Forest Research

Landowners' attitudes to woodland creation and management in the UK

A review of current evidence

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The Research Agency of the Forestry Commission

Acknowledgements

This study was funded by the Woodland Trust and the Forestry Commission.

We thank Darren Moseley and Jordan Chetcuti (Forest Research) for the maps in Figure 2; and Jackie Watson and Sheila Ward (FC Statistics) for advice on interpretation of planting figures. We thank the contacts listed in Appendix 1 for information and reports to include in the review. The draft report was significantly improved through critical reading and feedback from participants in the validation workshop: James Ogilvie, Mike Townsend, Kevin Taylor, Corrine Meakins, Mark Durk, Jonathan Spencer, Ewan Calcott, Angela Terry, Tim Yarnell, Simon Pryor, and Richard Britton.

This report, and a summary report, can be downloaded from www.forestry.gov.uk/fr/ownerattitudes

Please cite this report as:

Lawrence A., N. Dandy and J. Urquhart (2010) Landowner attitudes to woodland creation and management in the UK. Forest Research, Alice Holt, Farnham. Available at www.forestry.gov.uk/fr/ownerattitudes

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Executive summary

Background and objectives

1. To deliver on strategic objectives to increase woodland area and quality, organisations such as the Forestry Commission (FC) and Woodland Trust (WT) need to engage with woodland owners and/or their agents. They therefore need to understand the values, attitudes and perceptions that owners bring to woodland management and creation.
2. This is a review of existing evidence, to assess its contribution to current information needs for policy implementation.
3. We applied the following criteria for inclusion in the review: work that is:
   a. based on empirical data, not author's opinion or literature review;
   b. focused on values, attitudes, beliefs, or actions of owners and their representatives, not on description or economic assessment of woodland management options;
   c. published from 1990 onwards, after woodland grants replaced tax incentives as the principal policy delivery mechanism.

Extent of evidence

4. An extensive search has produced 34 studies which satisfy the criteria given above. Of these the bulk are **quantitative surveys**; ten are qualitative of which four include **group discussions**. Only 11 are published in peer reviewed journals.
5. Often respondents are both farmers and woodland owners, but this is not always the case and **farmers feature most prominently** in the evidence. Some studies focus on specific groups (grant recipients, non-recipients, new owners without a history of farming, etc.) and a few include tenant farmers. One study highlights the **importance of agents** in land-use decision making but we found no data on their values and attitudes.
6. Several studies refer to **changing structure of landownership** with a small but potentially significant shift to new owners, from non-farming backgrounds.

Objectives, motivations, values and attitudes

7. The studies reviewed fall into two groups which contrast in terms of their explanations of landowner behaviour and behaviour change. One group focuses on the **psychology and culture of landowners**, including their social standing and relations. The other sees this as largely irrelevant and considers that for most farmers it is simply a question of **finding the right price**.
8. There is a clear pattern amongst the studies that provide evidence on owners' **reasons for having and planting woodland**. Landscape and conservation (wildlife and shelterbelt) are ranked highest, with shooting also often high;

production and profit come low in the list of priorities, and provision of public recreation even lower.

9. Many studies report a sense of custodianship or **responsibility** for the land and landscape. This is closely linked to a concern for control over land use. In addition the studies of farmers' attitudes highlight a shared culture which seeks **peer respect** based on 'good' or 'correct' land use. Using the land for its appropriate productive purpose is an important value and can undermine attempts to encourage tree planting.
10. Compared with traditional owners, several studies report that new **(non-traditional) owners** appear to hold more environmental values and to be less interested in profit from their land. However no study apparently tests this.

Delivery mechanisms

11. There is mixed and inconclusive evidence about the relationship between grant availability and decisions to plant. Availability of **grants** does appear to influence those who are already interested in woodland, but not to affect the choices of those who are not interested. Expert opinion suggests that higher grants reach a 'tipping point' and can change behaviour, but this has not been tested in the evidence reviewed.
12. Studies link grant uptake (and lack of uptake) to (i) landowner's awareness of / interest in grants; (ii) knowledge; and (iii) availability of, or particularly lack of, suitable land.
13. The evidence reviewed by this study highlight four primary aspects of landowners' **perceptions of grants and grant schemes**. These relate to (i) bureaucracy and administration, (ii) economic adequacy, (iii) control and property rights, and (iv) restrictiveness and flexibility.
14. The **complexity and bureaucracy** involved in grant application is reported only in recent literature and appears to have increased considerably in the last few years.
15. The perceived relevance and importance of grants varies in relation to the purpose of the grant. Owners expect grants for the provision of **non-market benefits** such as public access, but not necessarily for land-uses with potential economic benefits.
16. The provision of **free expert advice** is particularly appreciated and likely to influence outcomes. The Forestry Commission's Woodland Officers are highly regarded in this role.
17. The review found no direct existing evidence of owners' perceptions, understanding and response to **regulation** (felling licenses etc.) Several studies report as a disincentive, the widespread understanding that tree planting is an irreversible 'one-way street'.

Differences between stakeholders

18. The studies reveal fewer differences than might have been expected between

owners of **existing woodland** and those landowners asked about **creating new woods.** All rate conservation highly, and showed little interest in economic potential. However studies of owners often showed strong emotional and cultural connections with their woodlands that were not apparent among farmers, whose values favoured production and 'appropriateness'. Furthermore, the role of grants in changing behaviour seems stronger in relation to woodland creation.

