities of the landscape'.

Dearden P.,(1981) reasons that the purpose of the assessment is relevant to the need for a public involvement in the assessment process. As this particular survey is primarily concerned with the identification and classification of the landscape, (that is sorting landscapes into different types using the 2D/3D/place criteria, but stopping short of attaching a relative value to each class or type), it seems appropriate that the methodology borrows from landscape assessment surveys which use professional judgement. In addition, as the aim of the field survey is to record information to help forest landscape designers focus their resources and objectives in the design of forests and woodlands, the use of professional assessors with knowledge and expertise in the subject can only be an advantage.

The constrains on the resources available for this project however, mean that student observers had to be used to carry out the field survey, so while professional assessors would have been ideal, the second year post-graduate landscape architecture students, used here, offer an acceptable compromise, as they can reasonably be considered semi-professional.

9.3.2 Alternative Methods in Perception Surveys: The Use of Photographs as a Technique for Visual Landscape Assessment.

When considering the most appropriate technique for collecting data that requires a visual assessment of the landscape, there is a choice between an assessment carried out in the field and an assessment made using photographs. A review of the literature comparing these approaches was carried out before the decision was made. Initially photographs seemed an obvious choice, as Lee T.R. (1990) had sucessfully used this method to collect data on public preference for forest landscapes. There have however, been a number of well documented studies comparing the reliability of each method, and, while the use of photographs is considered to be a valid way to assess landscapes by many of these, there remains a level of disagreement.

Fines K.D.,(1968), Craik K.H., (1972) and Dunn M. (1976) all believe photographs are an adequate substitute for field surveys, but Zube E.H., Pitt D.G. and Anderson T.W., (1974), while concluding significant agreement between responses to both methods, have reservations, qualifying this conclusion with a warning that the use of photographs is reasonable only if care is taken not to 'enframe' the photo or to exclude or emphasise objects or characteristics which may distort the real world. Shuttleworth S., (1980) holds similar reservations: while believing photographs represent an acceptable method for visual assessments he acknowledges that in using photographs perceptual distortions do occur.

Pocock D.C.,(1982) on the other hand maintains that a photograph is 'totally unable to convey the life of a scene: unable to discriminate; it merely records everything at one instant' and Uzzell D.,(1991) agrees that, ' the evaluation of landscapes on site is perhaps the ultimate aim, the transmission of landscape data to map or photograph inevitably involves a loss of information and

equally inevitably a loss of accuracy in the evaluation' furthermore both he and Ulrich R.S. (1983) suspect that photographs are likely to be an inadequate surrogate for in-situ assessments, while Mehrabian A. and Russel J.A., (1974) and Kroh D.P. and Gimblett R.H., (1992) believe emphatically that people respond in a different way to landscapes represented by photographs and those assessed in the field.

While the majority of these studies are exploring methodologies which attempt a reliable measurement of quality and/or preference, for landscape evaluation purposes, the proposed survey is more interested in the classification of landscape type, and Zube's (1974) findings, which conclude 'photographic simulation proved most reliable when dealing with the overall perception of the landscape and less reliable when dealing with perception of detailed elements and characteristics in the landscape' are relevant.

Central to the proposed survey assessment is the recognition of woodland form as representing a two dimensional or three dimensional image in the landscape and the relationship between the landscapes component parts which contribute to this impression. Here it is difficult to accept that respondents are not in some way likely to be influenced by the two dimensional image presented by a photograph or by any other aesthetic considerations, such as composition or proportion, associated with the perception of landscape as a pictorial image. Even though Clamp P. (1981) comments that when respondents were asked to talk about landscape and countryside in their own words it was found that, both with and without the use of photographs, landscapes were discussed as real places and, further more, respondents did not comment on 'visual patterning' when describing landscapes from photographs, a concern remains that an assessment of a landscape that is represented as a pictorial image may confuse the objective of the proposed survey.

In view of the apparent lack of consensus on the use of photographs as landscape surrogates and a concern that, in this particular case, the use of photographs may unnecessarily complicate the issue, a field study was decided upon as the most accurate way to collect the data.

9.3.3 The Nature of the Data

Having considered the existing methodological information a field survey was designed which would involve a group of semi-professional observers carrying out a form of visual landscape assessment. These assessments would then provide both quantitative and qualitative data for analysis.

9.4 Scope of the Survey

The scope of the survey is defined by the following observations:

The information collected from this survey aims to focus on visual issues in forest landscape design and therefore the data collected concentrates on providing an insight into the respondent's perception of the visual landscape. The scope of the data collection does not extend to recording individuals' responses to non-visual issues, such as the ecological value of a site or the success of management systems. There are two reasons for this: one, there is a clear case for visual design in the landscape (discussed further in Chapter 10 section 10.3) and two, visual design advice must be appropriate where the FA is working with amenity objectives.

The survey concentrates on the collection of information which is relevant to the practice of design, that is, the questions were designed to focus on those aspects of woodland in the landscape over which a designer may exert some type of control, such as woodland density, planting patterns and tree

species. Therefore the scope of the survey does not extend to recording respondents' awareness of the many other factors which also have an impact on perception, for example; the distorting effects of moving through a scene, changing light levels or weather conditions.

While this study acknowledges that 'preference' is likely to play an important part in the design of many forest schemes, particularly amenity woodlands, the scope of the survey does not attempt to record respondents' preference for woodland landscapes (particularly as a major preference study already exists, Lee 1990). This study attempts to provide information that will allow a designer to decide which issues are likely to be the most, or the least important in certain circumstances, (for example, the design issues most relevant to distant upland schemes may not be the same as those for woodlands experienced as an interior space) and so judge where to concentrate design effort.

9.5 The Method of Data Collection.

The twenty respondents were taken to six different sites (unfamiliar to all) within the Peak District National Park and asked to assess nine woodland landscapes from specific viewpoints. At each viewpoint they completed a table, shown as Table 9.1, relating to their observations. Photographs of the views can be seen as Figures 9.1a/b/c.

Constraints on the time the students had available to take part in the study meant that the participants were divided into two groups. The first visiting the nine sites on 17th October and the second, visiting the same sites in reverse order (to reduce the effect of any bias which may be introduced by the sequence of view points), three days later on 20th of October. The weather on both occasions was overcast with moderate light levels.

WOODLAND PERCEPTION FIELD SURVEY VIEWPOINTS A-C
Figure 9.1a

A

B

C

WOODLAND PERCEPTION FIELD SURVEY VIEWPOINTS D-F
Figure 9.1b

D

E

F

WOODLAND PERCEPTION FIELD SURVEY VIEWPOINTS G-I
Figure 9.1c

G

H

I

Table 9.1 The Awareness Survey Table

	Characteristics									**Contribution**		
Aspect	Shapes	Sizes	Tree species	Colours	Density	Texture	Diversity	Patterns	Ratio-woodland to landscape	positive	negative	Reason
Woodland in its setting												
Woodland as an element							void	void	void			
The woodland edge								void	void			
Individual trees				/		/			void			
The woodland interior								void	void			

Options are void when it is not possible to comment on the characteristic for the aspect.

The purpose of the survey was explained to the group and each student received a written description and sketch of all of the woodland view to be assessed, shown as Appendix 7a/b, (to ensure every student could identify the same view) and allowed 10 minutes to complete the same task for each scene. Time was taken to ensure that all respondents fully understood how to complete the survey, and in particular, the definitions of terms used in the questionnaire. Any further queries about their role were answered during the course of the survey itself.

The task was to complete a table that required the respondents to consider each aspect of woodland in turn, indicate which characteristics they were most aware of at each viewpoint and describe what contribution these characteristics make to the scene. In this instance the terms; 'awareness', 'character' and 'aspect' were defined as follows:

- Awareness:

respondents were asked to consider what factors they were most aware of at a viewpoint, that is, their first impression of the scene in terms of their visual perception.

- Aspects:

in order to judge the relative importance of different aspects of woodland at various distances, respondents were directed to focus on five possible woodland 'states': the woodland in its setting, the woodland as an element, the woodland edge, individual trees and the woodland interior. These 'states' were identified as being most likely to represent, or play an important part in representing, the appearance of woodland landscapes in the majority of circumstances.

- Characteristics:

this was the term used to identify a range of factors that help to describe the nature of the woodlands visual appearance. This particular range of characteristics was chosen because it represents those factors that a designer may have some control over when designing woodland. They were; shape, size, tree species, colour, density, texture, diversity, pattern and the ratio of woodland to open landscape.

9.6 The Woodland Viewpoints: classification criteria.

The limit on the time available to the students to take part in the survey dictated that a maximum of nine woodlands could be assessed. In order to identify nine woodland viewpoints that would fulfil the subset classification, (2D, 3D, Place), it was first necessary to define criteria for each subset. The initial classification could only be done by making a number of subjective judgements and is therefore very simple and broad-brush. The following criteria were used:

- for 2 Dimensional Woodlands **(2D):**

These woodlands are usually at a great distance from the observer, they often appear as a simple two dimensional image representing a shape of a single colour and or tone and occasionally texture. Although observers are likely to be able to recognise significant changes within the species mix and make a judgement the relative size of the plantation, at this distance the woodlands have little visual substance and the observer would struggle to distinguish individual trees or the main species. In fact these woodlands are generally perceived as no more than a component of a wider landscape pattern

- for 3 Dimensional Woodlands **(3D):**

This is the range of distances where a woodland begins to represent more than a two dimensional shape. Respondents can read it as having a three dimensional form with a height, breadth, width and volume, and they are more likely to be able to distinguish vertical edges, a ground plane and a canopy level. At this distance respondents should be able to identify the pattern of the species mix and the form of individual trees, see a wide range of colours and recognise landscape elements such as walls, gates, paths, and livestock for example. They can also make judgements on tree density and the woodland's possible spatial structure but find it more difficult to judge the extent or shape of the woodland area itself

- for Woodlands that represent a **Place:**

The initial classification described this group of woodlands as being close enough for the observer to recognise a ground plane, vertical 'walls' or edges, and a canopy level. However from the response at the piloting stage, it appears that for a woodland to represent a place it also has to offer a sense of physical enclosure and therefore be a view to a woodland interior or woodland corridor. At this viewpoint observers can not only identify individual trees but also individual tree characteristics such as leaves and bark. They can see the density of tree planting, the internal spatial structure of the woodland and the species mix. They are not in a position to judge the woodland size or shape, the pattern of species mix or the woodlands' contribution to the wider landscape pattern.

9.6.1 Viewpoint Selection

An initial selection of twelve scenes was made, using the classifications above, which were then assessed by a small group of four respondents during the piloting of the survey. It was agreed that nine of the twelve scenes (views A-I) could be divided into the three subsets set out in 9.4.1 Three of the scenes were rejected on lack of consensus or the grounds of poor visibility.

Because of the subjective nature of this categorisation the respondents were also asked to categorise each of the woodlands as they carried out the survey. While the aim of the survey was to have three woodlands in each category the findings showed a large proportion of the respondents disagreed with the initial classification in two cases.

Respondents considered that woodland C belonged in the 3D category and not as initially placed, in the Place category. This is interesting and may reveal something about how respondents define woodland as a place. They also considered that woodland B belonged in the 2D and not the 3D category. The 3D category is a difficult category to define and achieve consensus on, possibly because the modelling effects of light and shade on the landscape can shift a borderline woodland between categories.

Although the respondents' re-classification of the view points make the subsets uneven, it seems more consistent and logical to analyse the data within the categories determined by the respondents on the day of the assessment and accept that the criteria set out in 9.6 needs to be more robust. This decision leaves the subset as shown in Table 9.2. A critical discussion of the methodology used here is offered in the discussion section 9.10.4.:

Table 9.2 Revised Woodland Viewpoint Subset

	Subsets		
	2D	3D	Place
Viewpoints	B, D, E, H	A, C, G	F, I

9.6.2 Data Analysis: Limitations

The respondents of the field survey are a purposive sample and as such the results of the survey cannot be inferred for the wider population (of in this case, students of landscape architecture) nor do they warrant or invite extensive statistical analysis. However the aim of the survey was to obtain evidence of a relationship between a woodland's state and an awareness of different landscape aspects and characteristics and further to establish if key factors which characterise these relationships can be identified.

There are factors that limit the extent to which the data can be analysed, related to the small numbers involved, particularly within the subsets and the nature of the data itself, thus:

- no comparisons can be made **outside of the subsets.** This is because the woodland characteristics simply cannot be assessed for some aspects at different distances, such as the characteristics of individual trees, which are not visible at distant view points, and

- no comparison can be attempted between **the awareness of characteristics for different views.** This is because the degree to which some characteristics are present in each view is not necessarily consistent, such as the variety of tree species.

9.6.2.1 Analysis Objectives

The first part of the data analysis (being 9.7) aims to establish:

a) the respondents' level of awareness of the five woodland aspects, (setting, element, edge, individual trees and interior) and

b) the respondents' level of awareness of the woodland characteristics, (shape, size, tree species, colour, density, texture, diversity, pattern and ratio),

when the woodland appears as: a 2D pattern on the landscape, a 3D mass in the landscape, and a Place in the landscape

The statistical analysis was carried out using the Excel package.

The second and third parts of the analysis (being 9.8 and 9.9, respectively) examine the statements of explanation offered by respondents on the contribution of characteristics they were most aware of. Here the analysis can compare the nature of all statements but can only compare the number of statements within subsets. The analysis aims to establish:

a) if there is a level of consensus on the contribution of each characteristic at each aspect and what respondents' statements say about the nature of these characteristics and

b) if the nature of respondents' statements on woodland characteristics is distinctly different at each aspect for woodlands assessed from different viewpoints, that is the 2D, 3D, Place subset.

9.7 Data Analysis Part 1: Awareness of Aspects and Characteristics

This section presents the results (and observations) from the field survey, (a full summary of the results is contained in Appendix 1). The findings are described by the proportion of the respondent group's level of 'awareness' using the following criteria and colour coding:

Blue =not relevant (0.00-0.10), Green =not very aware (0.11-0.33),
Red =aware (0.34-0.66), Purple =very aware (0.67-1.00).

9.7.1 Awareness of Woodland Characteristics Related to Aspects of 2D Woodlands.

Comparison details shown in Table 9.3 are summarised as follows:

Aspects

Overall, at this distance, respondents are more aware of the appearance of woodland as an element (0.39) and the woodland in its setting (0.35), than of the woodland edge (0.13), individual trees (0.15) and the woodland interior (0.03). It seems reasonable to assume this is as a result of these aspects being difficult to define at a distance.

- Woodland in its Setting

  When respondents consider the woodland in it's setting they are very aware of shapes (0.69), colours (0.60), of texture (0.41) and pattern (0.40).

- Woodland as an Element

  When respondents consider woodland as an element, once again they are aware of colour (0.60), shape (0.56) and texture (0.41).

Table 9.3 2D Woodlands: Comparison of Frequency Distribution Scores for Aspects with Scores for Characteristics

	Aspect												
Characteristic	Woodland in it's setting (n=80)		Woodland as an element (n=80)		The woodland edge (n=80)		Individual trees (n=80)		The woodland interior (n=80)		characteristics Σ		
2D views BDEH	num	prop	num	prop	num	prop	num	prop	num	prop	n=	num	prop
Shape	55	0.69	45	0.56	25	0.31	16	0.20	1	0.01	400	142	0.36
Size	16	0.20	20	0.25	8	0.10	7	0.10	0	0.00	400	51	0.13
Tree species	16	0.20	17	0.21	12	0.15	13	0.16	1	0.01	400	59	0.15
Colour	48	0.60	48	0.60	14	0.18	30	0.38	3	0.03	400	143	0.36
Density	22	0.28	24	0.30	5	0.10	10	0.13	5	0.10	400	66	0.17
Texture	33	0.41	33	0.41	5	0.10	13	0.16	5	0.10	400	89	0.22
Diversity	12	0.15	/	/	5	0.10	4	0.10	1	0.01	320	22	0.10
Pattern	32	0.40	/	/	/	/	4	0.10	/	/	160	36	0.22
Ratio	18	0.23	/	/	/	/	/	/	/	/	80	18	0.22
Σ	252	0.35	187	0.39	74	0.13	97	0.15	16	0.03			
(n)	720		480		560		640		560				

NB. n= 20 students x 4 views = 80. n= 20 students x 4 views = 80 x number of aspects where it is possible for characteristic to score. (n) = total number of possible scores for characteristics, for the individual aspect

- The Woodland Edge

  At these view points respondents were not aware of the woodland edge.

- Individual Trees

  At this distance it is reasonable to assume that individual trees are difficult to define, however, where respondents did comment, colour (0.38), is the only characteristic they are aware of.

- The Woodland Interior

  Low scores are received for this aspect as, it is reasonable to assume, the woodland interior cannot be appraised at this distance.

Characteristics

Overall, when the woodlands represent a 2D image on the landscape, respondents are only aware of the woodland's colour (0.36) and shape (0.36).

9.7.2 Awareness of Woodland Characteristics Related to Aspects of 3D Woodlands

Comparison details shown in Table 9.4 are summarised as follows:

Aspects

Overall, at this distance, respondents are most aware of the woodland as an element (0.45) and to a lesser extent, the woodland in its setting(0.36).

- Woodland in its Setting

  At this distance respondents are most aware of the shapes (0.52) and textures (0.52) of the woodland in its setting. Respondents are also aware of colour (0.43) and density (0.42)

- Woodland as an Element

  When respondents consider the woodland as an element, colour (0.58)

Table 9.4 3D Woodlands: Comparison of Frequency Distribution Scores for Aspects with Scores for Characteristics

	Aspect												
Characteristics	Woodland in it's setting (n=60)		Woodland as an element (n=60)		The woodland edge (n=60)		Individual trees (n=60)		The woodland interior (n=60)		Characteristics Σ		
3D views-ACG	num	prop	num	prop	num	prop	num	prop	num	prop	n=	num	prop
Shape	31	0.52	31	0.52	17	0.28	22	0.37	7	0.12	300	108	0.36
Size	22	0.37	20	0.33	16	0.27	28	0.47	2	0.03	300	88	0.29
Tree species	23	0.38	24	0.40	18	0.30	20	0.33	4	0.07	300	89	0.30
Colour	26	0.43	35	0.58	12	0.20	26	0.43	9	0.15	300	108	0.36
Density	25	0.42	24	0.40	16	0.27	11	0.18	16	0.27	300	92	0.31
Texture	31	0.52	27	0.45	15	0.25	20	0.33	6	0.10	300	99	0.33
Diversity	10	0.17	/	/	7	0.12	8	0.13	3	0.05	224	28	0.10
Pattern	13	0.22	/	/	/	/	1	0.02	/	/	120	14	0.12
Ratio	16	0.27	/	/	/	/	/	/	/	/	60	16	0.27
Σ	197	0.36	161	0.45	101	0.24	136	0.28	47	0.11			
(n)	540		360		420		480		420				

NB. n= 20 students x 3 views = 60. n= 20 students x 3 views = 60 x number of aspects where characteristic can score. n) = total number of possible scores for characteristics, for the individual aspect

and shape (0.52) are the characteristics they are most aware of. They are aware, to a lesser degree, of texture (0.45), woodland density (0.40) and tree species (0.40).

- The Woodland Edge

  Respondents are generally not very aware of edge characteristics at these viewpoints.

- Individual Trees

  When appraising individual trees respondents are most aware of their size (0.47), colour (0.43) and shape (0.37).

- The Woodland Interior

  Where respondents believe they can judge the woodland interior they are most aware, though 'not very' aware, of the woodlands' density (0.27).

Characteristics

Overall, respondents are most aware of the woodland's colour (0.36) and shape (0.36), when it represents a 3D image on the landscape. Texture (0.33), the density of tree planting (0.31), the tree species (0.30), the size of the woodland (0.29), ratio (0.27) and pattern (0.12) receive similar 'not very aware' scores here, while diversity (0.10) appears not to be relevant.

9.7.3 Awareness of Woodland Characteristics Related to Aspects of the Woodlands that represent a Place

Comparison details shown in Table 9.5 are summarised as follows:

Aspects

Respondents are most aware of the woodland interior (0.62) and the individual trees (0.49). At these viewpoints it is difficult for respondents to appraise the woodland as an element, in its setting or its edge because they are close to, or within, the wood.

Table 9.5 Place Woodlands: Comparison of Frequency Distribution Scores for Aspects with Scores for Characteristics

	Aspect												
Characteristic	Woodland in it's setting (n=40)		Woodland as an element (n=40)		The woodland edge (n=40)		Individual trees (n=40)		The woodland interior (n=40)		characteristics Σ		
Place views	num	prop	num	prop	num	prop	num	prop	num	prop	n	num	prop
Shape	3	0.10	5	0.13	0	0.00	20	0.50	22	0.50	200	50	0.25
Size	5	0.13	7	0.18	3	0.10	30	0.80	28	0.70	200	73	0.37
Tree species	10	0.30	13	0.33	3	0.10	30	0.80	28	0.70	200	84	0.42
Colour	4	0.10	10	0.30	2	0.10	21	0.53	23	0.58	200	60	0.30
Density	6	0.20	11	0.28	4	0.10	18	0.50	27	0.68	200	66	0.33
Texture	3	0.10	6	0.20	3	0.10	23	0.58	24	0.60	200	59	0.30
Diversity	4	0.10	/	/	1	0.03	13	0.33	22	0.50	160	40	0.25
Pattern	1	0.03	/	/	/	/	3	0.10	/	/	80	4	0.10
Ratio	1	0.03	/	/	/	/	/	/	/	/	40	1	0.03
Σ	37	0.10	52	0.22	16	0.10	158	0.49	174	0.62			
(n)	360		240		280		320		280				

NB. n= 20 students x 4 views = 80. n= 20 students x 4 views = 80 x number of aspects where it is possible for characteristic to score. (n)= total number of possible scores for characteristics, for the individual aspect

- Woodland in its Setting

  At this view point it is reasonable to assume that it is not possible to appraise the woodland's setting.

- Woodland as an Element

  At this view point it is difficult to appraise the woodland as a landscape element.

- The Woodland Edge

  Although the interior woodland edge could be seen at these views, respondents were not aware of any particular characteristics.

- Individual Trees

  Respondents were very aware of the size (0.80) and tree species (0.80) and aware of their texture (0.58), colour (0.53), shape (0.50) and the density of tree planting (0.50).

- The Woodland Interior

  When appraising the woodland interior respondents are very aware of size (0.70), tree species (0.70) and planting density (0.68). They are also aware of texture (0.60), colour (0.58), shape (0.50) and diversity (0.50) but to a lesser degree.

Characteristics

Overall, tree species (0.42), size (0.37) and density (0.33) are the characteristics respondents are most aware of in woodlands that represent a Place. Scores suggest that pattern (0.10) and ratio (0.03) are irrelevant here.

9.7.4 Summary of Data Analysis Part 1

Figures 9.2 to 9.4 present the data on scatter graphs which help to illustrate the respondents' differing levels of awareness. The charts show how the levels of awareness amongst students of both aspects and characteristics change with each viewpoint category. The three graphs represent the woodland subsets, 2D, 3D and Place, and have used information from Tables 9.3-9.5.

The graphs show that the range of factors helping to determine the level of awareness in respondents does appear to alter between subsets. In **Figure 9.2** (2D views), the range is narrow, dominated by awareness of the aspect of woodland setting, woodland as an element and to a lesser degree individual trees , also by the characteristics of shape and colour, (at the top of the graph).

In **Figure 9.3** (3D views), this range broadens as the woodland come into the middle distance and respondents' awareness of aspect is spread more evenly between setting, element and individual trees and to a lesser degree edge, while all characteristics except diversity, pattern and ratio are dominant.

In **Figure 9.4** (Place views), the range then narrows to awareness of the woodland interior and individual trees and to a lesser degree the woodland as an element, while all characteristics except pattern and ratio are dominant.

Although the range of characteristics that trigger awareness is narrow in both cases, a comparison of the graphs for 2D and Place woodlands reveal a distinctly different picture of awareness, both of the woodland aspects and their characteristics.