19. Personal contact with an **advisor** affects grant uptake for woodland creation, whereas advice alone may be effective in influencing woodland management.
20. A few studies draw out differences of attitudes and / or behaviour between different subgroups of those surveyed, and two studies construct **typologies** of different kinds of owners. The question of whether such segmentation is more widely valid, and helps to target support and incentives, is not addressed in the existing evidence. One particular challenge will be to test indicators which help to assess which 'type' an owner falls into, if indeed such types are widely applicable.
21. Few studies indicated or accounted for the variation in stakeholders resulting from differences in **land use context**. For example, the differences between arable, dairy and upland sheep farmers need to be drawn out more explicitly in any further work.

Research gaps

22. Whilst the combined evidence provides wide geographical coverage, it consists of location specific studies which are is patchy and unsystematic. The great majority are located in counties in England, particularly the well-wooded southern counties. Studies in Scotland focus predominantly on farmers' attitudes to woodland planting and grants, in the 1990s. Wales and Northern Ireland are poorly represented over the whole period.
23. There is a clear need to relate what is known, to environmental and social / cultural context; and for a national study to explore **regional differences**.
24. There is a lack of **qualitative research** in this area. The predominantly structured quantitative surveys provide no opportunity to enhance understanding of the ways in which cultures and social networks shape values and decision-making processes, and how those may change in response to information and experience.
25. Most of the existing studies focus on trees and forests, but landowner's make decisions about a range of resources, and in response to an array of incentives and regulations including agricultural and environmental grants and programmes. A study is needed to put decisions about woodland in the **landowner's complete context**.
26. Various sets of **stakeholders** are neglected in the existing evidence: new landowners, agents and managers, community woodland groups, local authorities, and corporations. It would also be helpful to gain a better understanding of tenant farmers' attitudes.

Introduction

The purpose of this review

In order to deliver on strategic objectives to increase woodland area and quality, organisations such as the Forestry Commission (FC) and Woodland Trust (WT) need to engage with woodland owners and/or their agents. Both organisations are keen to understand owners' and agents' attitudes and decisions better. Along with researchers from Forest Research (FR), staff were aware of a number of studies of owner attitudes, but often felt the need to get a clearer grasp of a situation that varies geographically and socially, and is also changing through time.

This study therefore aims to address the question:

> What does **existing evidence** tell us about landowners' values, attitudes and knowledge in relation to decisions about woodland management and creation?

This is a review of work done by other researchers. Whilst it is based on a thorough search of existing work, that body of work does not add up to a comprehensive review of the influences upon landowners' decision-making about trees, woods and forests. The focus of existing research will have been affected by factors including funding availability and source, researchers' own disciplinary interests, and the availability of research participants. We offer an original summary and synthesis of the key points and issues identified by this existing research, along with identifying some of the major gaps in its coverage.

This research was funded by the Woodland Trust and the FC's social research programme. The geographic focus is the United Kingdom (UK), although all except one study is from Great Britain (GB), which forms the policy context of the study.

Policy context

In Great Britain (GB) forests cover 11.6% of the land area[1] (FC 2003). Both the Forestry Commission and Woodland Trust apply sustainable forest management standards to their own woodlands. However only 34% of woodland is owned by the

[1] Includes woodland over 0.1 hectares.

Forestry Commission (see table 1) and a further 1% by the Woodland Trust[2]. Both organisations have an interest in influencing the owners of the remaining woodland, to manage sustainably. Furthermore, both have an interest in influencing other landowners to establish new woodland and plant more trees.

The Mission of the **Forestry Commission** is to 'protect and expand Britain's forests and woodlands and increase their value to society and the environment.' With 65% of Britain's forests outside public/FC ownership, it is important for the FC to engage strongly with other owners to achieve this protection. Furthermore, expanding Britain's forests requires the creation of woodland on non-wooded land which is, again, beyond the ownership of the Commission. Woodland creation has increased further as an objective for the UK's governments as a response to climate change, with its potential for carbon storage and use as a renewable fuel. In order to accomplish these tasks the Commission has both formal methods, such as economic incentives and regulation, and informal methods, such as the provision of advice, leadership and standard-setting. Woodland creation on private land and active management of private woodland (including for woodfuel) are thus clear primary objectives for the devolved Forestry Commissions (in England, Wales and Scotland) and several aspirational goals have been set, including:

Woodland creation

- Annual woodland creation targets of 10,000 ha for England and 10-15,000 ha for Scotland. Wales aims to establish a further 1,500 ha over the next 3 years; Northern Ireland aims to double woodland cover from 6% to 12% by 2056 (DECC 2009a, DECC 2009b). The Scottish Forestry Strategy aims to increase forest cover from 18% to 25% by 2050 (Scottish Government 2007)
- Aspirational 'targets' for woodland creation of 23,200ha annually for the UK as a whole.[3]

Woodfuel

- 2m 'green' tonnes of new material to the woodfuel market in England by 2020 (Forestry Commission England 2007)
- 0.75m 'green' tonnes annual woodfuel usage in Scotland by 2010, and 1.0m 'green' tonnes annual woodfuel usage in Scotland by 2020 (Scottish Government 2006).

[2] Woodland Trust landholdings – Eng 10 000 ha; Scot 8500 ha; Wales 1580 ha; NI 325 ha. From www.woodlandtrust.org.uk Jan 2010.

[3] "an enhanced woodland creation programme of 23,200ha per year (14 840 ha additional to the 8360 ha per year assumed in business as usual projections) over the next 40 years, could, by the 2050s, be delivering, on an annual basis, emissions abatement equivalent to 10% of total GHG emissions at that time." The Read Report (2009) *Combating Climate Change: a role for UK forests*, p. ix.

The **Woodland Trust** has three main aims:

1. To enable the creation of more native woods and places rich in trees,
2. To protect native woods, trees and their wildlife for the future
3. To inspire everyone to enjoy and value woods and trees

Woodland creation is a central aspect of WT policy. This includes woods for wildlife, for a range of ecosystem services, such as water management and urban adaptation to climate change, as well as for products including woodfuel (Woodland Trust 2009). The Trust recognises that '... mostly woodland creation is delivered by private landowners, local authorities and developers' (Woodland Trust 2009), and seeks to deliver these objectives through structured support and advice services. Further to this the organisation purchases land and organises a strong volunteer workforce.

Woodland management and creation in GB

The range of woodland ownership in GB is summarised in Table 1. The diverse nature of woodland ownership has implications for decisions relating to woodland management. Varying motivations for ownership and goals for management will determine how, and if, an owner manages their forest. Opinions on the extent to which woodland is being managed, vary. Estimates made during the National Inventory of Woodland and Trees (NIWT) indicate that 20% of non-FC woodland in England and 23% in Wales have 'no obvious management', while the equivalent figure in Scotland is much lower at 9% (Gilbert 2007).

Table 1. Area of woodland in Great Britain by ownership type, 2005.

Source: 1995-99 National Inventory of Woodland and Trees

www.forestry.gov.uk/website/foreststats.nsf/byunique/woodland.html. Excludes woods of less than 2ha.

Ownership type	Area (1000ha)	% of total
Personal	1110	43.6
Other Private Business	273	10.7
Private Forestry or timber business	41	1.6
Charity	90	3.5
Local Authority	80	3.1
Other public (not FC)	45	1.8
Forestry Commission	882	34.7
Community ownership or common land	5	0.2
Unclassified	18	0.7
Total	2545	100

Forestry Commission data cited in the *Woodfuel Strategy for England* suggest that only around 40% of the annual biomass increment in England is actually harvested (2001 figures; 2.9m 'green' tonnes harvested from 7.1m annual increment) (Forestry Commission England 2007). Furthermore, less than 30% of non Forestry Commission woodland was in receipt of a management grant at that time. These figures suggest considerable *under*-management of British woods. The planting targets cited above should be considered alongside the Forestry Commission's statistics on achieved new planting. Over the past five years, on average only 8.9k ha per year of new woodland has been planted, with 2009-2010 seeing the smallest figure yet, just 5000 ha (Forestry Commission 2010) (see Figure 1).

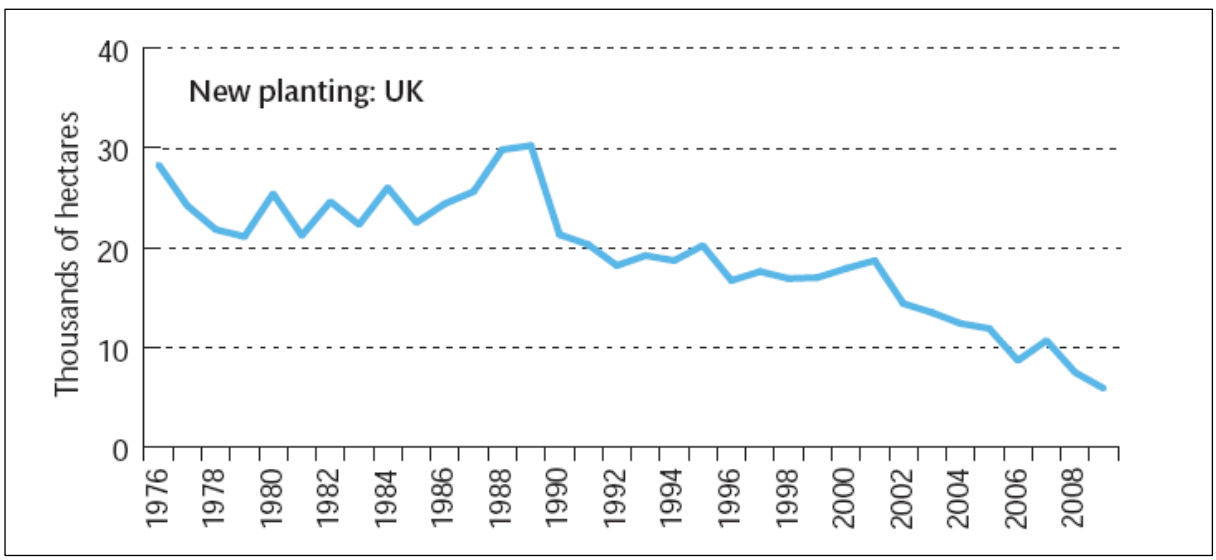


Figure 1. New Planting in the UK, 1976-2009 (Forestry Facts & Figures, 2009)

Method

We used a Rapid Evidence Assessment (REA) framework to undertake this review. REAs have been developed for use in public policy research and evaluation and provide a systematic approach to rapidly reviewing existing evidence on a particular topic and synthesizing the evidence to answer a research question or questions (Government Social Research 2010).