Figure 9.2 Scatter Graph: 2D Views - BDEH

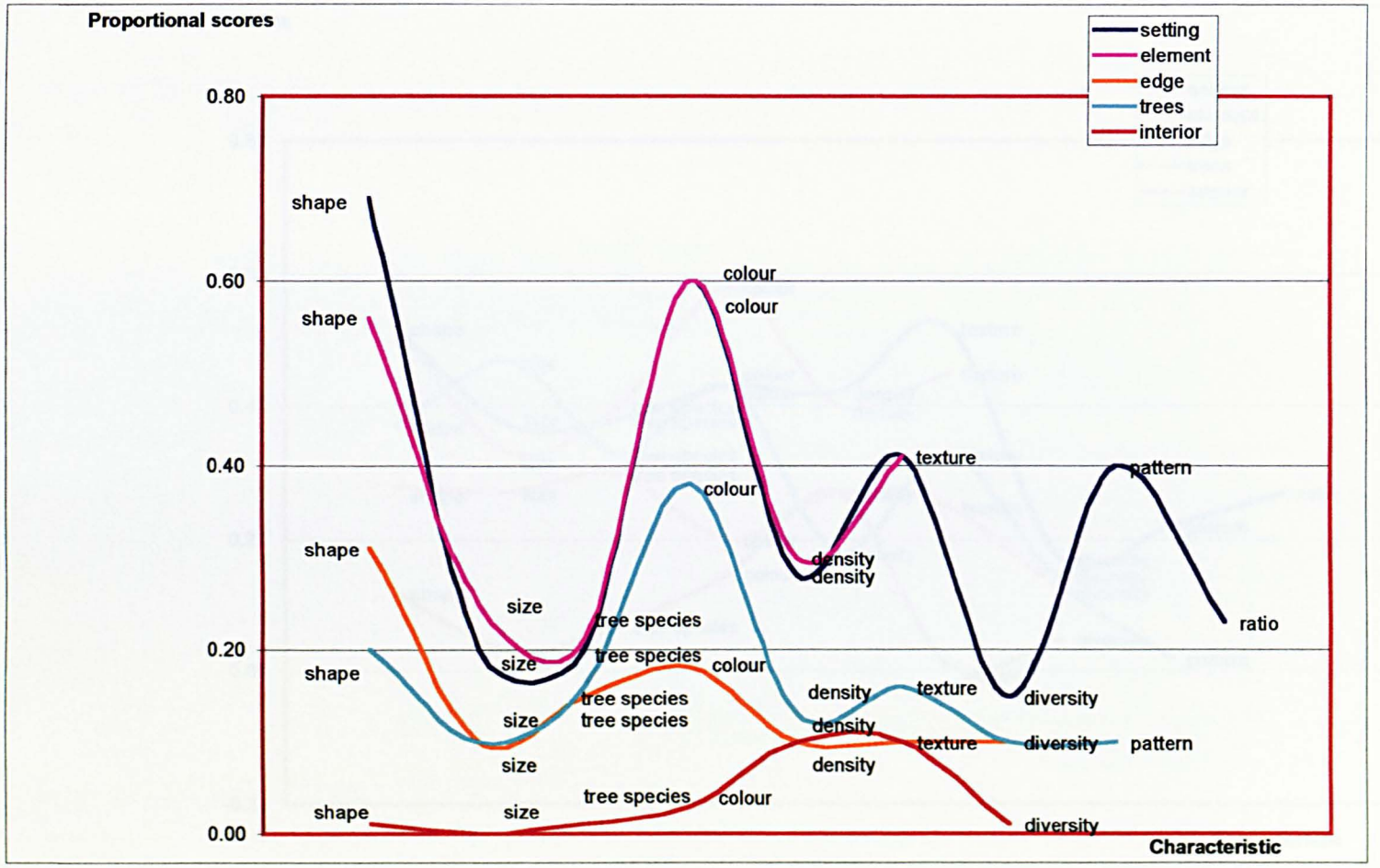


Figure 9.3 Scatter Graph: 3D Views - ACG

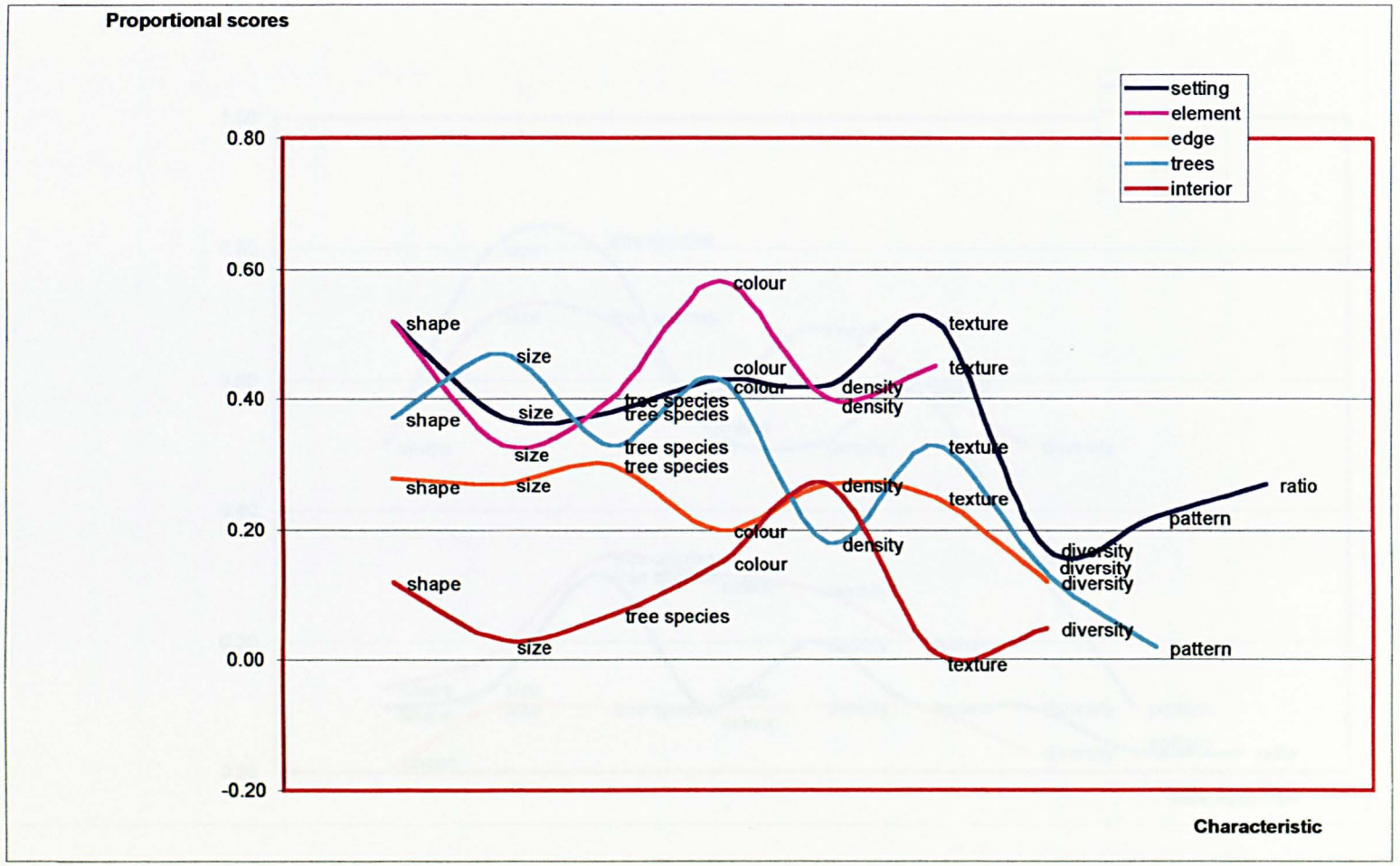
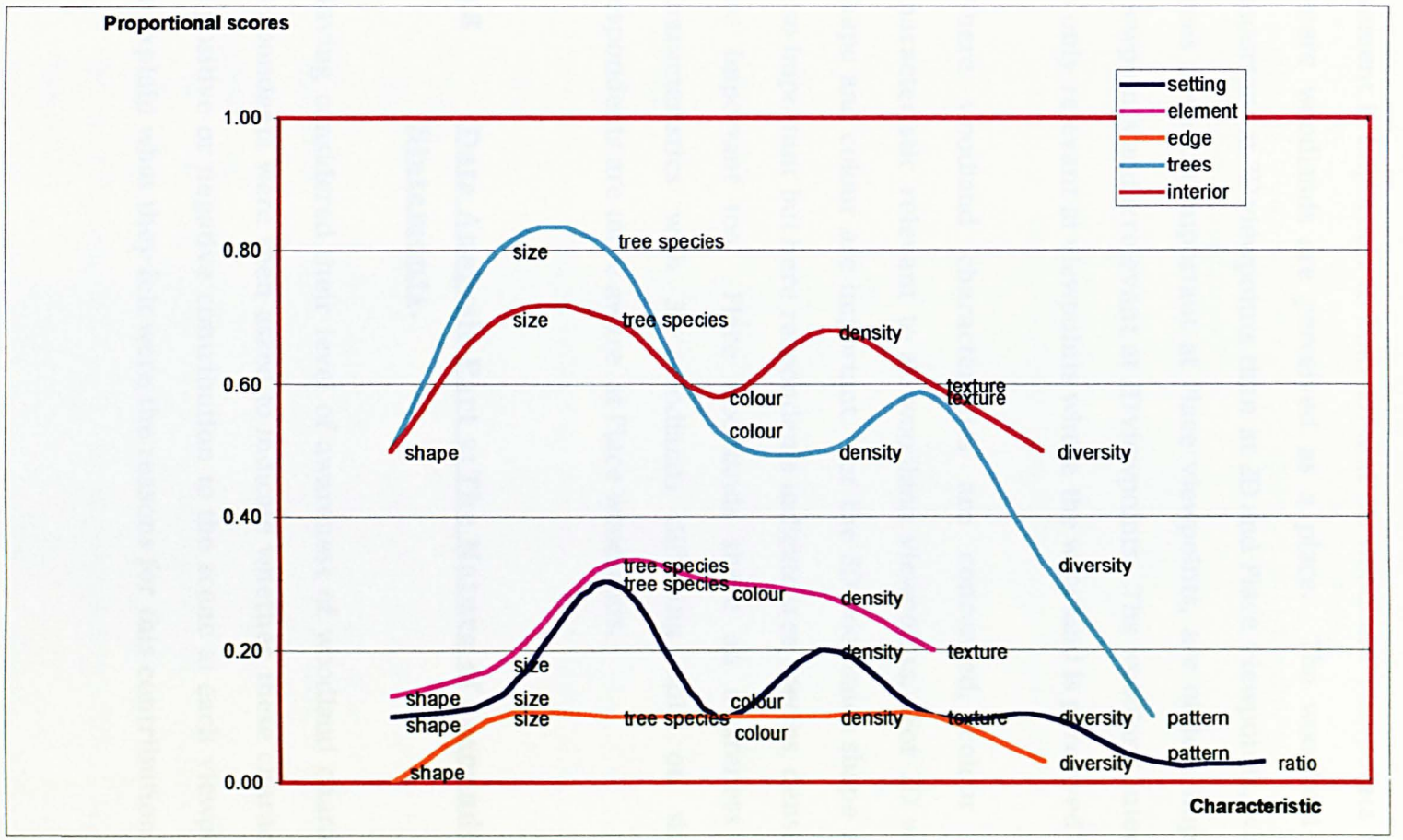


Figure 9.4 Scatter Graph: Place Views - IF



While examining charts in this way is unlikely to be statistically significant the shift in awareness of characteristics and aspects between views is clearly visible.

Looking at the level of awareness for individual aspects in more detail reveals that the woodland setting and the appearance of the woodland as an element is important to both 2D and 3D woodland viewpoints but irrelevant where woodlands are perceived as a place. The woodland edge is more important at 3D viewpoints than at 2D and Place viewpoints, while individual trees are most important at Place viewpoints, are of less importance at 3D viewpoints and irrelevant at 2D viewpoints. The woodland interior, however, is only relevant at viewpoints where the woodland is perceived as a place.

Where woodland characteristics are concerned, colour is the only characteristic relevant to all woodland viewpoints. For 2D woodlands only shape and colour are important. For the 3D woodlands shape and colour are also important but here respondents indicate tree species, density and texture are important too. Place woodlands share an awareness of the same characteristics with 3D woodlands differing only on size, of which respondents are more aware at Place woodlands.

9.8 Data Analysis Part 2: The Nature of Respondents' Statements.

Having considered their level of awareness of woodland characteristics, the respondents were then asked to indicate whether these characteristics made a positive or negative contribution to the scene at each viewpoint, and then to explain what they felt were the reasons for this contribution.

The information produced by these statements helps to focus on the relationships between the nature of particular woodland characteristics and their influence on the respondents' visual perception of the woodlands. Ultimately this information may be useful in determining the form and the level of importance that should be placed on particular woodland characteristics, when looking for design solutions.

The respondents' statements were first analysed and grouped into the following categories these were selected to accommodate the scope of the nature of their statements;

- Light Effects

  This category includes any references to light effects such as 'darkness', 'dappled shade', 'highlighting' or 'shadow'.

- Colour

  Includes any statement that refers to colour in general or to a specific colour.

- Texture

  This category includes any statement that uses the term texture.

- Shape

  Here the category includes all references to shape, whether the shape of landform, the woodland or the shape of individual trees (sometimes referred to as 'form').

- Form/mass

  Includes statements where respondents use the words 'form' or 'mass', or describe an element in the landscape in terms of it's height, width and depth. It does not include any reference to individual tree 'form'.

- Lines/edges

  This category includes any statements that describe visual lines, sometimes referred to as 'edges' by respondents, on the landscape. It does not include references to the physical woodland edge as this is an 'aspect'.

- Scale

  Statements here include any reference to scale or relative sizes in the landscape or woodland.

- Pattern/layout

  Here the category includes statements commenting on the pattern, arrangement or variety of two dimensional shapes in the landscape. It also includes comments relating to the layout of tree planting, for example, 'straight rows' and 'geometric blocks'.

- Ratio

  Statements here include references to planting ratio and to any statements that comment on the relationship between woodland or tree planting and open space.

- Trees species

  This category includes any statements that comment on tree species or tree characteristics such as age, leaves, trunks or bark. It does not include tree colour, texture, shape or size.

- Size

  This category includes any reference to size whether the woodland or individual trees.

- Spatial structure

  Statements here include comments relating to the physical structure of the woodland, where respondents talk of canopy height, ground planes, notional walls and entrances, or the relationship between these elements and their effects, such as enclosure.

- Density

  Includes statements that use the word density or refer to the spacing between trees.

- Diversity

  This category includes statements where respondents use the words 'diversity' or 'variety', or refer to the notion of diversity, whether physical, such as the number of different tree species, or visual, such as mix or range of colours.

- Landscape context

  Includes statements where respondents are commenting on the wider landscape setting whether physical, such as the woodland's relationship with local land use, or visual, such as the woodlands relationship with the aesthetic or scenic qualities of the wider landscape. This category also includes any references to 'landscape character'.

- Perception

  This category includes words and phrases that relate to respondents' perception of the scene or their emotional response to the scene. For example, statements that comment on idea of something being or looking 'natural, or 'attractive', 'inviting', 'pleasant', 'scary' or 'foreboding'.

- Not able to categorise

  This category includes all of the statements that could not be categorised, either because they were unreadable or because their meaning was unclear.

9.8.1 Results of Analysis for Woodland Aspects

The analysis is described in relation to the five woodland aspects, (the woodland setting, the woodland as an element, the woodland edge, individual trees and the woodland interior) and aims to establish:

- where there is consensus on particular characteristics, (Tables 9.6-9.10)
- which characteristics are important at each aspect, (Tables 9.6.1-9.10.1)

and

- what the explanation statements say about the nature of these characteristics.

The data is then placed in the 2D, 3D, Place subsets, (Table 9.11.1) to see if this categorisation produces any further information on the nature of the woodland characteristics at different distances.

Tables 9.6-9.10 record the contribution scores for each aspect at each viewpoint and the net proportions. The level of consensus shown by the net proportions (0 = total disagreement, + = consensus on positive contribution and - = consensus on negative contribution). Where consensus is high the reliability of the respondent's comments is greater so these statements are given more weight when identifying the nature of the characteristics.

9.8.1.1 Aspect: Woodland in its Setting

Respondents can only reasonably comment on woodland in its setting from viewpoints A, B, C, D, E, G and H as viewpoints F and I are within the woodlands.

Table 9.6 Contribution Proportions for Woodland in its Setting

SETTING	Views						
Contribution	A	B	C	D	E	G	H
	num	num	num	num	num	num	num
Positive	11	13	13	12	11	19	9
Negative	8	2	0	3	4	0	6
Net proportions	+3	+11	+13	+9	+7	+19	+3

Table 9.6 shows that when respondents consider the woodland in its setting there is the greatest agreement on contribution at views B, C, D and G.

Table 9.6.1 Categorised Statements on Viewpoints for Woodland in its Setting

Statement category	View points - Woodland in its Setting								
	A n=27	B n=21	C n=19	D n=27	E n=27	G n=27	H n=15	All views n=163	
	num	num	num	num	num	num	num	num	prop
Light effects	0	0	0	0	0	0	0	0	0.00
Colour	2	1	1	3	4	0	4	15	0.09
Texture	3	1	1	3	1	3	0	12	0.07
Shape	4	6	2	6	6	5	4	33	0.20
Form/mass	0	0	0	0	0	0	1	1	0.01
Lines/edges	1	0	0	0	0	0	2	2	0.01
Scale	0	0	1	0	0	0	0	1	0.01
Pattern/layout	1	1	4	5	5	4	0	20	0.12
Ratio	2	0	1	3	1	2	0	9	0.07
Tree species	5	0	4	2	0	0	0	11	0.07
Size	0	0	0	1	0	0	0	1	0.01
Spatial structure	0	0	1	0	0	1	0	2	0.01
Density	1	0	0	0	2	0	0	3	0.02
Diversity	2	1	1	1	2	3	0	10	0.06
Landscape context	2	6	0	1	4	7	4	24	0.15
Perception	1	2	0	0	1	0	0	4	0.02
Unable to categorised	3	3	3	2	1	2	0	14	0.09

n= total number of comments for each view

Table 9.6.1 reveals that respondents statements are most concerned with shape (0.20), landscape context (0.15) and pattern and layout (0.12). Also, to a lesser extent, colour (0.09), texture (0.07), tree species (0.07) and ratio (0.07).

Shapes and the patterns created by shapes, both of the woodland within the wider landscape and of species mixes within the woodland itself, are important to the woodland in its setting. Whether conifer or broadleaf woodlands, the woodland shapes receive positive scores when respondents perceive they are sympathetic to the local topography. They like shapes to visually 'integrate' with the existing land use patterns, such as field boundaries, for example, 'forms a band that fits field pattern' and 'bold shapes in landscape creates contrast but relates to land form'.

Respondents' appreciate woodland shapes that add to the aesthetic, scenic quality of the landscape, for example, where woodland shapes 'frame the rest of the landscape', 'forms a backdrop' or 'balances' the view. Woodland shapes that add visual interest in the form of contrast and diversity, for example, 'variety within woodland and its shape is interesting', and, 'bold shapes in landscape creates contrasts but relates to landform' also receive a positive score.

Colour and texture are less important to this aspect but where statements refer to these characteristics, they generally relate to whether or how the planting shapes, colours and textures fit into the wider landscape pattern, 'the colour and density form a dark strip on the horizon'.

Although there is less consensus, woodland shapes make a negative contribution when they are thought to be 'too fussy', or contrived. The

shape or pattern of species mixes receives a negative response when respondents think it looks unnatural, 'block like', or believes it is poorly integrated into the wider landscape pattern, 'does not relate to other planting and field patterns'.

9.8.1.2 Aspect: Woodland as an Element

Respondents can only reasonably comment on woodland as an element from viewpoints A, B, C, D, E, G and H as again, viewpoints F and I are within the woodlands.

Table 9.7 Contribution Proportions for Woodland as an Element

ELEMENT	Views						
Contribution	A	B	C	D	E	G	H
	num	num	num	num	num	num	num
Positive	14	7	15	11	10	18	7
Negative	7	2	0	2	5	1	5
Net proportions	+7	+5	+15	+9	+5	+17	+2

Table 9.7 shows that when respondents consider the woodland as an element in the landscape there is the greatest agreement on contribution at views A, C, D, G and I.

Table 9.7.1 Categorised Statements on Viewpoints for Woodland as an Element

Statement category	Viewpoints - Woodland as an Element								
	A n=33	B n=18	C n=16	D n=29	E n=21	G n=24	H n=15	All views n=156	
	num	num	num	num	num	num	num	num	prop
Light effects	0	0	0	0	0	1	0	1	0.01
Colour	5	5	2	5	6	6	3	32	0.21
Texture	3	1	3	3	3	4	0	17	0.11
Shape	4	3	0	3	3	2	1	16	0.10
Form/mass	0	0	0	0	0	0	1	1	0.01
Lines/edges	2	0	0	1	0	1	0	4	0.03
Scale	0	0	0	0	0	0	0	0	0.00
Pattern/layout	0	3	0	5	1	1	3	13	0.08
Ratio	0	1	0	0	0	2	1	4	0.03
Tree species	6	3	1	5	3	1	0	19	0.12
Size	0	0	1	1	0	0	0	2	0.01
Spatial structure	3	0	0	0	0	1	0	4	0.03
Density	1	1	1	0	0	1	0	4	0.03
Diversity	6	1	1	5	2	1	0	16	0.10
Landscape context	1	0	1	0	2	1	2	7	0.04
Perception	0	0	1	0	0	1	1	3	0.02
Unable to categorise	2	0	5	1	1	1	3	13	0.08

n= total number of comments for each view

Table 9.7.1 reveals that respondents' statements are most concerned with colour (0.21), tree species (0.13), texture (0.11) and shape (0.11).

When considering the woodland as an element in the landscape, a variety of

colours and textures and a visible contrast between tree species will produce a positive score, for example, the 'variety of colours and textures is pleasing to the eye', 'adds texture to hillside' and 'the variety of colours and shapes help to break up the mass'. Respondents like the woodland to add to both element and visual diversity in the landscape but it is important that the woodland is considered well integrated. For example 'adds diversity, good working element', 'good visual and working woodland' and 'easy to pick out different species blocks - fits with line of landscape'.

A woodland will receive a negative score where respondents consider it looks unnatural or out of context, where it is planted uniformly or in strongly contrasting blocks of single species. For example, 'too much of a block, little structure, colour diversity or shape', and, 'boring and regular unnatural form - bears no resemblance to landform or character'.

9.8.1.3 Aspect: The Woodland Edge

Table 9.8 Contribution Proportions for Woodland Edge

WOODLAND EDGE	Views								
Contribution	A	B	C	D	E	F	G	H	I
	num	num	num	num	num	num	num	num	num
Positive	6	5	11	5	4	0	9	0	4
Negative	9	4	2	2	6	1	0	2	0
Net proportions	-3	+1	+9	+3	-2	-1	+9	-3	+4

Table 9.8 shows that when respondents consider the woodland edge there is the greatest agreement on contribution at view C, G, and I

Table 9.8.1 Categorised Statements on Viewpoints for the Woodland Edge

Statement category	Viewpoints - The Woodland Edge										
	A n=19	B n=13	C n=19	D n=10	E n=17	F n=0	G n=12	H n=1	I n=6	All views n=97	
	num	num	num	num	num	num	num	num	num	num	prop
Light effects	0	0	0	0	0	0	0	0	0	0	0.00
Colour	1	2	2	1	1	0	1	0	0	8	0.08
Texture	2	0	1	1	0	0	0	0	1	5	0.05
Shape	0	0	0	0	1	0	2	0	0	3	0.03
Form/mass	3	1	1	0	1	0	1	0	1	8	0.08
Lines/edges	3	4	0	2	5	0	1	0	0	15	0.15
Scale	0	1	0	0	0	0	0	0	0	1	0.01
Pattern/layout	0	2	0	0	3	0	2	0	0	7	0.07
Ratio	0	0	0	0	0	0	0	0	0	0	0.00
Tree species	1	2	7	2	1	0	0	0	2	15	0.15
Size	3	0	2	0	1	0	0	0	0	6	0.06
Spatial structure	0	0	0	0	0	0	0	0	0	0	0.00
Density	0	0	1	1	0	0	0	0	0	2	0.02
Diversity	2	0	0	1	1	0	0	1	1	6	0.06
Landscape context	0	0	2	0	1	0	3	0	0	6	0.06
Perception	2	0	0	0	1	0	1	0	0	4	0.04
Unable to categorise	2	1	3	2	1	0	1	0	1	11	0.11

n= total number of comments for each view

Table 9.8.1 reveals that respondents' statements are most concerned with Lines/edges (0.15), tree species (0.15), form/mass (0.08) and colour (0.08) and, to a lesser extent, pattern/layout (0.07) and size (0.07).

When assessing at the woodland edge the respondents' statements suggest the line of the woodland edge contributes to a scene where it is sympathetic to the local landscape context, which includes the visual, physical and functional landscape context. It is acceptable for the line of the edge to follow either the visual landscape pattern, the local topography or the existing field patterns as long as the design is considered visually sympathetic, 'abrupt edge to woodland fits with field system' and, 'although defined by agricultural land still attractive'.

A diverse range of species and individual tree form, including colour, texture age and size contributes to a positive score, 'size and different species contribute to the interesting texture'. Respondents consider that edges with a 'natural' shape and structure, that is, standard trees with a shrub level under-storey, create a positive element in the landscape, for example, 'although there are straight edges there is variation in edge structure.

Severe, uniform and strongly contrasting edges receive negative scores, along with views where broadleaf edges are being used to mask coniferous plantations, 'simplistic edge structure, little variety'.

9.8.1.4 Aspect: Individual Trees

For this aspect it is only possible to clearly identify and appraise individual trees at views A, C, F, and I.

Table 9.9 Contribution Proportions for Individual Trees

INDIVIDUAL TREES	Views			
Contribution	A	C	F	I
	num	num	num	num
Positive	10	16	2	14
Negative	5	1	11	3
Net proportions	+5	+15	-9	+11

Table 9.9 shows that when respondents consider the individual trees there is a good consensus on contribution at all views.

Table 9.9.1 Categorised Statements on Viewpoints for Individual Trees

Statement category	Viewpoints - Individual Trees					
	A n=20	C n=17	F n=23	I n=26	All views n=86	
	num	num	num	num	num	prop
Light effects	0	0	0	0	0	0.00
Colour	4	1	0	1	6	0.07
Texture	2	0	1	3	6	0.07
Shape	1	2	2	4	9	0.10
Form/mass	2	0	0	1	3	0.03
Lines/edges	0	0	0	0	0	0.00
Scale	1	0	0	0	1	0.01
Pattern/layout	1	0	3	0	4	0.05
Ratio	0	0	0	0	0	0.00
Tree species	4	5	5	7	21	0.24
Size	4	3	6	2	15	0.17
Spatial structure	0	0	0	0	0	0.00
Density	0	2	3	0	5	0.06
Diversity	0	0	3	6	9	0.10
Landscape context	0	2	0	0	2	0.02
Perception	0	1	0	2	3	0.03
Unable to categorise	1	1	0	0	2	0.02

n= total number of comments for each view

Table 9.9.1 reveals that respondents' statements are most concerned with tree species (0.24), size (0.17), shape (0.10) and density, (0.10) and, to a lesser extent, colour (0.07) and texture (0.07).

Individual trees played a positive role particularly when they are large, mature, a distinctive shape and colour and help people to judge the scale of the landscape. Respondents liked to see diverse species, ages, textures and forms but do not like single species or 'regimented' stands, dense planting or poor specimens. Strongly contrasting colours, usually linked to conifer plantations, produce negative scores but generally only when also related to dense, uniform planting, for example 'boring monoculture' and 'no species diversity, too dense, all the same age'. However, respondents show no preference for broadleaf or conifer plantations when they comment on individual trees.

9.8.1.5 Aspect: The Woodland Interior.

For this aspect respondents can only reasonably comment on the woodland interior at viewpoints A, C, F and I.

Table 9.10 Contribution Proportions for the Woodland Interior

WOODLAND INTERIOR	Views			
Contribution	A	C	F	I
	num	num	num	num
Positive	2	8	2	14
Negative	7	1	15	3
Net proportions	-5	+7	+13	+11

Table 9.10 shows that when respondents consider the woodland interior there is a good consensus for contribution at all viewpoints.