The approach consists of the following steps.

1. Knowledge network identification: We identified a knowledge network of 39 individuals and consulted key contacts about potential sources of information. For a full list, see Appendix 1.

2. Literature search: We conducted a literature search of academic and grey literature, using both academic on-line databases (Science Direct, EBSCO) and internet search engines (Google, Altavista). We also carried out a web-based search for more anecdotal evidence, searching woodland owner blogs, magazine and trade articles, and owner forums. We applied several criteria to limit the search:

- Eligible studies were based on empirical data, not modelling or literature review;
- The focus was on the values, attitudes, beliefs, and actions of owners and their representatives, not on the resource;
- Many studies begin with reviews of earlier studies; where these were earlier than 1990, or difficult to access, we have incorporated the conclusions as cited in the more recent study;
- Direct financial measurements of woodland management were excluded, as these do not inform us about the motivations of the farmers involved. However economic studies that represented a method for quantifying owners' values, were included.

3. Database compilation: We compiled an Excel database to systematically record all the identified evidence, both from key contacts and literature searches.

4. *Analysis*: We examined the evidence to identify key trends in relation to the objectives of this study. This also highlighted any gaps in the evidence and suggested areas for future research.

In conducting the analysis we made use of additional literature which provided context for interpretation of some of the data. For example, Kirby (2003) is a respected and peer-reviewed source which helps to place the development of farm woodland in cultural context; Munton (2009) is an excellent overview of changing ownership patterns. We draw only on peer reviewed work for this aspect.

Finally we invited experts from the FC and Woodland Trust to comment on a draft of this report, at a validation workshop in May 2010. Their feedback helped to identify the most significant findings and clarify issues raised.

What evidence is there?

The studies which meet the criteria outlined above, are listed in Table 2. Each study may have more than one report or publication associated with it. However only one (the main, or final, report) is listed in the table, in order to identify the number of studies. The distribution of these studies is shown in figures 3a and 3b.

We have listed the date of data collection as this can be several years before publication, in some cases, and is an important factor in considering overall change in owners' attitudes and values.

Altogether we judge that 34 studies meet the criteria, of which 18 focus on woodland creation and 23 on woodland management (Table 2). Whilst the quality and scope of the studies is variable, we consider that each study stands on its merits, in that the method is transparent, valid and replicable. However only 11 are published in peer reviewed journals, which both constrains the visibility of this evidence, and highlights some weaknesses in rigour. For example, some of the qualitative studies provide lists of woodland owners' opinions, but do not indicate the number or type of respondents holding that view, nor enable the reader to assess how typical the views were, and whether they belong to the author or the respondents. The quantitative studies sometimes suffer from a lack of clarity over data analysis. For example at least two large surveys of farm woodland owners collected information about the respondents' use of grants, but failed to separate the results on this basis.

No piece of evidence covers all possible stakeholders and most are specific to quite small areas (Figures 2a and b). While most studies describe their sampling procedures quite clearly, two constraints are not always apparent to the user of evidence:

- the filter applied to size of woodland. For example the NIWT survey excludes woodlands smaller than 2ha in area, but a large survey of Bedfordshire farmers found that while 62% of farms had some woodland, about half of those were less than 2ha in size (Burgess, Goodall, and Wharton-Creasey 1998). It is not always clear what is considered to be the minimum size of woodland under discussions.
- the difficulty in accessing all landowners. Only about 50% of rural land is registered and problems with identifying ownership are well known (Mather 1987, Yeomans, Hemery, and Brown 2008). Postal surveys are one attempt to capture the 'unknown' owners but those least interested in engaging will be least interested in responding to questionnaires.

Table 2. Eligible studies of woodland owners included in this evidence review

Author	Title	Study date	Pub'n date	Location	Sample size	Details of sample	Methods used	Mngt /Cre/ Both
Bateman, I.J., Diamond, E., Langford, I.H. & Jones, A.	Household willingness to Pay and Farmers' Willingness to Accept Compensation for Establishing a Recreational Woodland	1991	1996	Oxfordshire, England	19	Farmers (17 owners; 2 tenants)	Survey (willingness to pay)	C
Bell, M.	Farmers Attitude Survey - A Survey of 50 Farmers in Lancashire to determine their attitude to woodland planting and management	1998	1999	Lancashire, England	50	Farmers (66% dairy; 66% had woodlands, 0.5-32 acres = av 3% of farm area; 33% manage the woods). NO farms with existing grants included. 49 farm is main income.	Survey (face-to-face)	C[1]
Betts, A. & Ellis, J.	What Woodland Owners Want - an Attitude Survey	2000	2000	Surrey, England	22	Woodland owners	21 Telephone interviews, one postal interview	M

[1] some data relating to farmers' perceptions of the 'economics' of woodland management, but not 'attitudes towards management' more generally.

Author	Title	Study date	Pub'n date	Location	Sample size	Details of sample	Methods used	Mngt /Cre/ Both
Bishop, K.D.	Community forests: implementing the concept. Based on: Multi-purpose woodlands in the countryside around towns. Univ. of Reading. PhD thesis, 1990.	1988-9	1991	Tyne and Wear Bristol Hertfordshire	118	Farmers	Survey	C
Blackstock, P. & Binggeli, P.	A Needs Survey for Support for Farm Forestry	not stated	2000	Fermanagh / West Tyrone, Mid Tyrone, Lower Bann valley, Northern Ireland	150	Farmers	Survey (face-to-face); Literature review	M
Burgess, Goodall and Wharton-Creasey	Bedfordshire Farm Woodland Demonstration Project: a baseline analysis of farm woodland in mid-Bedfordshire	1997	1998	Bedfordshire, England	150	Farmers	[full report has been requested]	M

Author	Title	Study date	Pub'n date	Location	Sample size	Details of sample	Methods used	Mngt /Cre/ Both
Burton, R. & Wilson, O. (only part of report available)	Farmers' resistance to woodland planting in Community Forests: the influence of social and cultural factors	1996	2000	Bedfordshire, England (Marston Vale Community Forest)	60	Farmers	Interview	C
Church, A. & Ravenscroft, N.	Landowners responses to financial incentive schemes for recreational access to woodlands in South East England	2003	2008	South East England	83	Non-forestry private owners (n=26); Forestry private owners (n=19); Public/non-profit orgs (n=28); Contractors/advisors (n=10)	Survey (self-completion) (n=83) Interviews (semi-structured) (n=38) Group interviews (x3; n=14)	M
Clark, G.M. & Johnson, J.A.	Farm woodlands in the central belt of Scotland: a socio-economic critique	1991-1992	1993	'Central Belt', Scotland	100	Farmers	Survey (face-to-face)	B
Crabtree, B., Chalmers, N. & Barron, N-J.	Information for Policy Design: Modelling Participation in a Farm Woodland Incentive Scheme	1994	1998	Scotland	840 entrants& 1500 non-entrants	Farmers (entrants and non-entrants in Farm Woodland Premium Scheme)	Analysis of agricultural census data Postal Survey	C
Crabtree, B.; Chalmers, N. & Eiser, D.	Voluntary incentive schemes for farm forestry: uptake, policy effectiveness and employment impacts	1996	2001	UK	97	Farmers (entrants and non-entrants of the Farm Woodland Premium Scheme)	Survey Analysis of agricultural census returns	C

Author	Title	Study date	Pub'n date	Location	Sample size	Details of sample	Methods used	Mngt /Cre/ Both
Crabtree, J.R. & Appleton, Z.	Economic Evaluation of the Farm Woodland Scheme in Scotland	1990	1992	Scotland	90	Farmers taking up the Farm Woodland Scheme in its first year (1988-89) (sample = 90% of all 100 scheme participants)	Survey / Interview	C
Cunningham, S.	FREEwoods survey	2009	2009	England, Wales & Scotland	38	Members of FREEwoods scheme	Survey (telephone)	C
Dandy, N.	Summary of Woodfuel Workshop	2009	2009	East Sussex, England	35	Woodland Owners; Forestry industry employees.	Focus-groups (x3)	M
Elliss, J., and B. Frost.	Sustaining England's woodlands: analysis of responses to consultation.	2001-2	2002	England	393, of whom 61% are woodland owners.	The analysis does not distinguish between woodland owners and other stakeholders.	Public consultation (quantitative and qualitative survey)	M
Garforth, M. & Thornber, K.	The impacts of certification on UK forests	Not stated	2002	UK	34	UK forestry certificate holders	Interview (face-to-face *n*=21; telephone *n*=7) Survey (*n*=6)	M

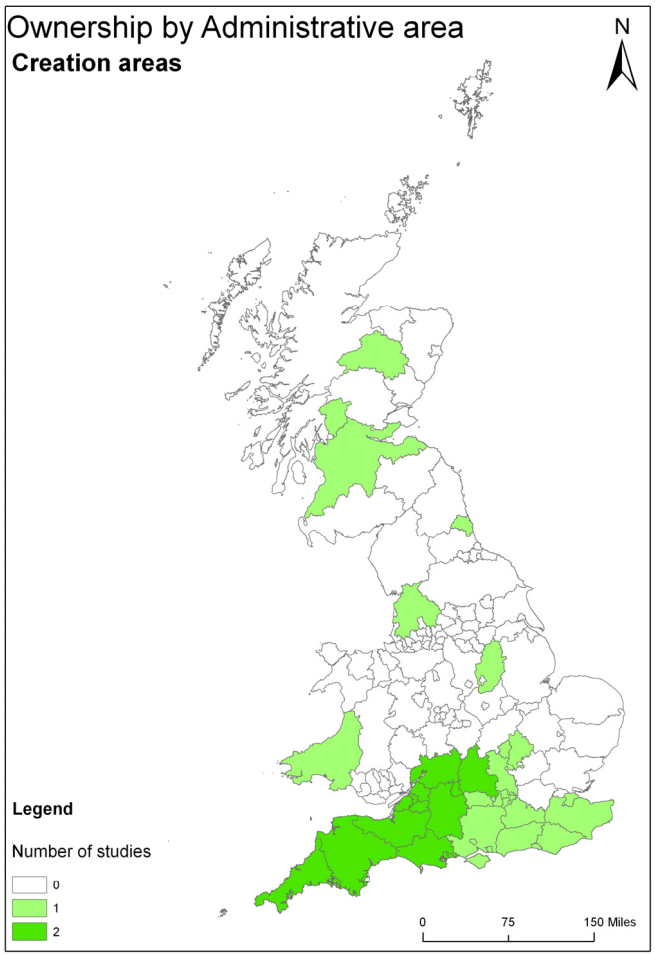
Author	Title	Study date	Pub'n date	Location	Sample size	Details of sample	Methods used	Mngt /Cre/ Both
Greenshields, J.	Blackdown Hills wood/fuel cluster survey	2009	2009	Blackdown Hills AONB, England	46	Private woodlands owners. Simple woodland & fuel assessment.	Survey	M
Land Use Consultants	Woodlotting in Kent – final report	2006	2007	Kent, England	64	Woodlot owners	Survey (self-completion) Follow-up interviews	M
McMorran, R.	Constraints and opportunities for integrated multifunctional forest management in the Cairngorms region of Scotland	Not stated	2008	Cairngorms, Scotland	Total not stated	Interviews (land managers & agents)	Survey (self-completion) Interviews (semi-structured) (*n*=24) Typology-building	B
Mindspace	Farmers research study	2009	2010	Scotland	124 quant-itative 15 qual-itatve	Farmers	Survey (face-to-face) Focus groups (on-line)	B
Royal Agricultural Society of England (RASE)	Farmer attitudes to woodland: results of RASE survey	Not stated	1994	England	400	RASE members	Survey	B