Table 9.10.1 Categorised Statements on Viewpoints for the Woodland Interior

Statement category	Viewpoints - The Woodland Interior					
	A n=11	C n=8	F n=25	I n=25	All views n=69	
	num	num	num	num	num	prop
Light effects	2	0	0	1	3	0.04
Colour	0	1	2	4	7	0.10
Texture	1	1	1	2	5	0.07
Shape	0	1	0	0	1	0.01
Form/mass	0	0	0	0	0	0.00
Lines/edges	0	0	0	0	0	0.00
Scale	0	0	0	0	0	0.00
Pattern/layout	0	0	6	0	6	0.09
Ratio	0	0	0	0	0	0.00
Tree species	2	0	4	4	10	0.14
Size	0	0	0	0	0	0.00
Spatial structure	1	1	1	2	5	0.07
Density	1	2	1	0	4	0.06
Diversity	1	1	4	6	12	0.17
Landscape context	0	0	0	0	0	0.00
Perception	2	1	5	5	13	0.19
Unable to categorise	1	0	1	1	3	0.04

n= total number of comments for each view

Table 9.10.1 reveals that respondents' statements are most concerned with respondents' perception (0.19), diversity (0.17), tree species (0.14) and colour, (0.10) and, to a lesser extent, pattern/layout (0.09), texture (0.07) and spatial structure (0.07).

A large proportion of statements here are concerned with respondents' perception of the interior which is either emotion or experience led. Examples of positive responses include, 'pleasant', 'inviting', 'needs exploring', mysterious, spooky and strange', 'mystical and interesting'. While negative responses include, 'dark and impenetrable', 'uninviting', 'boring' and 'a bit sterile'.

A woodland interior here invokes a positive response when it is judged to have a wide variety of species with interesting shapes, sizes, colours and textures, 'a real mix of colours gives wood a diverse feel'. It seems important that the planting appears to be low density and that respondents are able to perceive a ground plane or interior views, 'open space looks attractive through trunks to woodland floor' and, 'relative openness makes woodland attractive'.

In contrast respondents award a negative score to woodlands they perceive as being dark, impenetrable or dense plantations, or woodland interiors with uniform layouts of single species with no under-storey. For example, 'too obviously a plantation, rows of even aged trees' and 'total lack of diversity - trees all the same height'.

9.8.2 Summary of Data Analysis Part 2

When the woodland is appraised in its setting the largest proportion of respondents' statements make reference to shape, landscape context and

pattern/layout. When they consider the woodland as an element, colour, trees species, texture and shape become the most referenced characteristics. Where the woodland edge is appraised the line of the edge, the tree species, form and colour feature in the greatest number of statements, while the tree species, size, shape and density are the most important characteristics of individual trees. When respondents consider the woodland interior, the respondents' perception of, or emotional response to the woodland, features in many statements, along with the tree diversity, species and colour.

9.9 Data Analysis Part 3: Relationship of Respondents' Statements to Viewpoint Subsets

Table 9.11 shows how many statements and in which categories the statements fall within the 2D, 3D, Place subsets. The statements were then reviewed for a second time to see if respondents were looking at different factors, in relation to the same characteristics, at different viewpoints.

9.9.1 Characteristics: The Woodland in its Setting:

When respondents appraise the 2D woodlands in their setting; shape, landscape context, colour and pattern are the characteristics that attract the most comment. Respondents' statements here tend to be concerned with the visual aesthetic qualities of the scene. In particular the distinctiveness, or contrasting qualities of shapes and colours (19/22) and how these relate to the woodland's contribution to the wider landscape's or land uses, two dimensional pattern (17/22).

When respondents appraise 3D woodlands in their setting, landscape context (11/67), shape (11/67) and pattern (9/67) are still relevant. However,

Table 9.11 Review of Respondents' Statements

Statement categories	Aspect														
	Woodland in its Setting subset			Woodland as an Element subset			Woodland Edge subset			Individual Trees subset			Woodland Interior subset		
	2D			3D			Place			2D			3D		
Light effects	0	0	0	0	1	Place	2D	3D	Place	2D	3D	Place	2D	3D	Place
Colour	12	3	0	18	13	0	0	0	0	0	0	0	1	4	1
Texture	5	7	0	7	10	1	4	2	0	10	7	1	2	2	6
Shape	22	11	2	10	6	1	1	3	1	3	3	4	1	3	3
Form/mass	1	0	0	1	0	2	1	2	0	6	1	6	3	1	0
Lines/edges	2	1	0	1	3	0	2	5	1	2	3	1	0	1	0
Scale	1	1	0	0	0	0	11	4	0	0	0	0	0	0	0
Pattern/layout	11	9	0	12	1	0	0	0	0	0	1	0	0	0	0
Ratio	4	5	0	2	1	0	5	2	1	1	1	3	1	0	6
Tree species	3	8	1	11	8	0	0	0	0	0	0	0	0	0	0
Size	1	0	1	1	1	5	1	8	2	7	12	12	1	2	8
Spatial structure	0	2	0	0	4	0	1	5	0	3	7	8	0	0	0
Density	2	1	0	1	3	0	0	0	0	0	0	0	1	2	3
Diversity	4	7	0	8	8	5	1	1	0	2	2	3	2	3	1
Landscape context	14	11	0	4	3	2	4	2	0	3	0	9	2	1	10
Perception	3	1	0	1	2	2	0	0	0	0	2	0	0	0	0
Unable to categorised	7	8	2	5	8	1	1	3	0	1	1	2	0	3	10

NB. numbers shown = total number of comments for each aspect. All responses were included in this table, even where respondents were not really in a position to appraise the different aspects properly. This is to look at the factors that respondents are reacting to in these instances.

respondents' comments include more references to the diversity of individual tree species, tree characteristics (15/67) and references to texture(7/67), both of the woodland and of individual trees.

Respondents did not comment on the woodland in its setting for place woodlands.

9.9.2 Characteristics: Woodland as an Element

When respondents appraise 2D woodland as an element, it's contribution, to the wider landscape pattern, (12/77) is still important. However, respondents' here are looking at the shape, (10/77) and colour, (18/77) of the woodland itself and at the shapes and colours introduced by the tree species mix (11/77) within the woodland.

For the 3D appraisals woodlands colour (13/67) and shape (6/67) of the woodland is still relevant but the woodland texture (10/67), diversity (8/67) and the visual qualities of individual trees (8/67), their colour, shape, species, age and condition, feature more frequently in statements.

Respondents attempted to judge the woodland interior by its tree density and species.

9.9.3 Characteristics: The Woodland Edge

When considering the woodland edge for 2D woodlands, the visual line of the woodland edge is important (11/32), respondents particularly comment on the line of the edge in terms of it's aesthetic contribution to the wider landscape pattern (5/32), or local topography. Respondents also comment of the structure of the edge.

For 3D woodlands respondents are still interested in the structure of the edge but more attention is given to the nature of the edge's individual trees: specifically their colour, form, shape, texture and size (8/37).

For Place woodlands, although the edge can be seen at interior viewpoints only 4 statements were recorded. Comments here (3/4), describe the edge in terms of the openness and light.

9.9.4 Characteristics: Individual Trees

For 2D woodlands the colour (10/38), species (7/38) and shape (6/38) of individual trees is the most important consideration. Species (12/40), colour (7/40) and shape (7/40) are important for 3D woodlands too, but the size and age of individual trees (7/40) also feature in respondents' statements. When the woodland becomes a Place, shape (6/49) and size (8/49), particularly height, are still commented on. However, aspects of diversity (9/49), especially the level of species diversity, is more often included in the appraisals.

9.9.5 Characteristics: The Woodland Interior

Respondents are not able to comment on the woodland interior for 2D woodlands because they simply cannot see the interior and in the case of 3D woodlands the interior is difficult to appraise. However, where respondents have offered a statement (for 2D woodlands, 14 statements; for 3D woodlands, 22 statements), they have judged its possible appearance by using visual clues. They look for any indication of a path or open space, for a glimpse of a ground plane, or attempt to judge the interior by the planting density or the effects of light and shade on the woodland exterior.

Respondents offered 17 statements for the woodland interior even though the interior was difficult to appraise at these viewpoints. There is no strong consensus between respondents but statements show they were making judgements on the nature of the interior by looking at the density (5/17) of tree planting and the tree species (5/17). For example, if respondents were looking at a coniferous plantation they would make the assumption that the interior would be dense, dark and uninviting.

At Place woodlands respondents are reacting to the contribution of individual trees to the physical and atmospheric qualities of the woodland. The planting density (10/39) and layout is important to the woodland's physical appearance as is the woodland colour (6/39), tree size, age and species and tree characteristics, such as leaves and bark. Their statements consider the ecological value of the woodland and whether the woodland is perceived as natural in both ecological and structural terms. Respondents are also reacting to the effect of the woodland on their senses and emotions (10/39), commenting on woodland smells and bird song and the feelings they experience within the wood, using terms such as, 'relaxed', 'mysterious' and 'inviting'.

9.9.6 Summary of Data Analysis Part 3

When the woodland views were analysed within the 2D, 3D and Place subsets it became apparent that although respondents were commenting on the same characteristics they were referring to different aspects at different viewpoints. So, for example, while shape and colour are important factors in 2D and Place woodlands they are important for their contribution to the visual landscape pattern in the former and for their contribution to the appearance of individual trees in the latter.

Table 9.11.1 summarises the way in which the respondents' appraisals of woodland characteristics differ in relation to each aspect at each viewpoint.

9.10 Discussion

The objective of the field survey was to justify the re-categorisation of woodlands by their visual expression, in order to establish a theoretical basis on which design advice can be offered. The study proposed that woodlands can be categorised into three groups, (2D, 3D, place, determined by the viewpoint of the observer) where their visual expression is sufficiently different to warrant a different approach to their design.

The survey set out to achieve this objective by providing evidence of a relationship between respondents' level of awareness of different woodland aspects and their visual characteristics, when appraised from certain distances. The data collected was also used to identify any key factors that characterise these relationships and further, to offer some insight into how these characteristics are perceived and where their nature can determine the contribution they make to a scene.

The findings of the survey indicate that in some instances respondents experience a distinctly different level of awareness, for both the woodland aspects and their characteristics at each of the 2D, 3D and Place viewpoints. Furthermore, it appears that the contribution made by woodland characteristics also varies in importance and nature for aspect between the viewpoint subsets

Table 9.11.1 Appraisal of Woodland Characteristics Related to the Viewpoint Sub-sets

Statement categories	2D Woodlands: Views B,D,E,H	3D Woodlands: Views A,C,G	Place Woodlands: Views F,I
Setting	Respondents are mainly concerned with the aesthetic contribution of the woodland's colour and shape to the wider landscape pattern.	Respondents are concerned with the aesthetic contribution of the woodlands colour and shape to the wider landscape pattern. They are also aware of texture and of the diversity, species and characteristics of individual trees.	Not an issue
Element	Respondents are concerned with the pattern of colours and shapes created by the species mix within the woodland.	Respondents are concerned with texture and the diversity, species and characteristics of individual trees.	Not an issue
Edge	Respondents are concerned with the aesthetic lines created by the woodland edge on the landscape and their relationship to the 2D landscape pattern.	Respondents are concerned with the structure of the woodland edge and the nature of individual trees.	Respondents are concerned with the level of light and openness they can see at the edge.
Individual trees	Where they can be seen, respondents are concerned with the colour, species and shape of individual trees.	Respondents are concerned with the size, species, colour, age and shape of individual trees and their characteristics e.g. bark and leaves where they can be seen.	Respondents are concerned with the range of species and with every tree characteristics.
Woodland interior	Respondents judge the woodland interior by picking out any indication of an entrance and or circulation pattern, making assumptions on the basis of light effects and on tree density.	Respondents judge the woodland interior by the density of tree planting and the tree species.	Respondents look at the layout and planting density, the woodland structure, tree species and characteristics. They also make judgements on the woodlands ecological value, their perception of its naturalness and atmosphere.

The majority of these results are simply explained by the fact they are likely to be as a result of a woodlands' visibility. That is, woodland aspects and characteristics cannot be appraised if they cannot be seen or are not present, and this simple fact changes with the viewpoint of the observer.

Findings for the 2D woodland subset show that this subset has only a limited range of factors that appear to effect respondents' level of awareness, however, this makes logical sense. At this distance respondents are most aware of the woodlands as an element in the landscape and the wider landscape setting. The woodland edge, the individual trees and the interior are not relevant here simply because these elements are more difficult to see and appraise. In terms of their visual contribution to the landscape, 2D woodlands represent little more than flat shapes and colours and, for some, textures, in the wider landscape picture. The respondent's statements of explanation suggest that the visual pattern created by the combination and arrangement of these woodland characteristics becomes important here and they are very aware of the aesthetic, pictorial qualities of a landscape, and in particular the idea of visual integration

For 3D woodlands however the range of factors that effect awareness is much broader. Here respondents are aware of more woodland aspects and there is a much greater spread of characteristics that influence their assessments. The woodland as an element and the woodland in its setting are both important, as for 2D woodlands, but as respondents get closer to the woodlands their image is no longer just a part of a 2D pattern. Where respondents begin to identify the woodland structure, the various characteristics (in particular, shape, colour, texture, species and density) of individual trees, the woodland edge and the woodland interior all start to gain their attention. The landscape is no longer just a pattern, although any two dimensional, graphic, qualities of

3D woodlands are still relevant. Respondents at these viewpoints are increasingly aware of the woodland physical form and the statements of explanation also show they often have a psychological response to the woodlands form and are prepared to make a judgement on the experience it may offer.

Woodlands that are perceived as a place exhibit the same logic as 2D woodlands in that respondents are only aware of those aspects and characteristics which they can see well enough to appraise. The woodland setting, element and edge are therefore of little or no relevance here, but individual trees and the woodland interior are. Tree species, colour, size and planting density are the characteristics that dominate awareness and respondents are relatively much more aware of Place woodland characteristics. The statements of explanation suggest that respondents are also more aware of the physical and psychological factors related to the woodland experience at Place viewpoints than at either 2D or 3D viewpoints.

The statements of explanation offered by respondents produced some insight into the nature of woodland characteristics and their condition for positive and negative contributions and there seems to be a good degree of consensus on a number of issues. However the most interesting information to emerge here is the respondents apparent swing from an awareness of the graphic/scenic qualities of the distant, 2D woodlands through to physical and psychological awareness of the Place woodlands, and this is worth noting.

If evidence of a relationship between viewpoint and the strength and nature of peoples' awareness could be substantiated, it would allow the weighting of design effort in relation to a woodlands visibility and further, indicate the nature of design advice appropriate to a particular woodland state.

9.10.1 Implications of the Survey Results for Existing Practice

At present the FA offer designers advice on the basis of woodlands fitting into one of three categories; Upland woodlands, Lowland woodlands and Community woodlands, and hence provides detailed advice related to a woodlands location or planting objective, (discussed in detail in chapter 5). The results of the field survey have implications for this approach.

One of the prime objectives of the FA's design advice is to maximise its woodland landscapes scenic qualities and this is a valid objective in view of the FA's duty, (Annual Report, Mission Statement, 2000). As a consequence the FA's design advice concentrates on addressing the visual landscape and promotes a predominately aesthetic, pattern making approach to forest landscape design embodied by the visual design principles.

The respondents' responses show that although this is an important consideration in respondents level of awareness, it is more appropriate for distant woodland landscapes in situations where the woodland represents a 2D image and where the viewpoint allows the observer to appreciate the wider landscape. If however, as the survey suggests, a change in viewpoint means that the importance of the visual aesthetic is diminished, in favour of, for example a greater awareness of a woodland's physical or perceptual character, the theoretical basis for the FA's advice appears to be limited, in this case for those landscapes not primarily seen as a 2D image, and it follows that any detailed advice may be ineffective or inappropriate.

The existing FA advice does not help the designer to direct design effort, that is, to gauge which aspects of the woodland require the greatest design attention and the nature of that attention, in order to maximise its physical and visual qualities. However the survey findings suggest the potential for weighting advice to help designers does exists.

The concept of weighting design effort is something that the FA has considered in the past. The idea of landscape 'sensitivity', introduced to the 1989 Forest Landscape Design Guidelines, considered the relationship between design effort and visibility, using the level of a landscape's visibility, (how many people see the plantation) to judge the general need for design effort. This idea differs in that it only considered the need for advice and this was closely related to courting public approval, during a time when there was great public opposition to FC activities, rather than providing design advice. The concept has, as a consequence, diminished in importance in the guidelines in line with public opposition to FC activities. Current guidelines define 'sensitivity' as 'a function of its (a landscape's) visibility and the number of people who see it ' p7 (FA, 1994, p7)) and simply states that a landscape's sensitivity should be considered in the design process.

If it is reasonable to assume levels of awareness are directly related to visibility, and that levels of awareness could be a useful indicator for the need and focus of design effort, it could be argued that establishing the relationships between visibility and the level and nature of design effort could offer a workable and flexible framework on which to base the search for design solutions.

9.10.2 Implications for Further Research

The findings of the field survey point to the value of further research which can help designers make informed judgements on the factors over which they have some control in the woodland landscape design process. This information would then make it possible to establish the most important woodland aspects and related characteristics in respect of where and how a woodland would be judged by its audience. In addition, it would provide the

type of information that would help designers understand the likely response to, or level of recognition for, any design decisions in respect of these factors. This body of information would supplement existing research, (discussed further in the following chapter) and enable designers to focus design efforts and resources in specific areas, where impact is greatest and achieve best practice.

9.10.3 Implications for the Research Hypothesis

The findings imply that different woodlands viewed at different distances do represent different visual forms that can, to a limited extent, be defined by a respondent's awareness of some visual woodland aspects and their characteristics. It would therefore be reasonable to assume that there is a case for offering a different approach to design advice for each situation as may be appropriate.

9.10.4 Implications of the Survey Methodology

No significant statistical tests were carried out on the data to support these findings because deficiencies with the research design suggest it would be unwise to attach too much credence to any figures generated. Nevertheless a better survey design may be able to obtain firmer, more reliable evidence to support the research proposal.

One of the strengths of the hypothesis is it's logic: respondents are going to be more aware of the woodland aspects and characteristics that they can see than of those they cannot, so, the visual appearance of the woodland interior is bound to be more important in design terms, for woodlands perceived as a place, than to distant woodlands. The problems arise when there is less of a

clear distinction between woodland forms, that is where a woodland's form is on the borderline of the 2D, 3D and place categories.

A major concern with the survey design lies with the choice of woodlands and whether, in fact, woodlands are consistent enough in their visual form at different distances to enable their categorisation into the 2D, 3D subsets. This is doubtful and highlighted by the respondents' disagreement with the survey's initial woodland categories. In terms of offering design advice based on a woodland's category, it is only useful to a designer if they are able to categorise their woodlands in the same consistent manner. Any repeat of the survey would first need to establish that the selected woodland categories were reliable.

When selecting woodlands for each subset it was also difficult to control the degree to which certain characteristics appear in a scene, for example the number of different species present in one 3D woodland may not be exactly the same for another. So even within the same subset the level of characteristics could vary considerably between views and could have had a skewing effect on some of the subset score totals. Once again, any repeat of the survey would have to ensure that the level of awareness of a certain woodland characteristic is directly related to the woodlands viewpoint (subset category) and not, for example, to the degree to which the characteristic exists.

The qualitative data produced by the open statements section of the survey produced some of the most interesting and useful information. The respondents at this point were being asked to explain the contribution of their selected characteristics to the scene. Here it may have been more useful to ask respondents to explain the reasons why they were aware of

certain characteristics at each view point, and also if and how their awareness levels of certain characteristics were affected by the subset categories. This information would have been more helpful when discussing the survey findings. Table 9.12 summarises the limitations of the field survey design and offers some recommendations on re-design if the survey was to be repeated.

9.11 Conclusion

The prime objectives of this field survey was to find a logical approach to categorising woodlands based on their visual appearance, in order to provide a basis on which woodland landscape design advice could be reasonably and consistently offered to woodland designers.

The main conclusions from the findings suggest that within the defined woodland categories, differences in levels of awareness of aspects and characteristics are apparent for the respondents. Whether these relationships are reliable and significant in the statistical sense is not, however, established beyond doubt.

Problems with the survey methodology in this instance suggest that it would be difficult to justify adopting a theoretical framework for offering design advice based on the findings of this survey. However, the findings as they stand do point to there being enough evidence to support further investigation along these lines. Establishing criteria against which designers can set or test a design solution, led by a woodland's visual expression, rather than it's geographical location and weighted by levels of awareness, could still be considered a useful concept.

Table 9.12 Summary of Limitations to the Survey Design

Element	Benefits	Shortcomings	Recommendations for future field surveys
Woodland views	Manageable in practical terms	Students did not agree with defined woodland categories.	More rigorous selection process to define the categories. More physical and visual consistency between woodlands within sub-set categories.
Number of views (9)	Manageable for administrative purposes e.g. investment in time gathering data and analysis Also for students	Mainly unequal number in each proposed category, unable to make simple comparisons of data	Minimum 4 in each category and equal numbers (=12)
Number of students (20)	Manageable administratively as above	Ideally respondent samples should be minimum 30 where possible Purposive rather than random sample (cannot infer findings to the wider population)	Minimum 30 respondents Larger numbers would allow the use of inferential statistics and multi-variant analysis techniques that could provide a clearer picture of any associations present. Randomly selected from a named population e.g. students at Sheffield University
Table for responses	Easy for students to complete and to collate data	Difficult to gauge level of awareness-students only given 2 options-aware or not aware and this may also have led to less 'significant' data i.e. ticks Comparing proportions of total possible ticks which varied for each category Difficult to present results succinctly Could have produced more relevant qualitative data to support the findings	Respondents asked to indicate their level of awareness on a scale of say 1-6 where 1 is no awareness and 6 is extremely aware Analysis could either show the %age of respondents who were not at all aware to extremely aware or median score for each category Easier comparison and improved objectivity (though not perfect as one man's extremely aware is another's quite aware) Ask respondents to more fully explain their scores.
Preparation and student information	Appeared to be effective and at right level	Did not anticipate respondents not agreeing with woodland categorisations	Simple risk analysis of what may go wrong and how to manage risks e.g. if weather had been significantly different on each day

Chapter 10 discusses the findings of the research study in detail and considers the options for improving the current guideline advice in light of these findings. The chapter concludes by reviewing the research methodology.

CHAPTER 10 RECOMMENDATIONS FOR OFFERING FOREST LANDSCAPE DESIGN ADVICE

10.1 Introduction

The discussion begins by considering the nature of design guidelines in general and the need for specific design guidelines for forest and woodland landscapes. It goes on to highlight the key issues raised by each previous chapter relevant to offering forest landscape design advice and at each point makes recommendations for a review of, or changes to, the way the FA develops and presents its own design advice. The chapter concludes by suggesting where and how the existing guideline advice is improved by these recommendations.

10.2 The Nature of Design Guidelines

The definition of 'design guidelines' is important in the context of this study. Whether or not it is possible, or theoretically sound, to label a landscape as possessing a level of intrinsic aesthetic quality, (and this is not found universally acceptable, see Jacques, D.L 1998, Hubbard, P, 1994), British culture has a tradition of valuing high aesthetic standards in the environment. This is expressed for example, by the 'Listing' of buildings and the designation of Conservation Areas and Areas of Outstanding Natural Beauty. The fact that these designations are made implies that bench marks have been set for assessing aesthetic quality and furthermore suggests that it is considered both valid and appropriate to make this type of objective judgement on what is often a subjective measurement of an environment's qualities.

Design guidelines have developed to support this desire to establish objective standards of quality. They offer a strategy that allows the rationalisation of design activity, in order to achieve design solutions that reflect the interests or objectives of a particular population. Design guidelines set the framework within which design decisions are made and in doing so are believed to serve to communicate consensus values. They are a tool and as such need to be flexible enough to allow the designer the freedom to design, while setting the limits of what is considered appropriate and acceptable and, inappropriate and unacceptable in certain situations. The objective of design guidelines is not therefore to provide detailed design solutions by promoting styles or making design decisions but rather to put in place parameters within which the opportunities and constraints of a scheme can be explored and design solutions can evolve.

10.3 Design Guidelines for Forest Landscape Design

The concept of design in the landscape is continuing to grow in importance. Landscape and environmental issues such as provision for leisure, nature conservation, pollution control, sustainable development and cultural preservation, are of increasing public concern. The pressure of use on the landscape, high-lighted by conflicting interests and differing public preferences have all served to raise public awareness of land-use issues and the impact that land-use change is having on the landscapes around us. The use of design guidelines allows those people responsible for shaping the environment to accommodate, where possible, the many demands placed upon it. The development of guidelines for forest landscape design therefore becomes appropriate and helpful where forestry activity has an impact on land use and brings about landscape change.

The introduction of design guidelines by the FA came at a time when the issue of landscape aesthetics was a low priority in land use development decisions, in fact early designers had to fight for their ideas to be taken seriously, but through time, having guidelines has grown in importance. The FA, like any other agency or individual managing public funds has to be sensitive to public interests and aware of its obligation to maximise a site's potential for public benefit. In the early days the FA were looking to the forest landscape design guidelines to help monitor and control forestry operations and the design of forest landscapes within both the FC and the private sector of the forestry industry.

The setting of aesthetic standards was important for a number of reasons. Not only did they allow some control over the location and design of forest landscapes (through grant allocation), but they also set a standard of design and practice. Furthermore these standards have come to represent the FA's compliance to international agreements, such as the Rio summit; its obligations to government policy; its commitment to its own objectives and its desire to show a sense of public accountability.

Since the publication of the Forestry Standards, (1998), which impose control over plantation design in the way that the guidelines use to, (3.8.4.3) the forest landscape design guidelines appear to have been sidelined and lost much of their original value for the FA. However. there is still clearly a case for some level of design in forest landscapes, particularly where public amenity is a planting objective and where public money is subsidising schemes.

10.4 Issues related to the Theoretical Framework (Chapter 2)

A review of the findings of Chapter 2 suggests that the theoretical basis surrounding the various guidelines available to forest designers is inconsistent. Three very different approaches to design forest landscapes were identified; the Aesthetic-led approach, the Ecology-led approach and the Function-led approach. It is apparent that each approach differs in its understanding or weighting of the importance of landscape aesthetics. However, no one approach is considered universally satisfactory as all receive reasonable and valid criticism from both academics and practitioners alike.

A concern with the existing theoretical basis for the FA's existing guidelines is that it represents a formalist approach to design with its pursuit of scenic beauty borrowed from the fine arts. This lays emphasis on the formal visual structure and composition of a landscape and focuses on the visual, rather than ecological, cultural or functional implications of forestry activity. The approach argues that landscapes have an inherent aesthetic quality imparted by their physical form which, in turn, dictates that design advice must logically be heavily weighted in favour of finding aesthetic-led design solutions. While the majority of those FA staff interviewed in 1994, profess an interest in a more integrated approach to design, there is still no sign that this conviction has influenced the current basis for offering advice. In fact the advice has remained remarkably consistent through time, (shown by the Contents Analysis in Chapter 5).