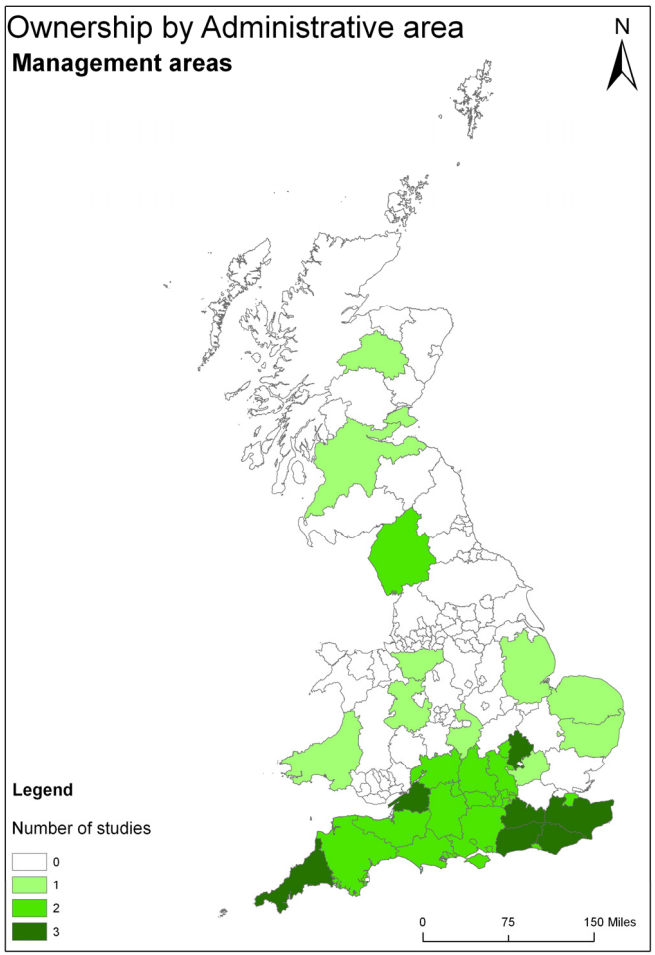
Author	Title	Study date	Pub'n date	Location	Sample size	Details of sample	Methods used	Mngt /Cre/ Both
Render, M.	The development of sub-regional policy for sustainable forestry, with particular reference to the Chilterns, UK	Not stated	2004	Chilterns AONB, England	171	Woodland owners	Survey (self-completion)	M
Sandys, P.	The woodland grant scheme: a review from the perspective of owners and managers	1993	1994	West Country, England	36	Farm woodland owners (*n*=8); Small estate owners (<50 ha) (*n*=8) Large estate owners (>50 ha) (*n*=9) Management company/consultant/public bodies (*n*=11)	Survey (face-to-face)	B
Scambler, A.	Farmers' attitudes towards forestry	1987	1989	Stirling, Scotland	36	Farmers	Survey (self-completion)	C
Secker-Walker, J.	Private landowners' engagement with woodfuel production: a scoping study in Fife	2008	2009	Fife, Scotland	10	Owners or managers of land	Interview (semi-structured)	M
Sharpe, N., Osborn, E., Samuel, J. and Smith R.	Anglia Woodnet Woodland Assessment Project: Stage II Sumary Report	2000	2001	Norfolk and Suffolk, England	56	Woodland owners with >5 ha	Interview (structured)	M

Author	Title	Study date	Pub'n date	Location	Sample size	Details of sample	Methods used	Mngt/Cre /Both
Silcock, P. & Manley, W.	The Impacts of the Single Payment Scheme on Woodland Expansion	Not stated	2008	UK	65	Government agency staff (*n*=34) Farmers' union representatives (*n*=21) Land management advisors & organisations (*n*=10)	Survey (telephone)	C
Sime, J.D., Speller, G.M. & Dibben, C.	Research into the Attitudes of Owners and Managers to People Visiting Woodlands	1993		Cheshire, Warwickshire, West Sussex, Avon & Bedfordshire, England	277	Private woodland owners	Survey (self-completion) (*n*=222) Interview (semi-structured / telephone) (*n*=55)	M
Urquhart, J.	A qualitative analysis of the knowledge base of private woodland owners with respect to woodland management and public benefit issues	Not stated	2006	South-east England	20	Private woodland owners	Interview (semi-structured)	M