The FA's approach therefore, no longer relates to the accepted view of landscape aesthetics, (Hubbard, P. 1994). In fact, Bourassa, S. (1991), believes that a design language based on such theoretical assumptions is bound to be

inadequate and, he observes that a landscape's aesthetic qualities cannot be abstracted without any consideration of its function. This general resistance to wholly aesthetics-led design solutions leaves any guidelines based on such a theory looking outdated, open to criticism and therefore weak.

The emerging paradigm related to landscape aesthetics considers the application of aesthetic ideals is not enough to describe the landscape. Research over the past decade (Berleant, A. 1992, Carlson, A., 1993, McHarg, I. L., 1997) has advanced theory to value a wider range of factors that are considered to be relevant to the understanding of forces that govern perception of the landscape. These findings suggest that people understand and judge environments through a complex appreciation of its formal characteristics, defined by its physical and visual form, together with a psychological response that attaches cultural values and allows individual interpretations to define their experience.

The current research paradigm therefore, advocates a more integrated understanding of the dynamics of landscape and this approach may prove useful in re-defining a theoretical framework on which to hang design guidelines for forestry. By approaching the design of forest landscape from this theoretical standpoint all factors related to the way people experience the landscape become relevant in the search for a design solution and especially relevant when designing with amenity objectives. As Uzzel (in Hubbard P., 1994) states 'understanding how people look at, make sense of and generally feel about the landscape would appear to be a key requisite in the development of good design'.

Where this approach differs fundamentally from the FA's current approach, is that here, the issue of landscape aesthetic exists only as part of a hierarchy

of factors relevant to a landscape design. Furthermore, if designers accept that all forces in the landscape are inter-related and cannot be considered in isolation without reducing the potential of a design solution, they will be in a better position to analyse the environment in terms of people's needs. This understanding will enable them to predict and enable peoples' response to a design solution with more success.

It is important that landscape design activity and in particular design guidelines are placed on a sound theoretical footing because only by being clearly and logically based can design advice be easily understood; be flexible enough to develop; be universally applicable and robust in the face of criticism.

10.4.1 Recommendations for offering Forest Landscape Design Advice: Theoretical Framework

1 There is a need to review the theoretical basis on which the current FA's forest landscape design advice is offered.

2 An updated view (based on the emerging paradigm for landscape aesthetics) should be used as the theoretical basis for design advice for forest landscapes. This framework would accept that an understanding of all the factors concerned with the way people perceive and experience environments is relevant to exploring design solutions.

10.5 Issues Related to the Evolution of the Advice (Chapters 3-4)

Chapters 3 and 4 looked at the evolution of the guidelines in relation to forestry policy and the objectives of those individuals developing the advice. The nature of the government's forestry strategy and the FC's forestry

policies and objectives are significant in that they have consequences for what is required of the designer and should therefore influence the scope and content of any forest landscape design guidelines. This section makes recommendations based on how past and present policy decisions have contributed to the nature of the design advice that is currently offered.

10.5.1 Previous Forestry Policies

A review of past activity relating to Government and FA policy reveals a forest estate historically defined by the pursuit of the single primary objective of tree planting that was relentlessly pursued to the exclusion of all other land uses. The setting of high planting targets, whether as the strategic timber reserve in post war Britain or as a tax loss incentive in the 1980's, resulted in a practical approach that encouraged insensitive environmental practices. Plantation design was led by functional rather than aesthetic considerations and this imposed significant changes, both visual and environmental, on landscapes nation-wide. These changes were typified by large scale forest units, planted in single species, geometric blocks at locations often considered inappropriate for tree planting. It was when the significance of these changes started to become apparent that the FC began to feel the force of public opposition to its activities and was prompted to considered the introduction of design guidelines for forest landscapes (3.4.2-3.4.4, 3.10). It appears, therefore, that the early designers' brief was to address the FC public image by using design techniques to make forestry activity appear more environmentally friendly.

The work of Crowe, and Campbell in particular, laid the foundations for the advice that became established at this time and much of what they suggested remains central to the current guidelines. Current advice retains, for example, the original aesthetics-led approach and includes Campbell's visual

design principles and Crowe's advice on plantation shape and layout (4.2.3.1). Although much of this advice continues to offer useful and successful guidance it remains questionable whether this advice is still relevant.

When Crowe and Campbell developed these ideas they were involved in producing design advice specifically aimed at addressing what was, in effect, a damage limitation exercise. It is clear that their options for offering advice were constrained by the prevailing timber-producing priorities which prevented anything other than superficial concessions to plantation design to be possible. The guidelines that developed reflect these constraints and a visual design approach was adopted because, in reality, Crowe and Campbell simply had no other option (3.4.4, 4.2.2).

The guidelines appear to have developed out of a problem solving exercise specifically engineered to ameliorate the bad forestry practices related to an insensitive forestry policy. This rather superficial approach precludes design guidance that considers the concept of forest landscape design in the context of the wider landscape, that is, an approach where the design solution has weighed and balanced all of those factors, such as ecological or cultural factors, relevant to a landscape development proposal. Chapter 4 argues a case for a review of the current guidelines on the grounds of this unusual historical relationship between the design advice and past forestry policy (4.7-4.7.5, 4.8).

The consistency of the advice through time, (shown by the findings of the content analysis in Chapter 5 (tables 5.3-5.5.5) reveals that the advice offered in the current guidelines remains inextricably bound to these old policies and objectives and therefore continues to be constrained by the nature of past forestry activity. This situation is relevant to offering new advice. Although forestry expansion is still a key objective, government forestry

strategies and FC objectives, initiatives and incentives have gradually shifted the emphasis of forestry activity from the timber production of the early years to the creation of a sustainable, multi-purpose forest estate, (3.8, 3.10). This shift will present different design opportunities and constraints for the designer and therefore require a different range of information. For this reason, if forest landscape design guidelines are going to be relevant in the present context they must be independent of the original advice and be linked to current forestry policy, forestry objectives, and forestry practice.

10.5.2 Current Forestry Policies

The current Forestry Policy for Great Britain (1991), has as its guiding principle the 'sustainable management of existing forests and a steady expansion of tree cover to increase the diverse benefits that forestry provides'. In addition the Government's commitments to Agenda 21, the Forest Principles, requires the promotion of environmentally sustainable, multi-purpose forestry that will benefit society in social, environmental and economic terms. These policy objectives set the scene for forestry activity and the resulting Forestry Strategies outline how the government expects these objectives to be met. By being aware of the government's priorities it is possible to identify the range of design skills required by present and future designers, for example the England's Forestry Strategy (2000), sets out 4 key programs for woodland establishment that reflect these priorities they are;

1 Forestry for Rural Development
2 Forestry for Economic Regeneration
3 Forestry for Recreation and Access and Tourism
4 Forestry for Environment and Conservation

These priorities have implications for the weighting and content of design

advice if the guidelines are going to respond to context and be relevant to designers' needs.

The FA's current policy objectives have resulted in the production of various management guidelines and planning strategies covering forestry activity. Examples of such publications are the Bio-diversity: the UK Action Plan (1994) - with its range of Woodland Habitat Action Plans (to be completed), guidelines on The Sustainable Management of Forests (1998) and the Indicative Forestry Strategies (1992). These action plans and strategies are significant to the recommendations for forest landscape design advice. The advice and requirements stated here frequently either direct the approach designers must follow or work to control design decisions, (through, for example, requiring specific planting densities or species mixes) and therefore place constraints on the range of design opportunities a scheme may present.

This is also true of advice offered in some existing FA literature. A vast range of literature is already available providing information on virtually every aspect of forestry activity, such as the Forest Nature Conservation Guidelines (1993), and Forests and Water Guidelines (1988), and the advice offered in this literature will represent the FA recommended practice. The degree to which this information is relevant to a particular design proposal depends on the existing knowledge of the designer, their design objectives and the nature of the site. Where this existing information is relevant to producing forest landscape design guidelines is in the need to provide a reference for the designer.

In addition, government policy directly influences forestry practice through The UK Forestry Standard (1998) This defines the criteria and indicators by which forestry activity can be monitored and assessed and aims to promote best practice for the industry. As such the standards represents the government's practicable approach to sustainable forestry practice. The nature of the advice given in this document has implications for the designer as, at times, the standards can control possible design solutions (6.9 and set out in tables 6.1-6.6). Whether this is appropriate is questionable but the advice exists and any new guidelines advice would need to be aware of its implications.

Government forestry policy also has an effect on the nature of forestry research. For example, the government's recent commitment to recognising the social and cultural significance of forest landscapes, made in Lisbon (1998), has resulted in an FC program of research that is addressing the social and cultural issues relevant to forestry experience, (Burgess, J. (1994), O'Brian, E. current,). The findings of existing and new studies into landscape perception and landscape preferences serve to increase our knowledge and understanding of the experience of landscape and will provide relevant and useful sources of information for forest landscape designers. When it comes to offering detailed advice on preferred woodland form for example, advice backed up by research is more reliable and critically robust than unsubstantiated advice which can appear arbitrary. Any design guidelines would need to be aware of the implications of research findings for design solutions and where possible and appropriate make this information available to the designer.

10.5.3 Recommendations for offering Forest Landscape Design Advice: Nature of Advice

3 That in view of the re-focusing of government forestry strategy in 2000 it is necessary that the current guidelines are reviewed and re-worked with reference to the implications of current government forestry policy and policy objectives for the designer.

4 That the preparation of guideline advice takes into account the existence of FA controls, whether in the form of strategies, guidelines, standards or general advice, in order that the designer can identify their implications and judge the relevance to their design proposals.

5 That any detailed advice is ideally supported by research findings and the guidelines acknowledges and references the findings of existing and current research whether FA or other, where it is relevant to the design of forest landscapes.

10.6 Issues Related to the Current Contents of the Advice (Chapters 5-6)

A review of the findings of Chapter 5, on the contents of the advice, and Chapter 6, which critiques the details of the advice, raises a number of concerns related to the nature of the advice offered by the FA.

10.6.1 The Theory and Principles of Forest Landscape Design.

The contents evaluation revealed how difficult it is to identify a clear, sound theory related to the activity of forest landscape design or to be convinced by the guiding principles that are intended to support such a theory (5.5.1).

What appears to have evolved is a system of design that works to engineer a specific response to decisions related to forest landscapes, expressed through a series of judgements and instructions, instead of design advice that allows design decisions to be made based on an understanding of a design theory related to forest landscapes.

The visual design principles were central to the detailed advice offered in the early guidelines. The approach Campbell took to developing guidelines reflected his need to focus on achieving FA forestry objectives. He was required to produce design advice that could address the problem of ugly FA plantations and this objective has clearly directed the nature and scope of the design principles he introduced. This situation compromised Campbell's attempt to establish an independent, landscape-wide theoretical framework for forestry design because he could not develop a balanced view of forestry as an element within the wider landscape when his objective put the emphasis so firmly on forestry interests (4.3.2).

Campbell identified and promoted six visual design principles: shape, scale, visual force, diversity, unity and spirit of place, as a visual design vocabulary with which he could explore and describe the visual landscape and communicate the concept of forest landscape design (4.3.3). However, as the advice developed, the principles, rather than representing tools to identify landscape characteristics, became the advice itself so, for example, the advice moved from identifying lines of visual force in the landscape to designing woodland shapes to follow lines of visual force in the landscape. The critique argues that the design theory that eventually emerged for forest landscape design was contrived from the visual design principles (4.3.4).

The fact that these visual design principles continue to form the theoretical basis of current advice suggests the advice has not responded to context,

which in turn undermines the logic and strength of the guideline design theory. In view of this situation it may be more appropriate to remove the design principles to the design process where they can fulfil a more logical function as aids in the visual assessment of landscapes.

10.6.2 The Design Process

In terms of the design process (5.5.2), the contents evaluation reveals a process that is at times limited and inconsistently stated. The nature of the process has a tendency to lead to a particular design solution and this has the effect of preventing a designer from responding to the opportunities and constrains offered by a particular site (6.5.3). The fact that the details of the process are presented in relation to a landscape's type or planting objective, that is, either upland, lowland or community woodland, often appears illogical and not in the best interest of individual landscapes. In order that all issues relevant to forest landscapes, including the visual analysis, are considered and weighted in a consistent way, it seems reasonable that the design process should be applied independently of a site's type, objective or location.

10.6.3 The Aesthetics-led Approach to Forest Landscape Design

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 (3.3.4, 4.2.2). The consistency of the advice through time still reveals the FA's preoccupation with finding visual design solutions to forestry proposals and this approach no longer seems as necessary or appropriate. The details of the advice offered on design practice (5.5.3) continues to rely heavily on finding visual design solutions by manipulating the two dimensional patterns created by the shapes and patterns forestry can create on the landscape. This is an

approach most appropriate to the distant, large scale upland forest landscapes of the past and one which now appears out-dated and limited given the changing nature of current forestry practice and the range of design opportunities these changes now offer to the designer.

While the way a landscape looks is an important aspect of any design solution, its importance, in terms of the resulting design, should logically be assessed as a part of the design process and weighted against all of those factors; physical, biological and cultural that define a landscape. Advice that dictates visual design solutions or that relies on achieving a preconceived notion of beauty is not necessarily sound, as these design solutions are not bound to reflect the best qualities in a landscape, (6.4). In the same way neither are they bound to achieve universal approval nor create the most successful landscapes when it is widely understood that people experience the environment in many different ways. There appears to be a need for the advice to avoid detailed advice that states preferred visual forms or that makes design decisions for the designer (6.5). In this way the designer can take into account the visual design opportunities offered by a forestry proposal without necessarily letting the landscape's visual form dictate the design solution that is reached.

10.6.4 Visual or Practical Advice

As the advice has developed through time there is evidence that there is some confusion appearing over whether reports are aiming to offer advice related exclusively to the visual aspects of forest landscapes design, as with the original advice, or aiming to offer advice advocating a more holistic approach, one which takes into account other aspects of the landscape in the design process (4.5.2). It is clear the FA is moving towards a more holistic approach and this is most evident in the community woodland report.

However, an approach to offering advice that makes a considered decision to address the implications of the relationship between form and function in a forestry context would give a clearer message and result in more comprehensive advice.

10.6.5 The Role of Landscape Character in Design Solutions

While the contents of the guidelines show that the FA understand landscape character is a product of natural, human or aesthetic forces, the detailed design advice does not always promote designs that recognise these different aspects of a landscape's character. Instead the FA's advice has continued to follow its original approach that placed greater emphasis on making design decisions related to the two dimensional qualities of visual landscape character, as defined by the visual design principles (6.6).

This approach harks back to the original constraints Crowe and Campbell faced in the re-design of forest landscapes and is most appropriate to the forestry practices of that early era. Because Campbell realised that by manipulating the visual pattern of forestry he could create the impression of integration with the local landscape character, the early advice used the landscape's visual character as a cue to finding design solutions. This was found to be particularly successful at integrating large tracts of forestry into upland landscapes at a time when public opposition to FA activity was on the grounds of the visual landscape changes forestry was having on the landscape.

Whilst these past forestry practices are no longer presenting a problem (3.8), the FA's attempts to update the advice through additions rather than changes have, through time, led to confusion and inconsistencies in the advice related to landscape character. This is particularly obvious where the FA has

failed to fully integrated current ideas and definitions and where, in some situations, applying its advice can contradict landscape character (6.6.1). There is a need for the concept of landscape character to be re-defined and brought into line with current thinking and for the FA to look at the implications of these changes in terms of the advice offered in the guidelines. This re-definition would accept that character is not simply a visual phenomena, to be used as a cue to finding two-dimensional design solutions, but rather an important landscape force with visual, physical and cultural implications that must be taken into consideration in the design process.

10.6.6 The Guideline Objectives

Here the contents evaluation suggests there may be some confusion over whether the main objective of the guidelines is to be a teaching aid, (offering advice to foresters with no design training so they are able to grasp the basic skill of landscape design, (6.8.1), or whether the main objective is to be considered 'guidelines' in the accepted sense, that is, setting out the parameters of acceptable and unacceptable design solutions to help designers achieve an objective standard of quality. It seems likely that the FA started out with the first objective and adopted the second without re-evaluating the implications these different objectives have for the details of the advice.

As teaching aids the guidelines would perhaps be expected to place importance on the understanding of the design theory, related to forest landscapes; on the design process and on explaining the design techniques that can help designers achieve desired effects, for example, 'interlock' and 'unity'. The critique of the contents, however, suggests that as a teaching aid the FA's advice does not always appear to respond to user needs and its value

is undermined by a confused and inconsistent design process (5.5.2, 6.6) and design techniques that dictate the design solution (6.5.3).

This apparent weakness may be a direct consequence of the confusion over objectives. On the one hand the guidelines attempt to get the user to explore the concept of forest landscape design and, on the other, they set standards of design for forest landscapes by presenting advice that requires a specific design response, (6.5.3). With this approach the two objectives are not necessarily compatible and while it would not be impossible to fulfil both objectives in one publication, it seems the FA needs to be clearer on its objectives and consider whether they are best served in this way.

10.6.7 The Style and Tone of the Advice

That the confusion is also evident in the style and tone of the current advice questions whether this manner of presentation is the best way to achieve FA objectives.

The critique highlights the specific and formulaic nature of the detailed advice and the use of value judgements and subjective views (6.5). It argues that the tone of this advice may prevent the designer from making informed design decisions or from understanding the theory behind forest landscape design. By keeping the tone of the advice neutral and explanatory and avoiding value-laden judgements the user is freer to make design decisions based on the analysis process, which in turn ensures design solutions are site specific and are directly related to site objectives. This approach may help to avoid uniform design, cookbook solutions and the introduction of styles and fashions that may in the long term lose their relevance and popularity.

10.6.8 The Presentation of the Advice

At present forest landscape design advice is offered on the basis of a landscape location, either upland or lowland, or in relation to its planting objective, that is, community woodland. The content evaluation illustrates the consistency between detailed advice for upland and lowland landscape types within the guidelines (5.4-5.5). The critique suggests that this situation indicates the lowland advice has simply been bolted on to the upland advice with no clear thought to, or understanding of, the different physical and visual natures of these landscapes (6.8). Offering advice on this basis seems illogical and not particularly user friendly. An alternative format could arrange the contents of the advice in a way that reflects how a designer would wish to use it.

The observations drawn from the evaluation and critique of the contents of the advice suggest the quality of the FA's advice is likely to be limited and the following recommendations are made with reference to the findings of these chapters.

10.6.9 Recommendations for offering Forest Landscape Design Advice: Contents

6 Remove the existing visual design principles (shape, visual force, scale, diversity, unity, spirit of place) to the design process to be used in the visual analysis stage of the design process. Develop new design principles that relate to the design theory.

7 Review the existing definitions and descriptions of the design process and re-define the process in line with current landscape thinking stating it consistently throughout the guidelines.

8 Place the design process at the centre of search for a design solution in order to allow all issues relevant to forest landscapes to be considered and weighted.

9 Re-assess the importance of achieving visual design solutions to every forestry proposal, as the importance of the visual landscape in a design should evolve through the landscape analysis stage of the design process. Avoid offering advice that dictates design solutions based on achieving preconceived notions of beauty.

10 Consider an approach to offering advice that acknowledges the implications of the relationship between form and function in forestry.

11 Re-define the concept of landscape character so it is in line with updated thinking and make sure it is consistently stated. This definition would accept that character is an important force within the landscape with visual, physical and cultural implications that are central to design advice for forest landscapes.

12 The guidelines need to be clear on their objectives, whether they represent a teaching aid or a quality standard. If the guidelines are intended to be both the advice should be separated and designated accordingly.

13 Reconsider the style and tone of the existing advice. Avoid specific and formulaic advice that expresses value judgements and subjective views, keeping the tone of the advice neutral and explanatory.

14 Do not offer advice in terms of a landscape's geological location, that is, upland and lowland advice. Instead consider presenting the advice in a way that focuses on how designers would use the guidelines.

10.7 Issues Related to the Findings of the Postal Questionnaire (Chapter 7)

The evaluation and critique of the guideline contents raise a number of criticisms about the quality and usefulness of some of the FA's advice. The postal survey was carried out in order to test these criticisms by establishing the value of the existing advice to a group of woodland designers. As the sample used in the survey was purposive in nature it is not possible to generalise about the needs of the entire population of designers who are working on forestry proposals, (7.4.3). However, the review of the findings of the postal questionnaire described in Chapter 7 is relevant to alternative advice in that it can say something about the users of the FA's design advice, about their needs and expectations and their level of satisfaction with the current advice that may be useful to consider further in the preparation of any alternative guidelines.

The surveyed respondents in this case are working for public, semi-public and private organisations and are highly trained in a wide variety of subjects. They work on many different woodland types in both upland and lowland areas and with both productive and protective planting objectives. The survey results show that there is currently a great need for forest landscape design advice and this is not exclusively visual in nature. Respondents are looking for a diverse range of information that will enable them to design woodlands in a more holistic way and are looking to the design guidelines to provide this information (7.7.3).

The initial impression from the survey findings is that the advice is perfectly satisfactory. The findings seem to support the FA's belief that it has fulfilled its objectives in producing high standards of forest landscape design that result in acceptable forest landscapes and that the guidelines are

providing the forest designer with useful, appropriate and adequate advice. This conclusion is supported by the fact that the existing advice has stood the test of time, is popular with the user and is generally unchallenged by other leading environment organisations. However, the widespread need for additional advice indicates this is not the full story, (7.7.4-5).

It is likely that the need for advice is high among respondents (7.8.4) because of the nature of the skills required to design forest landscapes, that is, both in forestry and landscape design. Respondents tend to have a range of skills but not necessarily all the skills they require and, with the contents of the guidelines traditionally weighted in favour of design advice for foresters, it is likely that not everyone will find all the advice they need. This explains the apparent high level of use and usefulness of the advice and the need for further advice at the same time.

Although the survey findings show a good degree of satisfaction among respondents the critique argues that the FA's advice is theoretically weak, sometimes inappropriate and often limited. This apparent contradiction has no confirmed explanation but may be because respondents either do not realise the short-comings of the advice, or perhaps choose to ignore the fact and this could be happening for a number of reasons:

To address this doubt as to whether the FA's design guidelines are offering sound, useful advice, that is as appropriate as it can be to the current user group and to be sure that the advice is complete, the following recommendations are made with reference to the findings of the postal survey:

10.7.1 Recommendations for Offering Forest Landscape Design Advice: Users' Requirements

15 that, in order for the advice to be most useful, the contents of the guidelines should relate directly to the needs of the user group and this recommendation would require further survey work to identify the current user group. The nature of the advice to be included could then be identified following a review of the existing contents with reference to their specific needs and would establish:

* where the existing advice is useful or where the advice is limited,
* what advice is missing and what advice is superfluous

New information from the user group survey would establish:

* the nature of the missing advice
* the best method of presenting the guideline advice.

This approach would allow the resulting guidelines to:

16 provide or reference all the information related to current forestry activity in order to offer advice relevant to all planting proposals, whatever the proposal's location, planting objectives, concept or forest system.

17 provide or reference all the information needed to compliment the existing skills of designers whatever their training or experience.

10.8 Issues Related to the Findings of the Woodland Perception Field Survey (Chapter 9)

The aim of the Woodland Perception Field Survey was to explore the ways in which designers may be able to control the landscape-users' response to a woodland experience. The survey looked at those physical elements, such as individual trees and their characteristics, that form the visual forest landscape and considered how they contribute to the users' woodland experience and furthermore how this knowledge is useful in terms of design advice (8.4).

If it is possible to identify reliable relationships between a woodland's visual form and the response of the user, for example, dense planting looks uninviting, it would be possible to present designers with a set of criteria that could help their design solutions respond to user needs and preferences. Thus, design advice might state: in woodlands where public recreation is an objective give careful consideration to the density of tree planting as 'high planting density' has been shown to have a negative relationship with 'inviting entry'.

In addition the survey looked at the possibility of weighting design advice by establishing a relationship between a landscape's 'visibility', that is the level of awareness of different landscape elements at different view-points, and the level and nature of design effort required at these distances (9.10.1). Thus design advice might state: when a woodland represents a 2-dimensional shape in the landscape people have been shown to be unaware of its planting density. This model could ensure that the importance of the visual aspect of the design solution is related to the visual value of the landscape to the user. The discussion concluded that this concept may, with further research, provide a workable basis on which to offer visual design advice.

While a model of this type could offer a mechanism for making decisions on the nature and level of visual design appropriate to a scheme and provide design advice relevant to a woodland's visual form, it cannot deliver all the peripheral information related to the more complex concept of forest experience.

In order for visual design advice to be a part of an integrated approach to design the guidelines for forestry would need to be offered within a referencing framework. This cross-check would ensure that any design decisions made reflect a clear understanding of the many other forces that create a woodland experience and are taken in the full knowledge, not only of their visual implications, but also of the physical, biological and cultural implications. In this way visual design decisions can acknowledge the whole landscape experience. Table 10.1 illustrates how these references might be presented.

10.8.1 Recommendations for offering Forest Landscape Design Advice: Form

18 Identify those landscape elements over which a designer can exert some form of control and present the opportunities and constraints that each element affords the designer in terms of visual design solutions.

19 Outline a mechanism whereby designers can weigh the importance of a visual design solution in relation to a site's visibility and furthermore judge where and how to focus design effort.

20 Construct a referencing framework that allows the implications of a design decision to be cross-checked against the visual, physical, biological and cultural issues relevant to a proposal.

Table 10.1 Implications of Design Decisions for Woodland Experience: example of referencing framework.

Design Element	Functional Implications of design decisions	Cultural implications of design decisions.	Ecological implications of design decisions	Implications of design decisions on Woodland Perception & Experience	Visual implications of design decisions	Weighting design effort
Tree species and tree species mix.	The choice of species will be determined by the importance of timber production for the planting objective and will be influenced by the needs of the timber market, economic considerations, the forestry system employed and site conditions.	Landscape character is a cultural classification. Choice of species can strength or reduce existing visual, physical and ecological landscape character. Individual trees whatever the species - particularly existing ancient, rare, large or deformed specimens are of cultural value. They can create a focus, help with visitor orientation and give an area an identity - making obvious places for visitor activity. Some species have stronger cultural significance e.g. broadleaf planting is generally considered native, while conifers are thought to be introduced.	Species choice can determine the eco systems that can be introduced, encouraged or sustained because the tree species influences the nature of the woodland under-story and woodland floor and the diversity of plant and animal life that a woodland can be sustained.	The use of specific tree species can help to create mood or atmosphere within woodlands. Species characteristics such as density of branch structure and canopy height be used to can control light levels and create enclosure which may evoke, for example, feelings of fear, isolation, mystery, and excitement. Single species stands - with no under-storey perceived as commercial forestry and therefore no entry - private.	The choice of tree species can provide the designer with a range of visual characteristics defined by the physical structure of the tree itself, the appearance of leaves, trunk, bark, flowers, twigs, fruit, seeds, tree height, shape, size branch structure. In addition the form of the tree can provide a range of choices on canopy height, transparency or the way a different species filter light, seasonal displays such as autumn colour and winter form, all of which can offer a woodland visual character.	At **Distant** view points the tree species is only significant for its colour and to a lesser degree its texture. In the **middle** distance the species is important along with its colour, texture and form. Where the view point is the woodland **interior** the tree species, its size, shape, colour and texture are all important.
Lay-out of species mixes	Harvesting and management regimes will influence the lay-out of species e.g. inter-mixing species is time consuming and expensive to harvest. However some crops do better between a nurse species	The species lay-out can create patterns of colours and shapes in the wider landscape and can help planting to integrate or contrast with existing character by echoing patterns	The species mix and lay-out can enable a plantation to related to the eco systems in the wider environment, link into other conservation initiatives, provide wildlife corridors and have an impact on the ecological value of the surrounding landscape.	Lay out of species mixes can also influence the perception of the wider landscape, for example the perception of naturalness, by replicating existing natural species mixes & lay-outs.	The species lay-out offers opportunities to design with pattern both colour, line and texture on the appearance of woodland in the wider landscape. Manipulating these characteristics can allow designers to model form, lead the eye across a landscape and focus vision. The species mix and arrangement can also control light levels and views within the interior and change the visual character of the interior e.g. increase or reduce visual diversity.	The lay-out of the species mix is of greatest importance to **distant** landscapes where it represents a pattern on the landscape. Here the shape and colour formed by the mix is important. The pattern of specie mix is not relevant for **middle** distance or **interior** view points where the woodland cannot be seen in its wider setting.
References	e.g. Silviculture of Broadleaved Woodland. FC 1984 Bulletin 62	e.g. The Character of England. CoCo 1996 CCX41	e.g. Birds and Coppice. RSPB 1989	e.g. Perception, Attitudes and Preferences in Forests & Woodlands, Lee T. FC, 2001. Technical Paper 18	e.g. Elements of Visual Design in the Landscape, Bell.S. 1993	e.g. form Woodland Perception field survey findings.

10.9 Summary of Recommendations for Offering Forest Landscape Design Advice

The previous sections discuss the nature of design guidelines; the need for specific design guidelines for forest landscapes; the main issues raised by the study findings and identifies, through recommendations, those factors that can help to define a framework for an alternative approach to guideline advice. The chapter concludes by suggesting how and why the existing guideline advice could be improved by these recommendations.

10.9.1 Recommendations for the Preparation of Guidelines

These recommendations, shown at the end of each of the previous sections and as Appendix 6, are responses to particular issues related to the FA's advice for the design of forest landscapes.

The recommendations concerning the FA's theoretical framework suggest an overhaul of the FA's design theory relating to forest landscape design. The act of reviewing and updating the theoretical basis of the existing guidelines would affect the nature of the current advice and have significant implications for the emphasis and contents. By adopting the emerging paradigm for landscape aesthetics, which accepts that all the factors concerned with the way people perceive and experience environments are relevant to forest landscape design, the advice would be updated. Being brought into context with current thinking in the landscape industry would in effect make the FA's approach more easily understood, more relevant and therefore more likely to result in design solutions appropriate to the wider landscape.

The review of the evolution of the advice highlighted the emergence of discrepancies between the contents of the advice in the various guidelines. These inconsistencies are due to the fact that the design advice has failed to evolve in line with developments in the forestry and landscape activities. Contradictions evident in the advice have the effect of devaluing the guidelines, leaving them open to criticism and weakening the FA's standing. The recommendations address the need to reconcile these issues by suggesting the advice acknowledges the design implications of its current policies and objectives, such as those dictated through FA standards, strategies, initiatives and incentives. This approach would, in effect improve the quality and credibility of the FA's advice.

With regard to the objectives of the guidelines, the review suggests that there appears to be some confusion over whether the guidelines are aiming to be a teaching aid or a quality standard or both. This uncertainty is reflected in the confusing arrangement of the advice and the scope and diversity of the detailed advice within the guidelines. The recommendations suggest that the FA needs to be clear on the purpose of the design advice and to clarify its objectives by re-designating the advice accordingly. In this way the FA can better serve the designer and, by tailoring its detailed advice to particular objectives, it would be more likely to succeed in providing relevant advice.

At present, while the FA includes the design process in its advice, it is not always consistently stated and is often too directly linked to objectives to be comprehensive. The recommendations relating to the design process suggest that it should be key to offering advice for forest landscape design. The design process encourages the designer to consider all the many factors that influence the way a landscape appears and to find solutions which take into

consideration a site's visual, physical and cultural status. In this way a designer has control over the design solution and can respond to a site in an informed way. Guidelines that place the design process at the centre of design activity are able to resist the inclusion of any advice that is predisposed to imposing design solutions on forestry proposals.

Furthermore, forest landscape design guidelines that define the design process consistently and in line with current landscape convention will help to promote the use of the same design vocabulary and enable designers to understand and communicate design ideas throughout the landscape industry. While the FA are slowly coming into line, shown by the growing importance of the design process illustrated in the Community Woodland report, it is important that this aspect of the advice is reconciled within all guidelines. The use of a conventional design process by woodland designers is helpful in that it encourages an approach to design that can support and integrate with the work of other landscape professionals. Such a move would hopefully result in landscape designs that are acceptable to the many individuals and organisations with land-use interests.

The design process is also relevant to the format of the guidelines. The current FA advice presents a mixture of ideas that sometimes explores design concepts, forestry systems, the design process and design techniques, and sometimes states preferred design options and desired design solutions. Here the advice has no consistent format or sequence and offers no clear procedure on how to make the most effective use of the guideline information. The recommendations, on the other hand, favour an approach that would relate directly and consistently to the design process and would set out the relevant information in a way that is linked to the different stages in the process.

Guidelines that aim to offer this amount and variety of advice would need to give careful consideration to the lay-out of the advice. One option would be to present it as a checklist rather than, as at present, drawn examples or explorative narrative. In checklist form the guidelines could also include information on preferred woodland forms and criteria that effect woodland experience and woodland perception, because here the onus is on the designer to understand and use the information presented rather than reproduce any pre-determined solution offered.

Recommended changes to the form and style of the guidelines may help to overcome the constraints imposed by the formulaic nature of the FA's current advice. At present this style of advice does not allow the designer the freedom to respond to local distinctiveness and so limits a their opportunity to integrate a plantation with the local landscape. However, by offering guidelines where the nature of the advice is not constrained by a site's location (that is, offering advice related to upland or lowland locations) a designer is freer to respond to an individual landscape, and to use local landscape character as a cue to visual design opportunities. Furthermore, if the guidelines adopt a tone that avoids value judgements it will discourage design solutions that could favour forestry interests and a particular design style and so avoid conflict with other land use interests and design uniformity.

10.9.2 Further Research

Recommendations from the review of the postal survey suggest the contents of any design advice should be defined by the needs of the user group.

The review highlighted certain contradictions in the findings related to the high level of satisfaction with the guideline advice indicated by some users

who at the same time were critical of the limitations of its contents. The survey results in this instance cannot explain this contradiction but can only surmise why this may be so.

There is an obvious need for the FA's design advice and the level of dependence on the FA's advice is high, although this is probably because the FA's guidelines are the only widely available source of design advice. The fact that the guidelines are produced by the well respected Commission, which is presumed to be offering the best possible advice on forest landscape design, is likely to produce a low level of critical thinking in the user. In addition, it is probable that many respondents are dependent on grant aid for their design work and aware that the design advice must be adhered to if grant aid is going to be awarded. It is possible therefore that the advice can be well used but not necessarily critically assessed and the combinations of these factors would allow the advice to be weak but register a high level of satisfaction.

Only by further research can these assumptions be tested. There is a need to collect the type of information that will lead to a better understanding of the user group and the nature and amount of information they need. In this way the FA are more likely to be able to develop guideline advice that is relevant and appropriate to the skills and working objectives of the current designers.

If any new guidelines are consistently stated and backed-up by research findings, they are more likely to be convincing and result in a valid design solution that is relevant to the woodland user. The review of the woodland perception survey recommends the development of a weighting mechanism for visual design effort. This would allow a designer to judge the

significance of the visual landscape related to a particular proposal would help promote a balanced design decision and encourage a better understanding of the visual landscape, allowing designers to design more effective and work more efficiently.

In the same way by acknowledging current research and incorporating a referencing framework (one that states the visual implications of other aspects of forestry activity) into the advice, the FA can be sure the advice develops in context and is comprehensive. This approach would promote a better understanding of the landscape-wide opportunities and constraints involved in the design of forest landscapes and therefore be more likely to make a well informed design decision and produce a workable design solution.

In this way the designer is offered consistent, comprehensive advice that is theoretically sound and credible. Advice that reflects both current forestry interests and wider land-use issues, is relevant to the needs of the user group and appropriate to their skills and working objectives, in a form that provides all the information designers require to achieve unique, integrated design.

CHAPTER 11 THE RESEARCH SUMMARY AND CONCLUSION

11.1 Summary

The study began with a review of the literature relating to the design of forest landscapes. This established that, although a good deal of discussion and research relating to wider forestry matters exists, there appears to be no substantial body of research that addresses the issue of design advice for forestry. The FA, it appears, represents the leading authority on the subject and the fact that the nature, role and performance of the FA's design advice has never been addressed in any systematic or critical way presented an opportunity for research. Chapter 1 concluded by proposing a study of the Forestry Authority's forest landscape design advice, focusing on the advice offered in their five design guideline reports.

Chapter 2 looked in more detail at the research context by surveying the professional opinion and literature directly related to the research proposal and identifying other sources of forest landscape design advice. The chapter went on to describe and compare the different theoretical frameworks that support both the FA's and the alternative guidelines and concluded that there is no consistent theoretical approach to offering forest landscape advice. Furthermore, as none of these frameworks appeared to provide a totally satisfactory design solution and as there seemed to be some resistance to the FA's aesthetics-led approach, this raised questions about the validity of the FA's theoretical reasoning. The following chapters looked for explanations.

Chapters 3 and 4 began with an exploration of the factors that shaped the introduction, development and nature of the FA's forest landscape design guidelines, by reviewing government and FC policy and objectives over the years and by focusing on the contribution of the individuals responsible for developing the design advice.

This review suggested that the existing advice had been developed in a way that is likely to have produced design advice with a commercial forestry interest bias and which has become divorced from other land use interests. The investigation also revealed that during its development the advice offered in the FA's design guidelines was never seriously challenged or rigorously tested, a fact that became the justification for the critical review of the guideline contents.

In Chapter 5, the analysis of the amount and type of advice offered and the evaluation of the contents of each report found that although the different design guidelines present a good deal of relevant, helpful design advice, it is not always complete, consistent or logical. The advice, at times, appears to exist out of context in landscape design terms and is therefore unlikely to be responding fully to the existing users' needs. The review concluded that the range and details of the advice offered by the guidelines may actually limit their usefulness as design aids.

The critical discussion that followed in Chapter 6 questioned whether their guidelines have been successful in achieving the FA's objective, which is to provide sound advice on the theory, process and practice of forest landscape design. The doubts raised through the critique were then tested using the postal survey of user views presented in Chapter 7.

The findings of the postal questionnaire revealed that the existing advice is widely available, well used and found useful by the majority of the respondents. However, as a total package the guidelines appear, at times, to be offering incomplete and inappropriate advice, in a form that is not as helpful to some of the user group as it has the potential to be. The findings concluded that the FA's objective of offering advice to help non-designers understand the concept of forest landscape design has not been entirely successfully achieved and that this lends further support to the case for a review of the FA's guideline advice.

In an attempt to address the shortcomings of the existing guidelines and to explore the possibility of an alternative approach to forest landscape design advice, a field survey was undertaken. The aim of the Woodland Perception field survey, (Chapter 9) was to identify any relationships that may exist between the physical form of woodland elements and their visual appearance at different viewpoints and to explore whether these relationships could form the basis of a range of criteria useful to the woodland designer.

The survey collected data on respondents' level of awareness, for both the woodland aspects and their characteristics, at each of the 2D (distant), 3D (middle distant) and Place, (near) viewpoints and attempted to identify key factors that characterise these relationships. The findings of the survey indicated that in some instances respondents experience a distinctly different level of awareness, for both the woodlands' aspects and their characteristics at each of the viewpoints. Whether these relationships are significant and reliable, in the statistical sense, was not, however, established beyond doubt and the discussion suggested that it would be difficult to justify adopting a theoretical

framework for setting out design advice or offering actual design advice based on the findings of the survey. However, the chapter concluded that the results as they stand do point to there being enough evidence to support further investigation along these lines. Furthermore, that establishing criteria against which designers can set or test a design solution, led by a woodland's visual appearance, rather than it's geographical location and weighted by levels of awareness, could still be considered a useful concept.

Chapter 10, the discussion, considered the key issues raised by the research and made a number of recommendations for changes to the nature, contents and form of the FA's existing guidelines.

These recommendations focused on producing guidelines that respond to the needs of the user group. They suggest that the nature of the advice is brought more into line with the emerging paradigm for landscapes aesthetics and that it is developed with reference to the implications of FA current policy objectives and based on an understanding of the design process. It is also suggested that the details of the design advice should communicate the visual design opportunities and constraints related to forestry activity while highlighting the changing visual implications of these activities under different conditions and furthermore advise how to weigh visual design effort for each case. In addition, the recommendations suggest developing a referencing framework to advise designers of the implications of design decisions related to each scheme's functional, ecological, and cultural value, and to reference further information.

The discussion argues that this approach represents a valid alternative to current FA practice because it offers a more flexible design framework that can

take on board all the diverse information required by designers working with different skills and varied planting objectives. It allows a designer the freedom to acknowledge forestry interests and preference while at the same time the freedom to respond to individual landscapes and to issues related to other land uses and the needs of the wider landscape environment. The chapter concludes that the advantage of this alternative approach is that it would prevent the advice from imposing design solutions on the landscape and is more likely to encourage well informed design decisions and well integrated design solutions.

11.2 Conclusion

The high profile international and European conferences on the environment in the 1990s have helped to regenerate interest in a flagging forestry industry. The past 15 years have seen the forestry industry in this country come through a transitional period defined by major changes in government forestry policy and to Forestry Commission objectives and strategies. What is interesting to note is that the FA's forest landscape design advice is the one aspect of the FC work that has remained largely consistent.

The interviews with those people responsible for the development of the guidelines produced perhaps the most fascinating and enlightening for the study. They revealed that Crow and Campbell's early work was ground-breaking in that it served to raise awareness of landscape and environmental issues in forestry activity. The advice they initiated managed to bring Britain's forest landscapes back from a point where insensitive forestry practices, led by government forestry policy, had created a forest estate which was considered a

negative force in the landscape and their efforts have resulted in some of Britains most highly appreciated forest scenery.

However, the nature of the advice they developed reflected the influence of these external forces and the guidelines that emerged have retained a strong forestry bias and a tendency to look for visual design solutions that place the emphasis on achieving scenic beauty. This approach has stood the test of time and, while it has been added to through the years, the FA remain convinced of the validity of the guidelines that have emerged. The interviews with those people responsible for the current advice revealed a distinct lack of interest in the subject of forest landscape design advice generally and a definite reluctance on the part of the FA to revisit or re-assess its position on guideline advice.

This study therefore represents the first occasion that a critical review has been undertaken in the 39-year history of the FA's design advice and, while the research has concluded by offering some thoughts and recommendations on how the current approach to design advice for forest landscapes could be improved, its most valuable contribution to general theory will be in presenting the FA with a convincing and valid argument for reconsidering its own position on design advice. An argument that should, ideally, motivate the FA's design team to re-evaluate the content and future direction of its own guidelines.

The FA's objective is to offer the best possible advice to forest landscape designers in a form that is user friendly and the FA firmly believes it has achieved this objective. However, the reluctance to re-evaluate the advice is threatening to undermine the quality of that advice. The analysis of the contents and the critique have illustrated that some inconsistent, contradictory

and inappropriate advice now exists within the guidelines. These findings have served to move the topic beyond the commonly held, but unsubstantiated, assumption of high quality and value of the FA forest landscape design advice and the design guidelines.

Up to the present no other survey information had been gathered from the group of people who use the forest landscape design guidelines, so it was not possible to make a judgement on the success of the guidelines in fulfilling FA objectives. The Postal Questionnaire has been able to address this gap in knowledge.

The review of the evolution of the guidelines argues that the introduction of multi-purpose forestry objectives and the supporting incentives and initiatives over the recent years is likely to have had a significant impact on the nature of the guideline user group. The Postal survey collected information on the current user group, their thoughts on forest landscape design advice in general and on the FA's guideline advice in particular. While, as this was addressed to a purposive sample, the findings of the postal survey cannot be extrapolated to the wider population of forest landscape designers, the information from the survey did provided evidence of a change in the nature of the user group.

The study contributes to new material in the field of forest landscape design research by being able to say something about the people who use the guidelines; their need for design advice and the level of use and user satisfaction experienced by those applying the advice. The respondents' open comments were particularly useful and able to give insight into the nature and scope of the

advice that users want and expect from design guidelines. The findings were, in general, very positive although not everyone appeared to be totally satisfied with the type of advice available to them.

The theoretical weaknesses and inconsistencies evident in the design advice, together with the general need for additional advice as expressed by the users, makes the high level of user satisfaction reflected in the survey results surprising. Also unexpected is the lack of significant relationships between many of the variables. The suggestion that the questionnaire is too easy to answer without respondents being particularly familiar with the guideline contents points to a problem with the methodology in this case and that further research to more adequately explain the results is needed.

The survey findings therefore highlight the need for better quality, more detailed, information on the user group and, in particular, why and how people use the guidelines. It may also be useful to record the nature of the advice people consider they need in a way that is independent of the advice offered by the FA.

The Woodland Perception Survey looked for evidence to support an alternative approach to offering advice based on the appearance of different landscape elements at different distances and their relationship to respondents' awareness to the resulting changes in appearance. The results of the survey were not able to establish more than that in some cases visual changes to landscape elements are evident at different distances and that levels of awareness alter accordingly. If, however, consistent and reliable relationships could be verified between

particular aspects of the woodland's physical form and its visual appearance, it may be useful to pursue the model further and this approach would then be expected to point to various avenues for further research.

Once those factors, relevant to the visual woodland landscape that a designer can manipulate in the process of design, have been established, it would then be useful to be able to demonstrate where and how each woodland element is judged by its audience, rather than by a designer, and to identify the audience's range of preferences. This information would allow the guidelines to set criteria for the appearance of woodland elements against which design decisions can be tested. In addition, it may be useful to record the level of importance placed upon these factors, again by a woodland's audience, which, in turn would allow the designer to weight design decisions in respect of these factors.

Recurring throughout the thesis has been the theme of landscape aesthetics and the shifting paradigm that has witnessed the growing relevance of cultural and psychological issues in design decisions and in particular the growing importance of the concept of landscape character related to issues of landscape change. This theme is significant for forest design guidelines if the advice they contain is going to continue to be relevant.

The thesis has shown the FA's approach is still caught up in the policy decisions and forestry objectives of the past. It has argued that guidelines developed in response to past pressures and the FA's subsequent resistance to change has left the design advice incompatible with some of the ideals and objectives prevalent in current land use and development decisions making. Guidelines that are not relevant to the current context will have more difficulty in helping designers to

understand and communicate current design theories and concepts and this should be a major concern when the FA consider the success of its teaching aid objectives.

The information gained through the research study is used to recommend a number of changes to the nature and contents of the FA's advice in an attempt to address the limitations of the existing guidelines. Adopting these recommendations would affect current practice in the following ways:

The guideline advice would no longer be able to dictate the design solution because of the emphasis placed on the designers' use and understanding of the design process. Designers would then be freer to respond to an individual site's character and planting objectives. Where value judgements and pre-determined design decisions are not offered, uniform design solutions are avoided.

Design objectives would be weighted against other land-use interests within this process and visual design solutions would not necessarily be the ultimate aim of the advice. The resulting forest landscape designs are therefore more likely to achieve the relationship between form and function that gives a landscape integrity.

Throughout the period of study it has become apparent that research activity related to the many aspects of landscape and forestry is continually producing information and this is often relevant in some way to designing forest landscapes. The discussion section considers the benefits of a referencing framework concerned with these general issues, such as the cultural significance of woodlands and issues related to preferences and ecological form. However,

this body of information is of limited value unless the FA considers the implications for the designer and incorporates what is relevant it into its guidelines, bulletins and practice notes. Drawing together and referencing the different strands of this research, in order to give the broader picture to designers, would be extremely useful. Furthermore, as the FA already has an extensive knowledge and experience of the subject, it seems appropriate that it is the FA who should take steps to make this valuable body of information readily available.

This thesis has to conclude that the FA appears to be missing an obvious opportunity, at this point in time, to produce more comprehensive, relevant and theoretically sound forest landscape design advice that is both appropriate to the needs of the current breed of forest landscape designer and to its own revised objectives.

11.3 Final Thought.

This study has looked in detail at the FA activities and been critical of its design advice for forest landscapes but it is easy to criticise with hindsight. As Litten R.B. (1986) observed 'the landscape is a philosophical object and yet design, planning, management and use make pragmatic demands of it' and it is important to remember that although forestry can be a long term aesthetic proposition it is always at the mercy of political and social pressures and cultural fashion.

While woodlands and forests may give the impression of being constant features in the landscape, forestry as a land use activity does evolve. It is a continuous

process and as such it requires a resolute commitment and a continuum of knowledge if is going to represent a positive force in the environment. Britain's forestry heritage is a product of a long and often difficult learning curve and it is unhelpful to judge past practices out of context. What may now seem an ill advised decision or an unfortunate action was simply the product of the state of knowledge at a particular point in time and the FA have clearly shown that lessons have been learned along the way. The FC forest estate is now beginning to reflect the decisions taken a decade ago and the outlook is favourable but, however slow and imperceptible this progress sometimes appears, it will always be important to keep moving forward and to acknowledge when another lesson has been learned.

REFERENCES

Acland Commitee (1917-1918) Final Report of the Forestry Sub-committee of the Reconstruction Committee, Cd 8881 London, HMSO

Ahern, J. (1995) 'New era for New England' Landscape Design. April 1995 pp37-40

Alcock, A. (1993) 'Aesthetics and Urban Design' in Haywood R. McGlynn, S. (eds) Making Better Places London, Butterworths.

Aldous, J.R and Field, A.B. (1989) UK Forestry Policy into the 1990's: proceedings from a discussion meeting. Edinburgh, Institute of Chartered Foresters,

Anderson, L.M. and Shroeder, H.W. (1983) 'The Application of Wild and Scenic Assessment Methods in Urban Landscapes' Landscape Planning 10, pp219-237

Appleton, J. (1975) The Experience of Landscape. (revised 1996) Colchester, John Wiley & Sons

Appleton, J. (1979) 'Landscape Aesthetics in the Field' in Appleton, J. (ed) The Aesthetics of Landscape Oxford, Alder Publishing pp14-22

Arthur, L.M. (1977) 'Predicting Scenic Beauty of Forest Environments: some empirical tests'. Forest Science, 23 pp151-160

Atherden, M. and Butlin, R.A. (eds) (1997) Woodland in the Landscape: Past Present and Future Perspectives PLACE Research Centre, College of Ripon and York St John.

Bateman I (1994) 'Research Methods for Valuing Environmental Benefits' in Dubgaard A, Batemanl and Merlo M (eds) Identification and Valuation of Public Benefits from Farming and Countryside Stewardship. Brussels, Commission of European Communities.

Beckley T.M. and Korber D. (1995) 'Sociology's Potential to Improve Forest Management and Inform Forest Policy'. The Forestry Chronicle 71: 6, pp712 - 719.

Beer, A.R. (1987) 'Conserving the Rural Landscape' in Some notes on Design Issues in the Rural Landscape Department of Landscape, University of Sheffield.

Bell, S. (1993) Elements of Visual Design in the Landscape. London, E&FN Spon.

Bell, S. (1995) Woodlands in Designed Landscapes Forestry Authority Forestry Practice Advice Note 3 London, HMSO.

Bell, S. (1995) 'Forest Design goes International' Landscape Design, April 1995 pp34-36

Bell, S. (1995) Woodlands in Designed Landscapes Forestry Authority Forestry Practice Advice Note 3. London, HMSO

Bell, S. (1998) Forest Design Planning: A Guide to Good Practice. Edinburgh, HMSO

Bell, S. (1999) Landscape Design: Pattern, Perception and Process London E&FN Spon

Benson, J.F. and Willis, K.G. (1991) 'Demand for Forest Recreation' in Forestry Expansion: a study of technical, economic and ecological factors. Forestry Commission Occassional Paper 39. London, HMSO

Benson, J.F. and Willis, K.G. (1992) Valuing Informal Recreation on the Forestry Commission Estate. London, HMSO

Bergin, J. (1993) Recreation and the Value of Landscape. University of North Wales, Bangor.

Bergstrom, J.C. Dillman, B.L. and Stoll, J.R. (1990) 'Concepts and Measures of the Economic Value of Environmental Quality: a review' Journal of Environmental Management.

Berleant, A. (1992) The Aesthetics of Environment Philadelphia, Temple University Press.

Bernaldez, FG, Gallardo D and Abello, R P (1987) 'Children's Landscape Preferences: from Rejection to Attraction' Journal of Environmental Psychology 7: 2 pp169-176

Bishop, I.D and Hulse, D.W. (1998) 'Prediction of Scenic Beauty using Mapped Data and Geographic Information Systems' in Landscape and Urban Planning 30 pp59-70

Bishop, K. D (1991) 'Community Forests: Implementing the Concept', Planner 77:18 pp6-10

Bourassa, S. (1991) The Aesthetics of Landscape London, Belhaven Press

Bourassa, S. (1991a) The Aesthetics of Landscape London, Belhaven Press (quote p.33)

Bourassa, S. (1991b) The Aesthetics of Landscape London, Belhaven Press (quote p.34)

Brotherton, I. and Hetherington, M. (1990) 'On Partial Consultation in Forestry' Environment and Planning A, 22: 5 pp683-8

Brown, T.C. Daniel, T.C. (1986) 'Context Effects in Perceived Environmental Quality Assessment: scenic selection and landscape quality ratings' in Canter, D. (ed) Readings in Environmental Psychology. London Academic Press.