Author	Title	Study date	Pub'n date	Location	Sample size	Details of sample	Methods used	Mngt /Cre/ Both
Urquhart, J.	Public benefits from private forests and woodland in England: Investigating the opportunities for public good enhancement	2008	2009	Cornwall, Lake District, High Weald AONB, England	426 (+30)	Private woodland owners	Survey (self-completion) Interview (Q-Methodology) Typology-building	M
Ward, J. & Manley W.	New Entrants to Land Markets: Final report	Not stated	2001	South east & West England, Scotland, & South west Wales	33	Private woodland owners – buying rural land for the first time (minimum 8 ha)	Survey (face-to-face) Case-study	B
Watkins, C.; Williams, D. & Lloyd, T.	Constraints on farm woodland planting in England: a study of Nottinghamshire farmers	1994	1996	Nottinghamshire, England	30	Farmers	Interview (structured)	C
Wavehill Consulting	A survey of farmers with woodland on their land	2009	2009	all Wales	264	Farmers with woodland (grant recipients *n*=164; grant non-recipients *n*=100)	Interview (telephone)	B

Author	Title	Study date	Pub'n date	Location	Sample size	Details of sample	Methods used	Mngt /Cre/ Both
Wibberley, J.	Sustaining England's Woodlands: private woodland owners and the Forestry Commission (FC). Report on four Regional Woodland Consultation Meetings.	2001-2	2002	Cumbria, Lincolnshire, Shropshire, Hampshire	23	Woodland owners not receiving FC grants.	Structured questionnaire and group discussion	M





Figures 2a and 2b. Maps showing the distribution of studies of owner attitudes to woodland creation and management, respectively

Who are the stakeholders?

Land tenure in the UK is a complex, historically shaped and geographically differentiated topic (Booth 2002, Ilbery et al. 2010, Ravenscroft 1999, Stockdale, Lang, and Jackson 1996). It is beyond the scope of this study to analyse the historical causes of land ownership and management, and its geographical distribution. However it is important to indicate the range of stakeholders, and changes in the balance between them. A simple summary is that land management can be influenced by owners, tenants, managers or agents, and regulators. In many cases various stakeholders can influence the use and management of the same parcel of land through exercising their rights in relation to it. In a great many instances, for example, the right to use and/or enter land (including, of course, woodland) and the right to harvest timber or take other woodland products may be held by different people. The right to pursue other interests, such as shooting, may be held by yet other people. Taking stock of rural land ownership in the UK, Munton describes 'a continuing redistribution of rights within the 'bundle of rights' that make up freehold ownership' (Munton 2009).

Because the ownership of only about half of rural land is registered, evidence for change can be piecemeal. In Scotland, Mather reported in 1987 that more than half of the private-sector woodland area in Scotland was owned by personal or corporate 'investment' owners, compared with 20 years earlier when the sector was almost completely dominated by the traditional landed estates (Mather 1987). A later study of Scottish lowland farms noted that

> The majority of the farmers were first or second generation on the farm with family occupancy commencing over the past 50 years. Over the last 20 years at least half of the farmers had purchased the property on which they had formerly been tenants.(Clark and Johnson 1993)

Approximately 1% of land is sold annually (Ward and Manley 2002a). For example, in 2000, 39% of farms sold in GB (64 000 acres) were bought by non-farmers (Ward and Manley 2002a). In England, two thirds of participating woodland owners in a study in 1993 were involved in farming, and over half had a farming background (Sime, Speller, and Dibben 1993). By 2007, less than a third of woodland owners (in Cornwall, The Lake District, High Weald) were farmers (Urquhart 2009). Cater (1994b) found a similar but earlier change in south west England. In the late 1980s, half of the woodland owners involved in the project were full or part-time farmers. By the mid-1990s, this had declined to 37%. These new owners are often retirees or people interested in a rural lifestyle, together with those associated with rural-based businesses, such as tourism, caravan sites, golf courses, shooting and farm parks.

A substantial proportion (about 40%) of farmers in the UK are tenants. Tenant farmers often have a long-term relationship with a farm, handed down through the family. Many farmers manage a combination of owned and rented or tenanted land (Bell 1999). Most of the studies reviewed here point out that tenant farmers are much less likely to be interested in woodland creation than owners. This is sometimes because they do not have the rights to trees (Crabtree and Appleton 1992), but also because the benefits occur too far into the future (possibly beyond the end of a tenancy). In two studies, tenants explicitly stated that their tenancy agreements did not allow woodland planting, except for a very small minority who were renting in both cases from other members of their own family (Bell 1999, Crabtree and Appleton 1992). Furthermore tenancies are gradually being replaced with shorter term agreements (Munton 2009) and this may further affect interest in tree planting.

Another key player in land use decisions is the manager or agent. Church and Ravenscroft (2008) draw attention to this in their study from Sussex:

> many of the larger woodlands are managed by agents or contractors who, in addition to their management work, are the contact with the Forestry Commission and other authorities. Some of these agents and contractors were reluctant to identify the relevant woodland owners and approached owners on behalf of the researchers. ... it became apparent that agents and contractors can have a considerable influence on how owners respond to incentives and recreational access issues.