Buhyoff, G.J. Wellman, J.D, Haevey, H. and Frazer, R.A. (1978) 'Landscape Architects Interpretations of Peoples Landscape Preferences' Journal of Environmental Management 6, pp255-262

Burgess, J. (1995) 'Landscape of Fear' Landscape Research Extra 16 pp5-7

Buttoud, G. (2000) 'How can Policy take into consideration the 'Full Value of Forests'. Landuse Policy 17 pp169-175

Campbell, D. (1987) 'Landscape Design in Forestry' Landscape Design. April pp31-36

Campbell, D. and Fairley, R. (1991) 'Forestry Expansion: A Study of Technical, Economic and Ecological Factors' in Forestry and the Conservation and Enhancement of Landscape. Forestry Commission Occasional Paper 41 Edinburgh, HMSO.

Carlson A A. (1984) 'On the Possibility of Quantifying Scenic Beauty' Landscape Planning 11 pp49-64

Carlson, A.A. (1993) 'On the Theoretical Vacume in Landscape Aesthetics' Landscape Journal 12: 1 pp51-59

Cassidy, D.J. (1998) 'Landscape Design Theory' Landscape Design, Dec 1998 20

Cats-Baril, W.L. (1987) 'Evaluating Landscape Aesthetics: A Multi-Attribute Utility Approach' Landscape Urban Planning 14:6 pp463-480

Clamp, P. (1981) 'The Landscape Evaluation Controversy', Landscape Research, 6 :2 pp13-15

Clark, J. (2000) 'Planning the Seeds of Change' in Landscape Design. Dec 2000 296 pp46-48

Clayton, A. (1992) A Systems Approach to Sustainability. Cheltenham Countryside Commission

Command Paper (March 1999) Modernising Government White Paper Cmnd 4310 London, HMSO

Corner, J. (1997) 'Ecology and Landscape as Agents of Creativity', in Thompson, G. F. and Steiner, F.R (eds) Ecological Design and Planning. New York, John Wiley and Sons pp45-80

Countryside Agency (1999) Countryside Character. Vol 4 East Midlands. CA 10 Cheltenham, Countryside Agency.

Countryside Commission (1987) Assessment and Conservation of Landscape Character: the Warwickshire Landscapes Project. CCP 332 Cheltenham

Countryside Commission (1987) Forestry in the Countryside CCP 245 Cheltenham, Countryside Commission.

Countryside Commission (1993) Englands Trees and Woods CCP 408 Cheltenham Countryside Commission

Countryside Commission (1993) Landscape Assessment Guidance Advisory Booklet CCP423 Cheltenham, Countryside Commission

Countryside Commission (1995) The Countryside Character Programme CCP427 Cheltenham, Countryside Commission

Countryside Commission (1998) Countryside Character. Vol 1 North East. CCP 535 Cheltenham, Countryside Commission

Countryside Commission (1998) Countryside Character. Vol 2 North West. CCP 536 Cheltenham, Countryside Commission

Countryside Commission (1998) Countryside Character. Vol 3 Yorkshire and Humberside. CCP 537 Cheltenham, Countryside Commission

Countryside Commission and English Nature (1994) The New Map of England: A celebration of the South Western landscape. CCP444 Cheltenham, Countryside Commission

Countryside Commission and English Nature (1996) The Character of England-Landscape Wildlife and Natural Features CCX41 Cheltenham Countryside Commission

Countryside Commission and Forestry Commission (1997) Woodland Creation: Needs and Opportunities in the English Countryside: Responses to a Discussion Paper London, HMSO

Craik, K. H. (1972) 'Psychological Factors in Landscape Appraisal' Environment and Behaviour 1 pp255-266

Crowe, S. (1966) Forestry in the Landscape, Forestry Commission Booklet No. 18 HMSO

Crowe, S. (1969a,b,c,d) 'Forestry in the landscape' paper at Forestry in a Multi-Purpose Landscape Institute of landscape Architects Symposium.

Crowe, S. (1978) The Landscape of Forests and Woods Forestry Commission Booklet No 44. London, HMSO

Dearden, P. (1981) 'Public Participation and Scenic Quality Analysis' Landscape Planning, 8 pp3-19

Dearden, P. (1987) 'Consensus and a Theoretical Framework for Landscape Evaluation'. Journal of Environmental Management 24 pp267-78

Department of the Environment (1994) Bio-diversity: The UK Action Plan Cm 2428 London, HMSO

Department of the Environment (1997) The Countryside Environmental Quality and Economic Social Development. Planning Policy Guidance, (PPG7) London, HMSO

Diaz, N. and Apostol, D. (1992) Forest Landscape Analysis and Design: a Process for Developing and Implementing Land Management Objectives for Landscape Patterns. USDA Forest Service, Pacific Northwest Region

Dunn, M.C (1976) 'Landscape with Photographs: testing the preference approach to landscape evaluation' Journal of Environmental Management, 4 pp15-26

Environment Committee (1995) Rural England: A Nation Committed to a Living Countryside. Rural White Paper Vol 1 session 95/96 London, The Stationary Office

Essex, S.J (1988) 'The Effectiveness of Planning Intervention on Woodlands in the Peak District National Park' East Midland Geographer 11: 2 pp48-56

Fairbrother, N (1970) New Lives New Landscapes. Harmondsworth, Penguin Books

Farm Woodland Advisory Group (1994) Tree Pack. Stoneleigh National gricultural Centre.

Ferris, R, Purdy, K, Humphrey, J, Quine, C. (2000) An introduction to new ecology research to enhance biodiversity in British forests. Forestry Commission Information Note IN34 pp1-6 Department of Forest Research

Fines, K.D. (1968) 'Landscape Evaluation: a Research Project in East Sussex' Regional Studies 2 pp44-55

Forestry Authority (1991) Community Woodland Design Guidelines London, HMSO

Forestry Authority (1992) Forest Recreation Guidelines London, HMSO

Forestry Authority (1992) Lowland Landscape Design Guidelines London, HMSO

Forestry Authority (1994) Forest Landscape Design Guidelines London, HMSO

Forestry Authority (1995) Woodlands in Designed Landscapes Forestry Practice Advice Note London, HMSO

Forestry Authority (2000/20001) 'Mission Statement' Forestry Authority Annual Report and Accounts London, HMSO

Forestry Authority, (1998) The UK Forestry Standard. Edinburgh, Forestry Commission

Forestry Commission (1936) Afforestation in the Lake District Joint Informal Committee of the Forestry Commission and the Council for the Preservation of Rural England.

Forestry Commission (1943) Post-war Forestry Policy Cmd 6447 London, HMSO

Forestry Commission (1963) Forest Policy London, HMSO

Forestry Commission (1972) Forestry policy London, HMSO

Forestry Commission (1976) Landscape Design SM-45 internal document

Forestry Commission (1978) The Landscape of Forests and Woods Forestry Commission Booklet No 44 London, HMSO

Forestry Commission (1988) Farm Woodland Practice Forestry Commission Hand Book 3. . London, HMSO

Forestry Commission (1988) Forestry Policy London, HMSO

Forestry Commission (1988) Forests and Water Guidelines. Edinburgh, Forestry Commission

Forestry Commission (1989) Forest Landscape Design. London HMSO

Forestry Commission (1990) Forest Nature Conservation Guidelines. London, HMSO

Forestry Commission (1991) A Forestry Policy for Great Britain London, HMSO

Forestry Commission (1991) Forestry Practice Forestry Commission Hand Book 6 London, HMSO

Forestry Commission (1992-2001) Annual Reports and Accounts Forestry Commission London, HMSO

Forestry Commission (1993) Landscape Assessment for Indicative Forestry Strategies Forestry Authority, London, HMSO

Forestry Commission (1993) Response to the House of Commons Environment Committee: Forestry and the Environment. Forestry Commission London, HMSO

Forestry Commission (1993) Response to the House of Commons Environment Committee: Forestry and the Environment. Forestry Commission London HMSO

Forestry Commission (1994) Creating New Native Woodlands. Forestry Commission Bulletin 112, London, HMSO

Forestry Commission (1994) Sustainable Forestry: the UK Programme (revised 1998) CM 2429, London HMSO

Forestry Commission (1995) Creating and Managing Woodlands around Towns. Forestry Commission Handbook 11. London, HMSO

Forestry Commission (1995-2000) Facts and Figures London, HMSO

Forestry Commission (1996) Forestry Practice Guide: Involving Communities in Forestry. London, HMSO

Forestry Commission (1998) Forest Design Planning: a Guide to Good Practice. Practice Guide Edinburgh, HMSO

Forestry Commission (1936) Afforestation in the Lake District. Joint Informal Committee of the FC and the Council for the Preservation of Rural England

Forestry Commission (1998) The Sustainable Management of Forests' A Supplementary Consultation Paper to Opportunities for Change. Forestry Commission/Department for International Development/Department of Agriculture for Northern Ireland

Forestry Commission (2000) Access to Open Countryside in England and Wales: A Consultation Paper London, HMSO

Forestry Commission (2001) Perceptions, Attitudes and Preferences in Forests and Woodlands, Forestry Commission Technical Paper 101. London HMSO

Forestry Commission Annual Report and Accounts 1999/2000 for Great Britain and England. HC98 Edinburgh, HMSO

Forestry Commission Forestry Policy for Great Britain (1990) London, HMSO

Forestry Commission Post-war Forestry Policy (1943) Cmd 6447 London, HMSO

Forestry Commission. (1986) The Forestry Commission and Conservation. Policy and Progress Paper no: 4. London, HMSO

Forestry Commission. (2000) England Forestry Strategy: A New Focus for England's Woodlands London, HMSO

Forestry Commission/Countryside (1997) Woodland Creation: Needs and Opportunities in the English Countryside CCP 522 Cheltenham, Countryside Commission

Franklin, C. (1997) 'Fostering Living Landscapes', in Thompson, G. F. and Steiner, F.R (eds) Ecological Design and Planning. New York, John Wiley and Sons pp263-292

Freimund, W.A. Anderson, D. and Pitt, D.G. (1996) 'Developing a Recreational and Aesthetics Inventory Framework for Forest Planning and Management' Natural Areas Journal 16:2 pp108-117

Gardiner, B.A. and Stacey, G.R (1996) Designing the Forest Edges to Improve Wind Stability. Forestry Commission Technical Paper 16. London, HMSO

Garrett, L. (1967) Visual Design: a problem solving approach, New York, Van Nostrand Reinhold

Garthwaite, P (1996). 'Conservation and the Image of the Forester: An Alternative View' Quarterly Journal of Forestry July 1996 90: 3

Gluck, P. (2000) 'Policy Means for Ensuring the Full Value of Forests to Society' Land Use Policy 17 pp177-185

Great Western Community Forest (1992) Great Western Community Forest and the Farmer Swindon, Great Western Community Forest

Hadfield, M. (1967) Landscape with Trees Guilford, Billing and Sons Ltd

Haigh, V. (1988) 'Once in a Lifetime', Landscape Design August pp31-33

Halsbury Statutes (1947) Town and County Planning Act vol 46

Halsbury Statutes (1967) Forestry Act 4th Edition, vol 18 pp598-658

Halsbury Statutes (1968) The Countryside Act 3rd Edition, vol 14 pp244

Halsbury Statutes (1979) The Forestry Act 4th Edition, vol 18 pp661-663

Halsbury Statutes (1979) The Forestry Act 4th Edition, vol 18, pp661-663

Halsbury Statutes (1981) Wildlife and Countryside Act re-issue 1996, 4th Edition vol 32 pp234 para 28-33

Halsbury Statutes (1988) Finance Act 4th Edition, vol 42: 65, col1016

Handley, N.D, (1989) 'Valuing Rural Recreational Benefits: an empirical comparison of two approaches' Journal of Agricultural Economics 40 pp361-374

Handley, N.D, and Ruffell, R. (1993) 'The Contingent Valuation of Forest Characteristics' Journal of Agricultural Economics May pp218-229

Hansard, House of Commons (1986) 'Forestry Bill' Hansard HL 802 17th June

Hansard, House of Commons (1988a) 'Forestry Debate' Hansard 13th April

Hansard, House of Commons (1988b) 'Forestry Debate' Hansard 17th February

Hansard, House of Commons (Dec 1980) Ministerial Statement on Forestry Policy 'Written answers' vol 995 pp927-935

Hansard, House of Commons (July 1958) Minister of Agriculture Policy Statement 4th Edition, 'Written answers' vol 592 pp684-690

Hansard, House of Commons (July 1985) Ministerial Statement by Secretary of State for Scotland 'Written answers' vol 82, pp255

Hansard, House of Commons (March 1988) Ministerial Statement by Secretary of State for Scotland 'Written answers' vol, 42 pp657

Hansard, House of Commons (March and Oct 1988) Secretary of State for the Environment and Minister of Agriculture 'Written Answers' vol 138, (1987-1988) cols 1012-1014.

Herlin, I. (2001) 'Approaches to Forest Edges as Dynamic Structures and Functional Concepts' Landscape Research 26: 1 pp27-43

Hibberd, B.G. (1986) Forestry Practice Forestry Commission Bulletin 14 (revised 1991) London, HMSO

Hill P (1994) Planting Patterns Landscape Design Nov pp27-29

Hill, P. (1987) 'Farm Woodlands: Facing the Facts' Landscape Design August pp17-19

Hough, M. (1984) City Form Natural Process Kent, Croom Helm Ltd

House of Commons (1993) Forestry and the Environment. First report vol 1 paragraphs 15-21 London, HMSO

House of Commons Agricultural Committee (1989/1990a) Land Use and Forestry House of Commons Paper 16, Minutes of Evidence, 2nd report, vol 1 pxv-xvi iii Forestry Policy paragraphs 31-40 London, HMSO

House of Commons Agricultural Committee (1989/90b). Land Use and Forestry 2nd report, Vol 1, Minutes of Evidence, 12 April Annex B i, ii, iii, iv. pp289 London HMSO

House of Commons' Environment Committee (1993) Forestry and the Environment. First report vol 1 paragraphs 15-21

Hubbard, P.L. (1994) 'Professional vs. Lay Tastes in Design Control: an empirical investigation' Planning Practice and Research 9: 3 pp271-287 (quote p16)

Hubbard, P.L. (1994) Landscape Aethetics: Recent Advances in Theory and Research Landscape Issues 11: 2 pp6-19

Hull, B. Buhyoff, G.J. (1984) 'Individual and Group Reliability of Landscape Assessment'. Landscape Planning 11 67-71

Hyams, E. (1971) Capability Brown and Humphrey Repton. J.M. Dent and Sons Ltd

Hyttinen, P. Niskanen, A. and Ottitsch, A. (2000) 'New Challenges for the Forest Sector to Contribute to Rural Development in Europe' Land Use Policy 17 pp221-232

Jacques D.L (1980) 'Landscape Appraisal: The Case for Subjective Theory' Journal of Environmental Management 10 pp107-113

Jacques, D.L. (1995) 'The Rise of Cultural Landscapes' International Journal of Heritage Studies 1:2 91-101

James, B and Baines, J (1988) People, Nature and Landscape: a research review Report to the Landscape Research Group

Johansson, P.O. (1993) Cost-benefit Analysis of Environmental Change Cambridge University Press

Johnson, M. (1997) 'Ecology and the Urban Aesthetic' in Thompson, G. F. and Steiner, F.R (eds) Ecological Design and Planning' New York, John Wiley and Sons pp167-185

Joint Action Group for the Protection of Dartmoor and Exmore (1961) The Case for Control of Afforestation of Open Land in National Parks. London, Standing Committee on National Parks

Kaplan, R. (1975) 'Some Methods and Strategies in the Prediction of Preference' in Zube, E.H. Brush, O.R. and Fabos, J.G. (eds) Landscape Assessment: Values, Perceptions and Resources Strasbourg, Downed, Hutchinson and Ross, pp118-129

Kaplan, R. Herbert, E.J. (1988) 'Familiarity and Preference in a Cross-cultural Analysis' in Nasar, J.L. (ed) Environmental Aesthetics: Theory, Research and Application New York, Cambridge

Kaplan, R. Kaplan, S. (1989) The Experience of Nature: A Psychological Perspective. Cambridge, Cambridge University Press

Kent, R.L. (1993) 'Attributes, Features and Reasons for Enjoyment of Scenic Routes: a comparison of experts, residents and citizens'. Landscape Research 18: 2 pp92-102

Kroh D.P and Gimblett, R.H. (1992) 'Comparing live experience with pictures in articulating landscape preference' Landscape Research 17:2 pp58-69

Lamb, R. Purcell, A. Peron, E. and Falcgeo, S. (1994) 'Cognative Categorisation and Preference for Places in Neary', in Symes, M. Brown, F. (eds) The Urban Experience: a people-environment perspective, London, E & F Spon Ltd

Land Use Consultants (1991) Landscape Assessment: Principles and Practice, Battleby, Countryside Commission for Scotland

Landscape Research Group (1988) A Review in Recent Practice and Research in Landscape Assessment, Countryside Commission CCD25 (quote p49)

Laurie, I.C. (1975) 'Aesthetic Values in Visual Evaluation' in Zube, E.H. Brush, R.O. and Fabos, J.G. (eds) Landscape Assessment: Values, Perceptions and Resources, New York, Dower Huchinson and Ross

Lee, T. R. (1990) Attitudes Towards and Preferences for Forestry Landscapes, Technical Paper 18 Forestry Commission, Edinburgh

Litton, R.B. (1986) in Smardon, R.C, Palmer, J.F and Felleman, J.P, (eds) Foundations for Visual Project Analysis John Wiley and Sons, Chichester(quote ppix)

Lloyd, T. Watkins,C and Williams, D. (1994) 'Farmers not Foresters, Constraints on the Planting of New Farm Woodlands. Department of Geography, Working Paper 27, University of Nottingham

Lucas, O. (1991) The Design of Forest Landscapes Oxford, Oxford University Press

MAFF (1989) Environmentally Sensitive Areas: The Somerset Levels and Moors, London, HMSO

Makhzoumi, J. and Pungetti, G. (1999) Ecological Landscape Design and Planning: The Mediteranian Context. London E and FN Spon

Manning, O. (1998) 'Aesthetic Value in Landscape' Landscape Design, Dec 1998 20 pp52-59

Mason, D. (1991) Wood for the Trees Adam Smith Institute, Ecos 13: 1 71

Mather, A.S. (1991) 'Pressures on British Forestry Policy: Prologue to the Post-Industrialist Forests' Area 23: pp245-253

Mather, A.S. (Ed) (1993) Afforestation Policies, Planning and Progress. London and Florida Belhaven Press

Mather, A.S. and Murray, N. (1986) 'Disposal of Forestry Commission Land in Scotland' Journal of Rural Studies 18 pp109-16

McHarg, I.L. (1971) Design with Nature. New York, Natural History Press

McHarg, I.L. (1997) 'Ecological Design' in Thompson, G. F. and Steiner, F.R (eds) (1997) Ecological design and planning New York, John Wiley and Sons. p139-51

McHarg, I.L (1997) 'Ecological Design' in Thompson, G. F. and Steiner, F.R (eds) Ecological Design and Planning New York, John Wiley and Sons (quote p321)

Mehrabian, A Russel, J.A. (1974) An Approach to Environmental Psychology Boston, MIT Press

Meyer, E.K. (1997) 'The expanded field of landscape architecture' in Thompson, G. F. and Steiner, F.R (eds) (1997) Ecological Design and Planning New York, John Wiley and Sons.

Miles, R. (1967) Forestry in the English Landscape London, Faber and Faber Ltd

Mills, E (1996) The Telegraph ,Saturday August 26, letter, p17

National Parks Commission (1961) Eleventh Report of the National Parks Commission for the Year Ended 30th September 1960 London, HMSO,

National Urban Forestry Unit (1997) Design Guidelines for Woodland Planting Wolverhampton, National Urban Forestry Unit

Nature Conservancy Council (1984) Nature Conservation in Great Britain Peterborough, Nature Conservancy Council

Nature Conservancy Council (1986) Nature Conservation and Afforestation in Britain Peterborough, Nature Conservancy Council

Nature Conservancy Council (1987) Birds, Bogs and Forestry: The Peatlands of Caithness and Sutherland Peterborough, Nature Conservancy Council

Ndubisi, F. (1997) 'Landscape Ecology and Planning', in Thompson, G. F. and Steiner, F.R (eds) Ecological Design and Planning. New York, John Wiley and Sons

Nicholls, D.C. (1989) Lowland Forestry on Traditional Estates Department of Land Economy, University of Cambridge

Nicholls, D.C. (1989) Lowland Forestry on Traditional Estates Department of Land Economy, University of Cambridge

Nixon, C. (1995) 'Bioclimatic Ecosystem Classification and Forest Management for Biodiversiy' in Ferris-Kaan (ed) Managing Forests for Biodiversity Forestry Commission Technical Paper 8. Edinburgh, Crown Copyright

O'Brian, E. (2000) 'The Social Significance of Wooded Landscapes'. ICF News 4_pp5

O'Leary, T. N. McCormack, A.G. and Clinch, J.P. (2000) Afforestation in Ireland: Regional Differences in Attitude'. Land Use Policy 17: 1 Jan pp39-48

Olin, L. (1988) 'Form Meaning and Expression in Landscape Architecture' Landscape Journal 7 2

Olin, L. (1997) 'Landscape Design and Nature', in Thompson, G. F. and Steiner, F.R (eds) (1997) Ecological design and planning New York, John Wiley and Sons. pp109-139

Orians, G.H. (1986) 'An Ecological and Evolutionary Approach to Landscape Aesthetics' in Penning-Rowsell, P.C and Lowenthal, D. (eds) Landscape Meaning and Values. London, Allen and Unwin

O'Riordan, T. Lovett, A. Dolman, P. Cobb, D. and Sunnenberg, G. (2000) 'Designing and Implementing Whole Landscapes' Ecos 21:1 pp57-68

Palmer, J.F. (2000) 'Reliability of Rating Visible Landscape Qualities'. Landscape Journal 19: 1 and 2 pp166-178

Pan European Ministerial Conference on the protection of forests in Europe: Declaration and Resolutions L1 and L2 Lisbon 1998

Pearce, D.W and Warford, J. (1992) World Without End: Environment, Economics and Sustainable Development. Oxford, Oxford University Press

PIEDA (1986) Forestry in Great Britain: an economic assessment for the National Audit Office. Edinburgh, HMSO

PIEDA (1988) Budgeting for British Forestry London, Council for the Protection of Rural England

Pitt, J. (1991) 'Community Forests: Cities of Tomorrow,' Town and Country Planning 60:6 pp188-90

Pocock, D.C. (1982) The View from the Bridge: Experience and Recall of Landscape. Occasional paper no 17, Department of Geography, University of Durham

Price, C. (1991) 'Transformation and Weighting in Recreation Demand and Regression' Journal of Environmental Planning and Management 33: pp9-104

Price, C. (2000) 'Valuation of Un-priced Products: Contingent Valuation, Cost-Benefit Analysis and Participatory Democracy'. Land Use Policy 17 pp187-196

Price, G. (1993) Landscape Assessment for Indicative Forestry Strategies Forestry Authority Cambridge HMSO

Pringle, D. (1994) The Forestry Commission: The First 75 Years: A Brief Account of the History of the Forestry Commission 1919-1994 Edinburgh, Forestry Commission (quote ppii)

Probust, J.R and Crow, T.R. (1991) 'Integrating Biological Diversity and Resource Management' Journal of Forestry 89: 12 17

Pryor, S. (1992) Future Forestry: A New Direction for Forestry Policy London, Wildlife Link

Punter, J. (1982) 'Landscape Aesthetics: a Synthesis and Critique' in (eds) Gold, J.R and Burgess, J.A. Valued Environments London, George Allen & Unwin

Pyatt, G. (1995) An Ecological Site Classification for Forestry in Great Britain. Research Information Note 260, Forestry Authority, Research Division, Edinburgh, HMSO

Quine, C.P. and Gardiner, B.A (1992) Incorporating the Threat of Windthrow into Forest Design Plans Forestry Commission Department of Research, Research Information Note 220.

Ramblers Association (1980) Afforestation: the case against expansion London, Ramblers Association

Rettig, S (1983) 'The Rise of the Ecological Approach to Design' Landscape Design 6 pp39-41

Rio de Janeiro 'Earth Summit' UN Conference on Environment and Development (UNCED). 1992

Robinson, D.G. Wagner, J.F, Laurie, I.C. and Traill, A.I Landscape Evaluation: Manchester University Research Project. Manchester, Revell & George Ltd

Rodwell, J. and Patterson, G. (1995) Creating New Native Woodlands Forestry Authority Bulletin 12 London HMSO

Rose, D. Sullivan, O. (1993) Introducing Data Analysis for Social Scientists Buckingham Philladelphis, Open University Press

Royal Society for the Protection of Birds (1985) Forestry in the Flow Country, Sandy, RSPB

Ruff, A. (1985) Ecology and Landscape Design, in Harvey, S. and Rettig, S. (Eds) Fifty Years of Landscape Design. London, The Landscape Press

Ruff, A. and Tregay, R. (eds) (1982) An Ecological Approach to Landscape Design Occasional Paper no 8. Department of Town and Country Planning, University of Manchester pp4-12

Russell, D. (1998) 'Forestry and the Art of Frying Small Fish'. Environmental Values, 7, pp281-289

Sandys, P. (1994) 'The Woodland Grant Scheme: A Review from the Perspective of Owners and Managers' Quarterly Journal of Forestry 88: 1 pp20-27

Scambler, A. (1989) 'Farmers Attitudes towards Forestry' Scottish Geographical Magazine 105: 1 pp47-49

Secretary of State for the Environment (1986) 'North Pennine Area of Outstanding Natural Beauty'. Decision letter quoted in Countryside Commission (1987) Landscape Assessment CCd18 Cheltenham, Countryside Commission

Selman, P.H (1990) 'Forestry and Land-use Planning: A Case for Indicative Strategies' Arboricultural Journal 14: 1 pp53-9

Selman, P.H. (1997) 'The Role of Forestry in Meeting Planning Objectives' Land Use Policy 14: 1 pp55-73

Shafer,Jr, E.L. and Richards, T.A. (1974) A Comparison of Viewer Reaction to Out Door Scenes and Photographs of those Scenes. USDA Forestry Service. Research Paper NE-302. North-eastern Forest Experimental Station, Upper Darby, Pa.,

Sherfield Report (1980) Scientific Aspects of Forestry. London, HMSO

Shuttleworth, S. (1980) 'The Use of Photographs as an Environment Presentation Medium in Landscape Studies' Journal of Environmental Management 11 pp61-76

Sidaway, R. (1990) 'Contemporary Attitudes to Landscape and Implications for Policy: a research agenda' Research Review 15: 2 pp2-6

Silsbury, M.J. (1990) 'Economic Prospects for Natural Management of Woodlands in the UK' Forestry 63:4 pp379-90

Silvanus (1991) Silvanus: The First Four Years CCP360 Cheltenham, Countryside Commission

Sims, S.J. (1998) A Review of Social Forestry Research and Practice. Forest Research Division, Forestry Commission

Slee, B, Clark, G.M. and Snowdon, P. (1996) The Potential for Community Participation in Forest Management in Rural Areas. Forestry Commission Final Report Edinburgh Crown Copyright

Souter, R. (1990) 'Conservation and Community Forests' Landscape Design Feb 187 pp21-23

Spellerberg, I.F, and Sawyer, J.W.D (1993) 'Bio-diversity in Plantation Forests: increasing levels and maintaining standards' in Ferris-Kaan (ed) Managing Forests for Biodiversity Forestry Commission Technical Paper No. 8 Edinburgh Crown Copyright

Spirin, A.W (1988) 'The Poetics of City and Nature: Towards a New Aesthetic for Urban Design'. Landscape Journal 7: 2

Stewart, P.J. (1988) Growing Against the Grain. Council for the Protection of Rural England, London

Stewart-roper, C. and Park, A. (Eds) (2000) The Living Forest: Non-market Benefits of Forestry. Forestry Commission (proceedings of International Symposium on Non-market Benefits of Forestry in June 1998). London, HMSO

Stroud, D. (1975) Capability Brown Faber and Faber

Swanwick, C. (1991) Landscape Assessment: Principles and Practice. Battleby, Countryside Commission for Scotland

Tahvanainen, L. Tyrvainen, L. Ihalainen, M. Vuorela, N. and Kolehmainen, O. (2001) 'Forest Management and Public Perception: Visual verses Verbal Information' Landscape and Urban Planning 53 pp53-70

Thompson, G. F. and Steiner, F.R (eds) (1997) Ecological Design and Planning New York, John Wiley and Sons.

Thorne, J. and Huang, C. (1991) 'Towards a Landscape Ecological Aesthetic: Methodologies for Designers and Planners in Landscape' Landscape and Urban Planning 21 pp61-80

Tompkins, S. (1989) Forestry in Crisis. The Battle for the Hills. London, Christopher Helm

Tragay, R. (1982) 'Nature and an Ecological Approach to Landscape Design: some thoughts on basic philosophy' in Ruff, A. and Tregay, R. An Ecological Approch to Landscape Design. Department of Town and Country Planning, University of Manchester

Treasury (1972) Interdepartmental Cost-benefit Analysis of Forestry London, HMSO

Tregay, R. (1985) 'A Sense of Nature: New Directions' Landscape Design, August 1985 pp 34-38

Tregay, R. and Gustarvsson, R. (1983) Oakwoods New Landscape : Designing for Nature in the Residential Environment. Warrington and Runcorn Development Corporation

Tregay, R. and Moffatt, J.D. (1980) 'An Ecological Approach to Landscape Planning, Design and Management in Oakwood, Warrington', Landscape Design 132 pp33-36.

Ulrich, R. S. (1983) 'Aesthetic and Affective Response to the Natural 'Environment in Altman, I. and Wohlwill,, I.F. (eds) Behaviour and the Natural Environment, vol 6, Human Behaviour and Environment. New York, Plenum

Uzzell, D. L. (1990) 'The Psychology of Landscape' Landscape Design 189: 1 pp34-35

Uzzell, D. L. (1991) 'Environmental Psychological Perspectives on Landscape' Landscape Research 16: 1 pp3-10

Uzzell, D. L. (1994) in Hubbard, P. 'Landscape Aethetics: Recent Advances in Theory and Research' Landscape Issues 11: 2 pp6-19

Wall, T. (1994) 'Revisiting the Picturesque' Landscape Design November 19

Warnock, S and Brown, N. (1998) 'Putting Landscape First', Landscape Design March pp44-46

Watkins, C, Williams D LLoyd T (1996) 'Constraints on Farm Woodland Planting in England: A study of Nottingham Farmers' Forestry 69: 2

Watkins, C. (1993) Forestry Expansion and Nature Conservation: Studies in the History of Ecology in Afforestation in Western Europe Wallingford, CAB International

Webster, A.D. (1917) Webster's Practical Forestry: a popular handbook on the rearing and growth of trees for profit or ornament London

Whitbread, T. (1991) County Woodland Strategies Royal Society for Nature Conservation

Williamson, D.R. (1992) Establishing Farm Woodlands Forestry Commission Handbook 8. London, HMSO

Willis, K.G. Benson, J.F. (1989) 'Recreation Values of Forests' Forestry 62: 2 pp93-110

Willis, K.G. Garrod, G.D. (1992) 'An Individual Travel-cost Method of Evaluating Forest Recreation' Journal of Agricultural Economics 42:1 pp33-42

Wilson, S. (2001) 'Assessing the Landscape' Landscape Design 297 Feb

Wood, R. and Handley, J. (2001) 'Landscape Dynamics and the Management of Change' Landscape Research 26: 1 pp45-54

Woodland Trust. (1996) Guidelines for Designing New Woodlands PL 25/26 Woodland Trust

Zube, E.H. (1984) 'Themes in Landscape Assessment Theory' Landscape Journal 3: 104 1

Zube, E.H. Pitt, D.G. and Anderson T.W. (1974) Perception and Measurement of Scenic Resources in the Southern Connecticut River Valley, R-74- 1 North-east Utilities Services Company, Hartford Connecticut.

Zuckerman Committee (1957) Report of the Natural Resources (Technical) Committee: Forestry, Agriculture and Marginal Land. London, HMSO

FOREST LANDSCAPE DESIGN POSTAL QUESTIONNAIRE: RESULTS SUMMARY

A summary of the questionnaire results question by question is shown below and includes notes on the methodology.

1 The Sample

210 questionnaires were sent out, 151 completed questionnaires were returned. Question 1 asked for the name of the respondent's organisation, while Question 3 asked for their name

1.1 Interests of Organisation and Source of Funding (Q2)

Respondents were asked 'Which of the following categories best describes the interests of your organisation?' The responses were divided between two categories: Productive interests; those working with production and commercial objectives and Protective interests; those working with enhancement and conservation objectives, as defined in Appendix 4, Subset 2. Table App.1.1 shows the leading interest of organisations that took part in the survey.

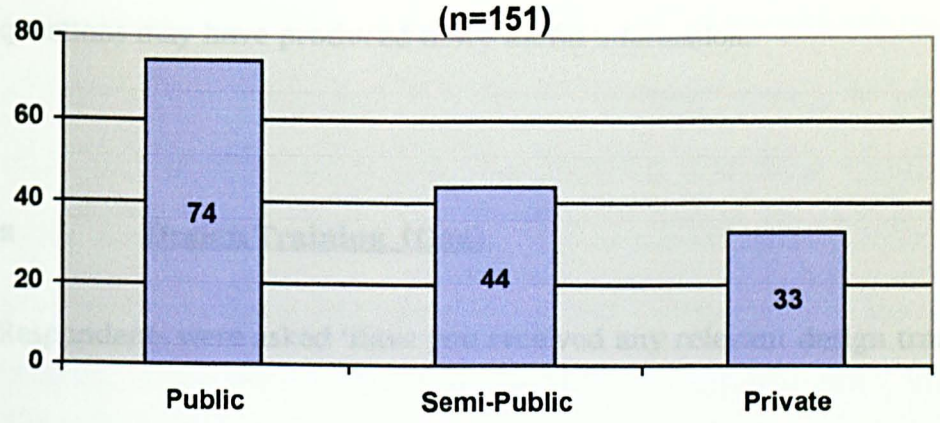
Table App.1.1 Respondents by Organisation Type and Interest

Interests of Organisation.		
Interest	**Organisation Interest**	number
Protective: Landscape & Environmental Interests	Local Authorities	23
	Community Woodland offices	11
	Groundwork Trusts	13
	Landscape architecture practices	11
	Woodland Trusts	8
	Anglia Woodland Project	1
	National Forest office	2
	sub-total	**69**
Productive: Commercial & Productive Interests	Forestry Authority	26
	Forest Enterprise	23
	Farm Woodland Advisory Group	12
	Agricultural Development Advisory Service	6
	Forestry companies	15
	sub-total	**82**
	Total	**151**

1.2 Organisation Funding

The responding organisations could further be categorised by the way they were funded as defined in Appendix 4, subset 2 and this grouping allows their status to be defined as public, semi-public or private.

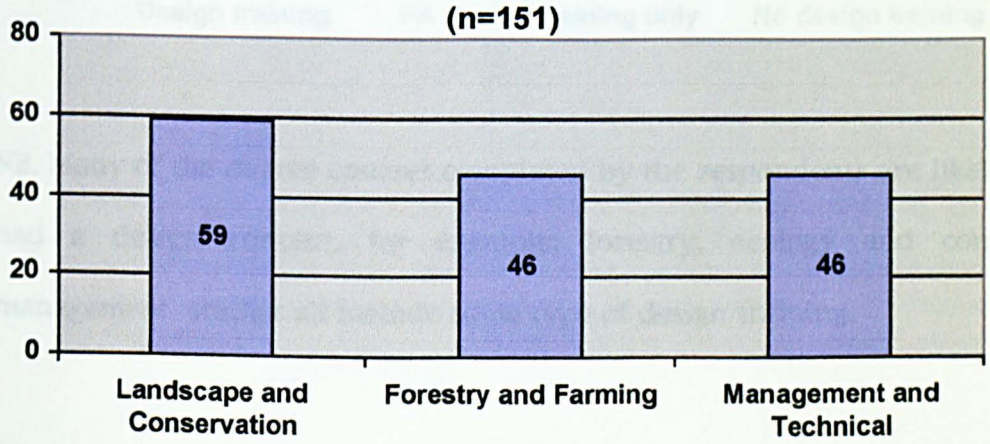
Figure App.1.1. The Respondents' Organisations' Funding Status



1.3 The Respondents' Working Priorities (Q4)

Respondents were asked to state their position within the organisation. Their responses were placed in either one of three categories: Landscape and Conservation; Forestry and Farming or Management and Technical, depending on the nature of their work as indicated by their job title, as defined in Appendix 4, subset 3.

Figure App.1.2 The Respondents' Working Priorities



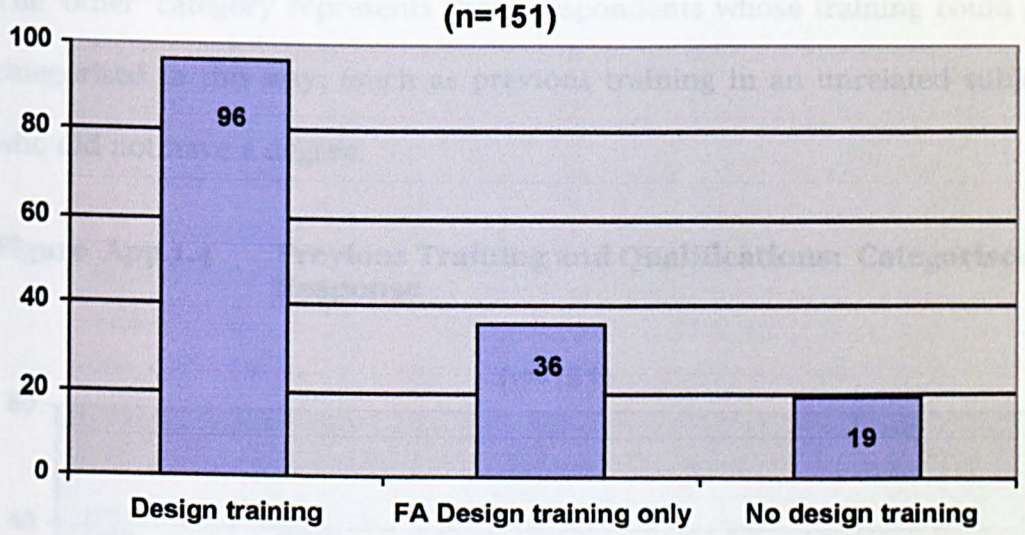
NB. This question was intended to allow the categorisation of respondents by working practice, for example, to separate design/management employees from those with hands-on experience, in order to see if respondents' needs or opinions of the advice differed with use. However because of the diverse job

titles represented in the sample it is impossible to establish anything more than the respondents' general field of work. A more specific question or series of questions may have produced more useful information.

2 Design Training (Q5a)

Respondents were asked 'Have you received any relevant design training?'

Figure App.1.3 Type of Training Received by Respondents



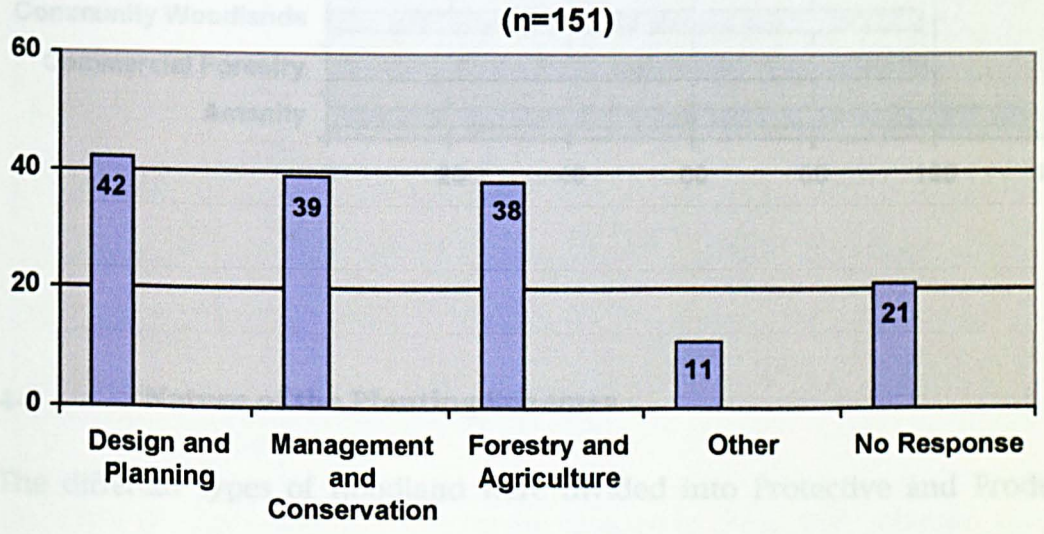
NB. Many of the degree courses completed by the respondents are likely to have had a design content, for example: forestry, ecology and conservation management studies all include some type of design training.

3 Previous Training (Q5b)

Respondents were then asked to state any training/qualifications (stating subject) and/or experience they have. Although details of experience were asked for, so little information was provided that these responses were not coded and left out of the analysis. The responses could be placed into three categories, as defined in Appendix 4, subset 4, depending on the nature of their training. These were; Design and Planning; Management and Conservation and Forestry and Farming.

The 'other' category represents those respondents whose training could not be categorised in this way, (such as previous training in an unrelated subject) or who did not have a degree.

Figure App.1.4 Previous Training and Qualifications: Categorised Response



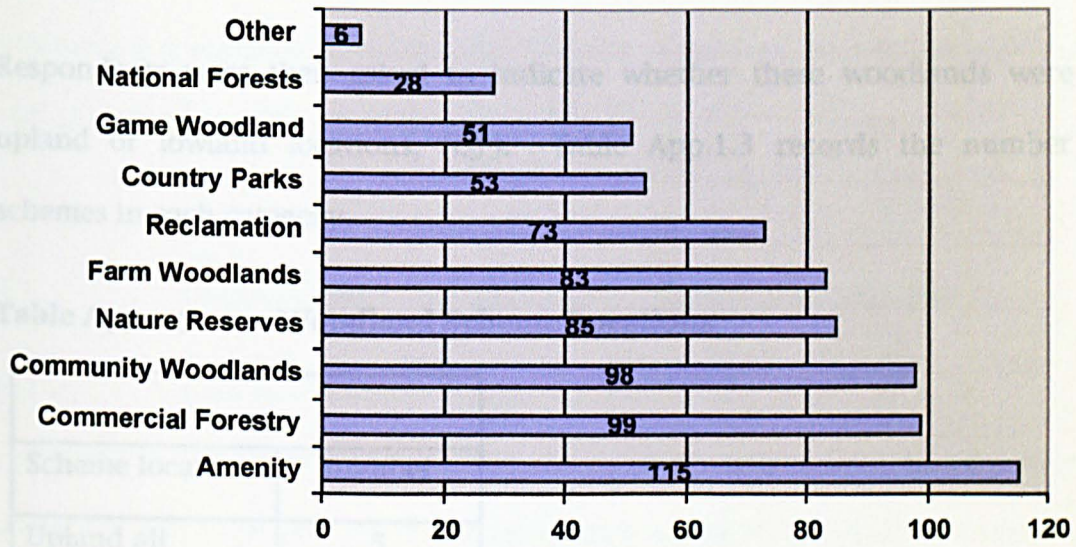
NB. In the 'Other' category training was limited to archaeology, soil studies, and water management.

4 Respondents' Work (Q6-Q7)

4.1 Type of Woodland Scheme (Q6)

Respondents were asked 'With which of the following types of woodland have you been involved?'. Respondents indicated that they had worked on 691 schemes, these schemes could be placed in one of ten categories, this was a multiple response question. Figure App.1.5 shows the responses.

Figure App.1.5 Number of Woodland Schemes



4.2 Nature of the Planting Schemes

The different types of woodland were divided into Protective and Productive categories according to the planting objective of the scheme (Appendix 4, subset 5). Table App.1.2 records the number of schemes in each category.

Table App.1.2 Planting Objectives

Nature planting schemes		
Planting objective	Schemes	
	number	prop
Productive	233	0.34
Protective	452	0.65
Not possible to categorise	6	0.01
Total	691	

Respondents were then asked to indicate whether these woodlands were in upland or lowland locations, (Q7). Table App.1.3 records the number of schemes in each category.

Table App.1.3 Woodland Scheme Locations

Scheme location	number
Upland all	5
Lowland all	70
Upland and Lowland	75
Total	150

NB. Only 85 respondents went on to categorise their 150 schemes as either upland or lowland.

4.2.1 Methodology note:

As respondents were given the option to indicate 'both' for each planting location it is not possible to accurately compare the number of schemes taking place in upland or lowland situations. Although the FA offer advice for upland and lowland situations, it appears that in reality these categorisations do not reflect current planting activity because evidently very few respondents are working on exclusively upland schemes and many are working in both locations. This means that numbers in the 'all upland' category are going to be too small to work with. As a consequence it is not helpful to carry out any analysis related to the planting location (upland and lowland) variable, for example, analysis to establish if a schemes' location and planting objectives or a schemes' location and the use of specific guidelines are related.

5 Access and Use of the FA's Design Guidelines (Q8-Q9)

5.1 Access to the Guidelines (Q8)

Respondents were asked about their access to FA guidelines. All respondents answered this question. 20 respondents have access to 1 report, 16 have access to 2 reports and 98 have access to all 3 reports. 17 respondents do not have access to any reports.

5.2 Use of the FA Design Guidelines (Q9)

Respondents were asked, 'Do you have access to any of the following FA design guidelines?' and were given the choice of the four:

a) Forest Landscape Design 1989

b) Community Woodland Design 1991

c) Lowland Landscape Design 1992

d) Forest Landscape Design 1994

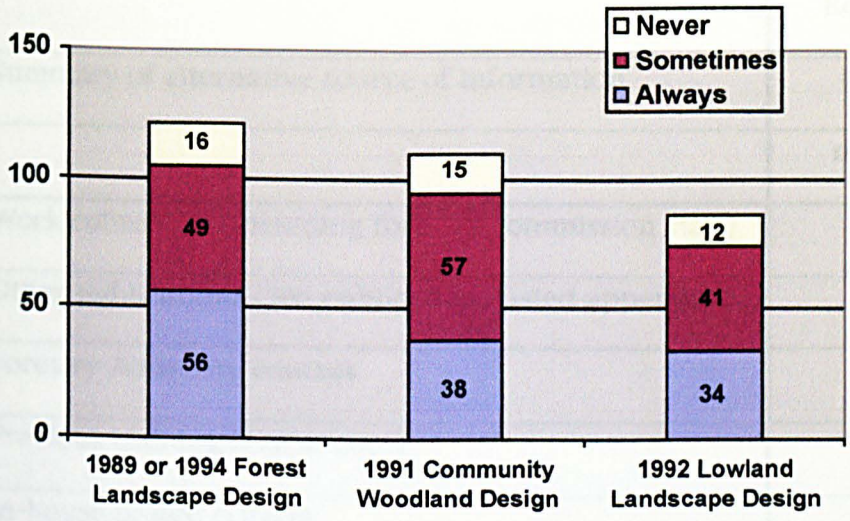
They were then asked to indicate to what extent they use the FA's design advice when designing woodland planting: always, sometimes or never, for each report. Table App.1.4 shows both access and the level of use of the individual guidelines and Figure App.1.6 illustrates this with a stacked bar chart.

Table App.1.4 Access and Use of the Guidelines

Which Guideline	Access (n=134)	Use of the design guidelines		
		Use: always	Use: sometimes	Use: never
	number	number	number	number
1989 or 1994 Forest Landscape Design	121	56	49	16
1991 Community Woodland Design	110	38	57	15
1992 Lowland Landscape Design	97	34	41	12

NB. As the 1994 Forest Landscape Design report superseded the 1989 report, only D responses are used, if report D is not available to the respondent A. is substituted. Also, if the publication was not available in Q8, any response entered as 'never' was altered to 'blank' because it is important to see which reports - although available- were not referred to.

Fig App.1.6 Guidelines and their Use



6 Additional Advice (Q10-Q12)

In order to assess whether the advice is complete these questions looked at the advice designers use to supplement the FA's guidelines and the nature of this supplementary advice

6.1 Additional Sources of Woodland Design Advice (Q10a-10b)

Respondents were asked, 'Do you use any other sources of woodland design advice, FA or other?' and then asked to state the source of this information. 100 respondents said they used additional advice, 51 respondents stated they do not. Table App.1.5 categorises the respondents statements by the source of the additional advice.

Table App.1.5 Sources of Alternative Advice

Sources of advice	Response
Summary of alternative source of information	(n=90)
	number
Work colleagues (including forestry commission staff)	38
Other publications (See publications listed appendix 5)	31
Forestry Authority courses	14
Previous training course notes	8
In-house design criteria	5
Personal experience	4

Respondents could cite more than one source of additional advice

Table App.1.6 categorises the nature of the additional advice used, by the advice offered on the various sources of the advice stated in Table App.1.5.

Table App.1.6 The Nature of Additional Advice

Nature of additional advice	Response	
	(n= 90)	
	number	prop
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

6.2 In-house Design Guidelines (Q11a-11b)

Respondents were asked, 'Have you produced in-house woodland design guidelines?' and if so to state their reasons for supplementing the available advice. Of the 145 respondents who answered this question, 109 respondents had not produced their own guidelines, while 36 respondents had. Table App.1.7 shows the number of respondents who work with in-house advice and categorises their reasons for doing so.

Table App.1.7 Reasons for Producing In-house Advice

Reasons	Response (n=36)
	number
The need for local or site specific design advice	12
To help with the interpretation of the existing FA advice	8
To provide missing information	8
Because their design objectives are different to FA's	4
Other-not able to code reason	4

6.3 FA Woodland Design Courses (Q12a-12b)

Respondents were asked, 'Have you attended a FA forest landscape design course?' **Table App.1.8** shows how many respondents attended a course and which course they attended.

Table App.1.8 Attending an FA Design Course

FA Design Courses			
Number of courses attended	All respondents	**Which Design Course**	All respondents
	number		number
One course	73	Upland only	36
Two courses	21	Lowland only	37
No course	57	Upland & Lowland	21
Total	151	**Total**	94

6.3.1 Methodology note:

Respondents were only given the choice of upland and lowland courses and where respondents indicated they had attended a community woodland course their scores were included within the lowland category - because the FA produced this advice primarily for lowland situations. Here the community woodland course should have been given a separate category and the implications for this omission are that a smaller number of respondents may have attended a lowland type course than the results show.

7 Useful Aspects of the FA Guidelines and Courses (Q13-Q14)

Respondents who used the FA Guidelines were asked to indicate how useful they found different aspects of the FA's design advice. The advice offered in the guidelines was placed into eight broad categories, (all advice was included) and respondents were given the choice of; 'very useful', 'useful' or 'not useful' to indicate their opinion. Table App.1.9 shows the response.

Table App.1.9 Usefulness of the Guideline Advice

Aspects of Design Advice	Respondents using advice (n=141)	Contents Very useful	Contents Useful	Contents Not useful
	number	number	number	number
Advice on Woodland Planning	100	19	73	8
Landscape Assessment	115	61	51	3
Planting Objectives	109	23	73	13
Visual Design Principles	116	66	45	5
Detailed Design Advice	114	34	75	5
Silvicultural Advice	107	28	64	15
Management Systems	99	27	62	10
Conservation Strategies	117	45	67	5

NB. sum 141 = access to the advice is 134 +7 respondents who although do not have access to the guideline reports have attended a course. Any blank boxes were left blank

7.1 Non-users Response to the Advice (Q14)

Question 14 asked those respondents who do not have access to, or use the guidelines, to indicate which aspects of the advice they may find useful when designing woodland schemes. Table App.1.10 shows the degree and nature of their response.

Table App.1.10 Non-users' Response to Usefulness of the Advice

Advice considered useful to non- users			
Respondents welcoming advice		Useful Advice	
Amount of advice	(n=19)	Aspects of the advice	(n=19)
	number		number
No aspects of the advice	0	Woodland Planning	11
1 - 3 aspects of the advice	3	Landscape Assessment	14
4 - 6 aspects of the advice	6	Planting Objectives	14
7 - 9 aspects of the advice	10	Design Concepts	14
non response	3	Visual Design Principles	12
		Detailed Design Advice	12
		Silvicultural Advice	13
		Management Systems	14
		Conservation Strategies	16

NB. n = 19, respondents who do not use or have access to the advice

8 User Response to the Nature of the Advice, (Q15-Q16)

This section collects information on the respondents' attitude towards the advice.

8.1 Ease of Understanding (Q15a-Q15b)

Respondents were asked, 'Is the FA' advice easy to understand?', (Q15a) and then if they answered 'yes' or 'some of it', they were asked (Q15b) to state which advice they considered difficult to understand. Due to the form of this question,

which may appear ambiguous, the response to this part of the question was removed from the analysis.

Table App.1.11 Ease of Understanding of the Advice

Easy to understand	
Is the advice easy to understand?	Respondents (n= 134)
	number
Yes	103
No	16
non response	15

NB. n=134 with access

8.2 Appropriateness of Advice (Q16a-16b)

Respondents were asked, 'Are there any aspects of the design advice offered in the FA's guidelines which you think may be inappropriate?' Of the 134 respondents who answered this question, 89 did not regard any of the advice as inappropriate, while 19 respondents did. The 19 individuals who felt some aspects of the advice were inappropriate were then asked to identify which aspect. Table App.1.12 records the aspects of advice that are considered inappropriate.

Table App.1.12 Appropriateness of Advice

Inappropriate advice	
Aspect of the advice	Aspects considered inappropriate
	Respondents (n= 15)
	number
Woodland Planning	1
Landscape Assessment	1
Planting Objectives	2
Design Concepts	0
Visual Design Principles	1
Detailed Design Advice	2
Silvicultural Advice	1
Management Systems	1
Conservation Strategies	1
non response	5

8.2.1 Methodology note:

This question was badly phrased as respondents were not offered the option to comment on appropriate advice - the assumption was made that if there is nothing inappropriate it must be considered appropriate. It may have been better to ask respondents to rate the degree to which they considered how appropriate each aspect of the advice is to their work appropriate, and to offer the options; very appropriate, appropriate, not very appropriate and inappropriate.

9 Further Advice (Q17a-17b)

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 a designer?' and if so to state it. Table App.1.13 records their responses which could be categorise into three broad groups.

Table App.1.13 Further Advice

Any further Advice?	Response (n=129)	Categorised summary of Further Advice	Response (n=75)
	number		number
Yes	97	Comments relating to design issues	41
No	32	Comments relating to woodland management & ecology	18
non response	22	Alternative sources of advice for a designer	14
		Responses which could not be coded	2
Total	151	**Total**	75

10 Other Comments, (Q18a-Q18b)

In an open question respondents were offered the opportunity to give their opinion of the FA's design advice or their views on forest landscape design in general. The nature of the respondents' comments varied a great deal but 66 of the 82 comments were sufficiently related to enable them to be divided into two main categories: 'general comments' and 'specific comments' and these could be further categorised by their subject matter. Table App.1.14 records, summarises and categorises their responses.

Table App.1.14 Other Comments

Other Comments					
Other comments	Response (n=151)	General comments on:	Response (n=66)	Comments on specific aspects of the advice	Response (n=66)
	number		number		number
Comments	82	The design process	18	Aspects of 'scale' in the advice.	8
No comment	69	Experience and training	14	Conservation advice	6
		Suggestions for more advice	6	The emphasis on the guidelines	4
				A commercial forestry bias	3
				Advice inappropriate to work	7
Total	151	**Total**	38	**Total**	28

10.1 Table App.1.14 General Comments Section:

This section defines and describes respondents' statements in the general comments category.

The **38** (0.3) statements could be grouped under three headings:

a) Design Process:

Forest landscape design in the context of the forest design process.

18 (0.5) of these general statements commenting on the concept of forest landscape design as a small part of the forest design process. 5 statements considered that aesthetic ideals were wrongly valued above functional and practical aspects of forest design, for example, '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 (0.6) of the comments stressed the importance to the designer of training and

experience, 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:

6 (0.2) of these comments suggest the inclusion of more advice in the guidelines for example,' Need more focus on regional identity and coastal woodland establishment', however, there is no consensus on the aspects of further advice

These general comments on the whole suggest that respondents may not be completely satisfied with the advice they have and would welcome further advice. One major concern that emerges is that respondents feel that it is important for designers to understand that forest landscape design is only a part of the forest design process and that both forestry and design training and experience are necessary to design the forest landscape successfully.

10.2 Table App.1.14 Specific Comments Section:

This section defines and describes respondents' statements in the specific comments category.

The **28** (0.4) statements could be grouped under four headings;

a) The Design Advice Related to Scale of the Plantations

8 (0.1) of these specific 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) Conservation Advice

6 (0.1) of these comments talked about developing or introducing more advice on habitat and conservation, for example, ' a recognition for the need for non-intervention areas would be good to see'

c) Content of Guidelines - emphasis

4 (0.1) suggested that the contents lay 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. Current advice on design could be improved with an understanding of upland soils and wind-throw issues'

d) Commercial Forestry Bias

3 (0.04) suggested a bias towards design for commercial timber production, for example, 'still too focused on plantation techniques from commercial soft wood forestry'

e) Advice Inappropriate to Respondents' Work

7 (0.1) respondents consider the advice to be inappropriate in some aspect 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. Only internal design becomes relevant'.

11 The Tone of Comment

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. This was done by categorising the 82 comments offered in 'Other Comments' (Q18), as either expressing a positive opinion of the

advice (pro-FA advice), a negative opinion (anti-FA advice) or a neutral opinion. Table App.1.15 summarises this categorisation.

Table App.1.15 Tone of Respondents' Comments

Tone of Comment	Respondents	
	number	prop
Neutral - neither pro or anti FA. advice	38	0.5
Pro FA advice	15	0.2
Anti FA advice	19	0.3
Total	72	

FOREST LANDSCAPE DESIGN QUESTIONNAIRE

This questionnaire concerns the design of new and existing woodland planting and should be completed by individuals responsible for design work.

1) Organisation name _____

2) Which of the following categories best describes the interests of your organisation?

Please tick one only

Landscape Architecture	☐
Forestry	☐
Environmental Agency	☐
Farm/Private estate management	☐
Local Authority/Public estate management	☐
Central Government	☐
Other- please tick box & state	☐

_____

3) Your Name _____

4) Position held by you _____

5a) Have you received any relevant design training?

Please tick the appropriate box

Yes ☐

No ☐

b) Please state any training/qualifications (stating subject) and/or experience you have:

6) With which of the following types of woodland have you been involved?

Please state approximate number of schemes.

Commercial forestry	☐	Farm woodlands	☐
Community Woodlands	☐	Country Park woodland	☐
National Forests	☐	Reclamation woodland	☐
Game woodland	☐	Nature reserve woodland	☐
Amenity woodland	☐		

Other tick box and state ☐ _____

7) were these woodlands:

Please tick

Upland plantations (over 240 m)	all	☐
	some	☐
	none	☐
Lowland plantations	all	☐
	some	☐
	none	☐

8) Do you have access to any of the following Forestry Authority's (FA) Design Guidelines? Please tick:

A	Forest Landscape Design	1989	☐
B	Community Woodland Design	1991	☐
C	Lowland Landscape Design	1992	☐
D	Forest Landscape Design	1994	☐

9) If yes to question 8, to what extent do you use the FA's Design Guidelines when designing woodland planting;

	A	**B**	**C**	**D**
always				
sometimes				
never				

10a) Do you use any other sources of woodland design advice, FA or other?

Yes ☐

No ☐

10b) if yes please state the source of advice, including taught courses.

11a) Have you produced in-house woodland design guidelines?

Yes ☐

No ☐

b) if yes please state why you felt this was necessary.

12a) Have you attended a FA woodland design course? Please tick :

Yes ☐

No ☐

b) if yes which course?

Upland Design ☐

Lowland Design ☐

Community Woodland Design ☐

13) If you have used the FA's Design Guidelines or attended a FA course please say to what extent you have found the following aspects of the design advice useful.

	Very useful	Useful	Not useful	Not Used
a) Aspects of Woodland Planning e.g. advice on the planning process, land ownership, woodland layout, size etc.				
b) Landscape Assessment e.g. advice on the content, techniques & analysis of the appraisal & survey process.. Advice on the assessment of a landscape's character, visual quality & sensitivity.				
c) Planting Objectives e.g. advice on planting for recreation, reclamation, timber production, game, conservation and integration etc.				
d) Design Concepts (Community Woodland advice only) e.g. advice on different woodland concepts & sources of ideas.				
e) Visual Design Principles i.e. Shape, Scale, Visual force, Unity, Diversity, Spirit of Place				

Very useful Useful Not useful Not Used

f) Detailed Design Advice

e.g. layout of roads, footpath networks,

open space systems, service corridors,

design of woodland views, margins etc.

g) Silvicultural Advice

e.g. advice on choice of woodland type

(high forest, coppice etc), selection of

tree species and mixes, woodland structure

& establishment timing.

h) Management Systems

e.g. advice on felling, restocking, coupe

& belt design, cultivation & drainage,

fencing & tree shelters. Advice on assessing

the implications of management activities.

i) Conservation Strategies

e.g. design of rides, glades and edges,

hedgerows, wetlands, steam sides &

lake sides, species choice etc.

14) If you have not used the FA's Design Guidelines, please indicate (by underlining letters below) which aspects of the advice stated in question 13 (a-i) sound as though they might be useful to you.

a b c d e f g h i

go on to question 17

15a) Is the FA's Advice easy to understand?

Yes ☐

No ☐

Some of it ☐

b) if yes or some of it please state which advice you consider difficult to understand?

please refer to the headings in question 13 (**a-i**)

16a) Are there any aspects of the design advice offered in these

FA's publications which you think may be inappropriate?

Yes ☐

No ☐

b) if yes please state which advice you consider inappropriate and why?

17a) Is there any further design advice, not offered in the FA's

Guidelines available to you, which you feel would be helpful to a designer?

Yes ☐

No ☐

b) if yes please state

18) I would be very interested to hear any other comments you have on the FA's Design Guidelines or on woodland design in general.

Other comments:

CODING SHEET FOR THE POSTAL QUESTIONNAIRE

	CODING
1) Organisation name	**text, unique**

2) Which of the following categories best describes the interests of your organisation?

Landscape Architecture	= **1** (private L.A.'s practices)
Forestry	= **2** (private forestry companies)
Forestry Commission	= **3** (FE /FA)
Community Forests	= **4** (CF / NF)
Woodland Trust	= **5**
Local Authority	= **6**
ADAS	= **7**
FWAG	= **8**
Groundwork Trusts	= **9**
Anglia Wlnd Pro	= **10**

Group A	Landscape/environment interests	= **1,4,5,6,9,10**
Group B	Commercial/productive interests	= **2,3,7,8**

Organisation Status	Private	**= 1**
	Public	**= 2**
	Semi-public	**= 3**
	Non-response	**= 9**

3) Your Name: **text, unique**

4) Position held by you: **text, unique**

Landscape design/ conservation priorities	**= 1**
Land use - forestry/ farming and priorities	**= 2**
Management and technical priorities	**= 3**

5) Have you received any relevant design training?

Yes	**= 1**
No	**= 2**
FA only	**= 3**

please state any training/qualifications (stating subject) and/or experience you have.

Design/planning	**= 1**
Forestry	**= 1**
Ecology / Bio / Hort / Arbori	**= 1**
Management - Enviro (science)/ Conserv / Habitat / Land Res / Recre	**= 1**
Agriculture	**= 1**

Other statement = **1**

6) With which of the following types of woodland have you been involved; approximate number of schemes.

Commercial forestry	}	
Community Woodlands	}	
National Forests	)	
Game woodland	)	
Farm woodlands	}	**Enter 1 in any box ticked**
Country Park woodland	}	
Reclamation woodland	}	
Nature reserve woodland	}	
Amenity woodland	}	

Other statement = **1**

number of schemes:

1-5	= **1**
6-10	= **2**
11-30	= **3**
over 31	= **4**
non-response	= **9**

7) Were these woodlands:

Upland (over 240 m)	all = **1**	none = **2**	some = **3**
Lowland	all = **1**	none = **2**	some = **3**

8) Do you have access to any of the following FA's Design Guidelines?

Forest Landscape Design 1989 }
Community Woodland Design } yes = **1**
Lowland Landscape Design } no = **2**
Forest Landscape Design 1994 }

9) Do you use the FA's Design Guidelines when designing woodland planting;

1989 }
1991 } Always = **1**
1992 } Sometimes = **2** No access to advice = **9**
1994 } Never = **3**

10) Do you use any other sources of woodland design advice, FA or other?

Yes = **1**

State the source of advice-including taught courses

Statement = **1**

Explanation = **text**

11) Have you produced in-house design guidelines?

Yes = **1**

No = **2**

State why you felt this was necessary.

Statement = **1**

Explanation = **text**

12) Have you attended a FA woodland design course?

Yes = 1

No = 2

which course?

Upland Design = 1

Lowland Design and/
or Community Woodlands = 2

Upland Design and Lowland Design = 3

13) If you have used the FA's Guidelines or attended a FA course please say to what extent you have found the following aspects of the design advice useful.

Very useful = 1 Useful = 2 Not useful = 3 Not Used = 4

1 Aspects of Woodland Planning

2 Landscape Assessment

3 Planting Objectives

4 Design Concepts - if CW report not accessible this should be blank.

5 Visual Design Principles

6 Detailed Design Advice

7 Silvicultural Advice

8 Management Systems

9 Conservation Strategies

14) If you have not used the FA's design Guidelines, indicate which aspects of the advice stated in question 13 (a-i) sound as though they might be useful to you.

Each one indicated = **1**

1 Aspects of Woodland Planning

2 Landscape Assessment

3 Planting Objectives

4 Design Concepts

5 Visual Design Principles

6 Detailed Design Advice

7 Silvicultural Advice

8 Management Systems

9 Conservation Strategies

15) Is the FA Advice easy to understand?

Yes = **1**

No = **2**

Some of it = **3**

if yes or some of it please state which advice you consider difficult to understand?

Each one indicated = **1**

1 Aspects of Woodland Planning

2 Landscape Assessment

3 Planting Objectives

4 Design Concepts

5 Visual Design Principles

6 Detailed Design Advice

7 Silvicultural Advice

8 Management Systems

9 Conservation Strategies

16) Are there any aspects of the design advice offered in these FA reports which you think may be inappropriate?

Yes = **1**

No = **2**

if yes please state which advice you consider inappropriate and why?

1	Aspects of Woodland Planning	}	
2	Landscape Assessment	}	
3	Planting Objectives	}	
4	Design Concepts	}	Each one indicated = **1**
5	Visual Design Principles	}	Statement = **text**
6	Detailed Design Advice	}	
7	Silvicultural Advice	}	
8	Management Systems	}	
9	Conservation Strategies	}	

17) Is there any further design advice, not offered in the FA Guidelines available to you, which you feel would be helpful to a designer?

Yes = **1**

No = **2**

Statement = **text**

18) Other comments you have on the FA Guidelines or on woodland design in general.

Yes = **1**
Statement = **text**

DESCRIPTION AND CODES OF SUBSETS FOR POSTAL QUESTIONNAIRE:

1. Organisation Status Categories

Subset 1:

The organisations that respondents are working for can be categorised by their funding as follows:

Public : those organisations run with Government funds.
Forest Enterprise , Forestry Authority, Local Authorities, Anglian Woodland project

Private : those organisations run without Government funds.
Landscape Practices,Forestry Companies,Woodland Trusts

Semi-public : those organisations run with the aid of Government funds
Agricultural Development Advisory Service, Farm Woodland Advisory Group, Community Woodlands, National Forest, Ground Work Trusts, Scottish Agricultural College

2. Operational Objectives

Subset 2:

This Subset categorises respondents by the interests of their organisation as follows:

	codes
Productive : production and commercial interests	**2,3,7,8**
Protective : Landscape enhancement and conservation interests	**1,4,5,6,9,10**

Organisations:	**codes**
Landscape Architecture Architects	**1** (private Landscape practices)
Forestry companies)	**2** (private forestry
Forestry Commission Enterprise/Forestry	**3** (Forest Authority)
Community Woodlands Woodland/National	**4** (Community Forest)
Woodland Trust	**5**
Local Authority	**6**
Agricultural Development Advisory Service	**7**
Farm Woodland Advisory Group	**8**
Groundwork Trusts	**9**
Anglia Woodland Project	**10**

3. Working Priorities

Subset 3:

This Subset categorises respondents by their job descriptions as follows:

	codes
Landscape and Conservation	**1,2,3,4,**
Forestry and Farming	**5,6**
Management and Technical	**7,8,9,10,11,12,13**

Farm Conservation Officer	**1**
Landscape Architect	**2**
Project Officer	**3**

Landscape Officer	**4**
Forest District Manager	**5**
Forestry Officer	**6**
Technical support officer	**7**
Conservator	**8**
Project Development Officer	**9**
Operations Manager	**10**
Harvesting Manager	**11**
Project Manager	**12**
Business Development Manager	**13**

4. Respondents' Qualifications

Subset 4:

This Subset categorises respondents by their qualifications as follows:

Design/Planning = qualifications	Design and/or planning related
Forestry/Agriculture = qualifications	Forestry and/or agriculture related
Management/Conservation = arboriculture	Ecology, biology, horticulture, environmental(science), conservation , land resource, recreation related qualifications

5. Planting Objectives

Subset 5:

This Subset categorises the types of woodland planting taking place as follows:

	codes
Productive: production and commercial objectives	**1,2,7**

Protective :	
enhancement and conservation objectives	**5,6,8,3,4,5,9**

Woodland scheme categories	**codes**
Commercial forestry	**1**
Farm woodlands	**2**
Community Woodlands	**3**
Country Park woodland	**4**
National Forests	**5**
Reclamation woodland	**6**
Game woodland	**7**
Nature reserve woodland	**8**
Amenity woodland	**9**

RECOMMENDED LITERATURE (Q17a):

DoE publications - unspecified

CoCo , publications- unspecified

Nancy Diaz, work on landscape ecology and design - unspecified.

Dutch work on recreational woodland design - unspecified.

Bell S, Elements of Visual Design in the Landscape

Lucas O, The Design of Forest Landscapes

FE, Southern Scotland Regional Instructions.

RECOMMENDATIONS FOR OFFERING FOREST LANDSCAPE DESIGN ADVICE

1 That there is a need to review the theoretical basis on which the current FA's forest landscape design advice is offered.

2 That an updated view (based on the emerging paradigm for landscape aesthetics) should be used as the theoretical bases for design advice for forest landscapes. This framework would accept that an understanding of all the factors concerned with the way people perceive and experience environments is relevant to exploring design solutions.

3 That in view of the re focusing of government forestry strategy in 2000 it is necessary that the current guidelines are reviewed and re-worked with reference to the implications of current government forestry policy and policy objectives for the designer.

4 That the preparation of guideline advice takes into account the existence of FA controls, whether in the form of strategies, guidelines, standards or general advice, in order that the designer can identify their implications and judge their relevance to their design proposals.

5 That any detailed advice is ideally supported by research findings and that the guidelines acknowledge and reference the findings of existing and current research whether FA or other, where it is relevant to the design of forest landscapes.

6 The Visual Design Principles:

That the existing visual design principles, (shape, visual force, scale, diversity, unity, spirit of place) are removed to the design process to be used in the visual analysis stage of the design process. Develop new design principles that relate to the design theory.

7 The Design Process

That the existing definitions and descriptions of the design process are reviewed and that the existing design process is re-defined, brought into line with current landscape thinking and stated consistently throughout the guidelines.

8 That the design process is placed at the centre of the search for design solutions, in order to allow all issues relevant to forest landscapes to be considered and weighted.

9 Aesthetics-led design advice:

That the FA re assess the importance of achieving visual design solutions to every forestry proposal, as the importance of the visual landscape in a design should evolve through the landscape analysis stage of the design process. That the guidelines should avoid offering advice that dictates design solutions based on achieving preconceived notions of beauty.

10 That an approach to offering advice that acknowledges the implications of the relationship between form and function in a forestry should be considered.

11 Landscape Character:

That the concept of landscape character should be re-defined and brought into line with updated thinking and be consistently stated. This definition would accept that character is an important landscape force within the landscape with visual, physical and cultural, implications that is central to design advice for forest landscapes.

12 The Guideline objectives

That the guidelines need to be clear on their objectives, whether they represent a teaching aid or a quality standard. If the guidelines are intended to be both the advice should be separated and designated accordingly.

13 Style and Tone of the Advice

That the style and tone of the existing advice should be reconsidered. That it should avoid specific and formulaic advice that expresses value judgements and subjective views, and keep the tone of the advice neutral and explanatory.

14 Presentation of the Advice:

That the guidelines do not offer advice in terms of a landscapes' geological location, that is upland and lowland advice. Instead consider presenting the advice in a way that focuses on how designers would use the guidelines.

15 That, in order for the advice to be most useful the contents of the guidelines should relate directly to the needs of the user group.

16 That the guidelines should provide or reference all the information related to current forestry activity in order to offer advice relevant to all planting proposals, whatever the proposal's locations, planting objectives, concept or system.

17 That the guidelines should provide or reference all the information needed to compliment the existing skills of designers whatever their training or experience.

18 That the advice should identify those landscape elements over which a designer can exert some form of control and discuss in detail the opportunities and constraints that each element affords the designer in terms of a visual design solutions.

19 That the guidelines should out-line a mechanism whereby designers can weigh the importance of a visual design solution in relation to a sites visibility and furthermore judge where and how to focus design effort.

20 That the guidelines should contain a referencing framework that allows the implications of a design decision to be cross checked against the visual, physical, biological and cultural issues relevant to a proposal.

WOODLAND PERCEPTION FIELD SURVEY: Instructions to students

You will be asked to look at 9 woodlands at different places along the route and complete a questionnaire at each view point.

This information will help you to establish the importance of various woodland and landscape elements at different distances, how these elements relate and whether they make a positive or negative contribution to our perception of the landscape.

How to complete the table:

1 For each of the views please indicate, by ticking the appropriate box, which characteristics you are most aware for each of the aspects stated (you may tick none, one or more than one box).

2 In the Contribution column please say whether you think these elements make a negative or positive contribution to the scene and in the Reason column explain this answer (use a sentence rather than a word please).

You will have a separate table for each view and given 20 minutes to complete each questionnaire.

EXAMPLE
If you are most aware of the colour and texture of individual trees fill in the table like this;

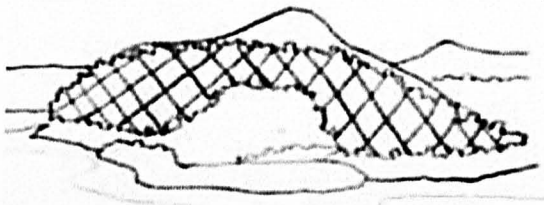
	Characteristic											
Aspect	Shapes	Sizes	Tree species	Colours	Density	Textures	Diversity	Pattern	Ratio-wood to land	Contribution Positive	Contribution Negative	Reason
Individual trees				/		/				/		the colour & texture of different species makes pleasing contrast.
The woodland interior									void			

* Where cells are indicated 'void' it is not possible to make the assessment

Awareness Questionnaire — PART 2 LOCATIONS

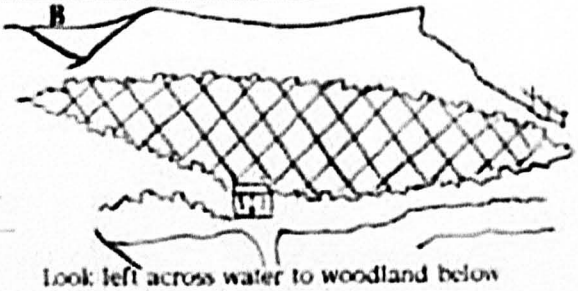
The hatched area indicates which woodland you are being asked to assess.

A



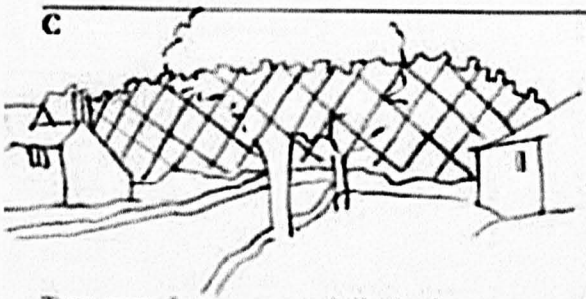
Look directly ahead over the fence across the water to the plantation.

B



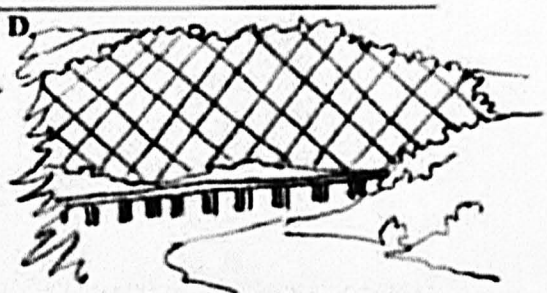
Look left across water to woodland below ridge.

C



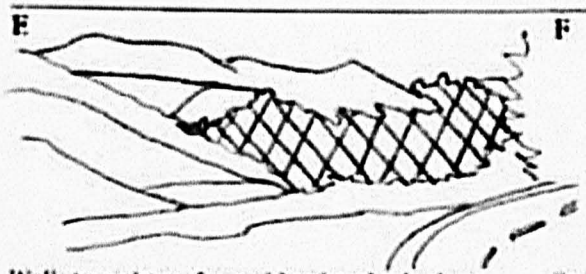
Turn away from water to hillside above road & look at woodland between houses.

D



Look left to far hillside above bridge.

E



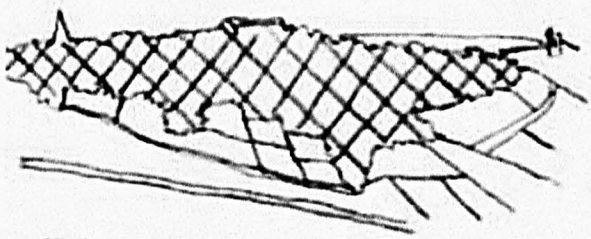
Walk to right as far as blue box look along valley to woodland on far side of lake.

F

WOODLAND INTERIOR

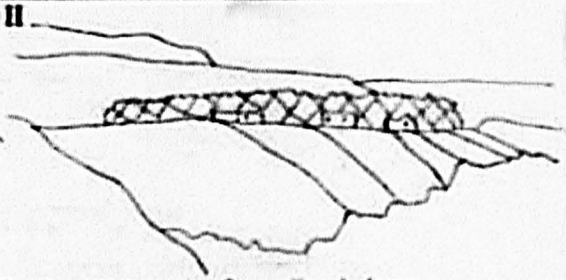
Cross road opposite blue box and enter woodland over stile.

G



Look across valley to woodland on opposite hillside above fields.

H



Look right to area of woodland above green shed on horizon.

I Walk into woodland.

WOODLAND INTERIOR