McMorran notes that within the Cairngorms National Park study area

> On 39% of surveyed sites, a forestry consultant, forest management company or land agent was involved in forest management, with varying levels of input from the landowner ... where consultants and agents are used, they can have a considerable influence over management. (2008: 161)

The change in ownership demographics is likely to also affect quality and quantity of relationships with tenant. For example, 'new entrant' (non-traditional) owners report that they are 'neither knowledgeable nor confident enough to enforce' conservation agreements with tenants (Ward and Manley 2002a).

Which stakeholders are represented in the evidence?

Several studies note that farmers, landowners or woodland owners are reluctant to participate in surveys, and that a particular subsection of the population is excluded by relying on survey information. It is likely that those who are not interested in responding to surveys are the people who are least likely to respond to grant incentives, and so least is known about their motivations.

In order to test this concern, we can do two things: look at the overall response rate, and compare the profile of respondents to that of the whole population.

Across the evidence examined here, some very high response rates were obtained. For example, Wavehill Consulting (2009) achieved a 91% response rate with a large sample of farmers drawn from both an FCW database of grant recipients, and a WAG database of (non-grant receiving) farmers. Others report a 98% response rate (Crabtree and Appleton 1992). Nevertheless this is highly variable and Watkins et al. (1996) achieved only a 60% response rate.

In order to interpret the value of these response rates it is important to consider the origins of the sample, or the 'sampling frame'. If the sample was drawn from government databases for example, it may not represent all farmers. Several studies make an attempt to compare the profile of their respondents (or grant participants) with the population in question. For example Crabtree and Appleton (1992) note that the average Scottish farmer participating in the Farm Woodland Scheme had considerably more land (332ha) than the average for all Scottish farmers (196ha); and that all except one were owners or renting from a close relative.

Focus and structure of this report

The current review focuses on the point of view of the owners and their representatives, rather than the mechanistic measurement of their behaviour. In other words we are interested in *understanding* landowners' behaviour, not in measuring it. People are motivated to do something by a range of factors, including their values and attitudes, and their rational objectives. Whilst it is relatively straightforward for a landowner to state his or her (conscious) objectives in land management, values and attitudes may be less conscious but equally powerful in affecting decisions and behaviour.

We detect two basic sets of interpretations in the studies reviewed here. One group focuses on the **psychology and culture of landowners**, including their social standing and relations. The other sees this as largely irrelevant and considers that for most farmers it is simply a question of **finding the right price**. There is evidence to support both interpretations and a more subtle understanding of the complexity of owners' decision-making processes is needed.

One study attempts to compare these approaches. In his study of woodland owners in the Cairngorms National Park area, McMorran concludes that the following influence landowner decisions in decreasing order of importance:

1. Personal or organisational preferences
2. Forest managers
3. Financial concerns

4. Views of a contracted consultant or agent
5. Policy drivers (incentives and regulation)

He also concludes that 'the general public is not a major consideration or driver of management' (McMorran 2008).

The wider evidence does not cover all of these and so we structure this report according to the categories of evidence that emerged from the studies. We begin by examining the stated reasons for woodland, which fall into the conscious side of the preferences (item 1 in McMorran's list), and then examine the evidence relating to values and attitudes (the more internalised or subconscious aspects of preferences), followed by economic motivations (item 3 in McMorran's list). We then look at how landowners themselves explain their responses to delivery instruments such as grants and advisory services (item 5 in the above list). Almost no evidence is available on the values, attitudes and roles of forest managers, consultants or agents in influencing landowners' decisions.

Objectives, values and attitudes

Whilst the terms 'values' and 'attitudes' have obvious everyday meanings, researchers in the field of social psychology have rigorously defined them in a way that links them to individual human behaviour.

The 'values-attitudes-behaviour hierarchy', for example, defines values as core beliefs that transcend individual objects and situations, and which in turn determine attitudes. Attitudes focus on *specific* objects, situations, or forms of behaviour (Whittaker et al. 2001). Positive or negative feelings towards particular woodland management activities, such as fencing, coppicing or clear-felling, can therefore be considered attitudes.

Attitudes are also determined by other (non-value) beliefs consisting of the *information*, either factual or subjective, that a person holds about the thing in question (d'Agostino, Loomis, and Webb 1992: 93, emphasis added). Attitudes, and consequently behaviour, are thus considered outcomes of an individual's core values (such as environmentalism), and their beliefs (such as that coppicing is beneficial for biodiversity). Whilst there is often a gap between values and behaviour, the link between attitudes and behaviour is much closer and indeed behaviour is often used as an indicator of attitude.

Much of the evidence reviewed here, however, does not distinguish clearly between values and attitudes and so we treat them together below.

Objectives of woodland owners

Most studies provide some information on what woodland owners or planters are wanting from their (wood)land. These are heavily weighted towards conservation, wildlife and landscape – with the order of management priorities often reported as similar. For example, the following shows the order of priorities of farmers surveyed in Northern Ireland (Blackstock and Binggeli 2000).

Aims	**% of sample**
Landscape	85
Conservation	84
Sporting	75
Shelter	74
Tree production	63.5
Public recreation	24

This is very similar to the order identified for landowners in Bedfordshire results (Burgess, Goodall, and Wharton-Creasey 1998):

Principle objective of woodland	**% of sample**
Wildlife and conservation values	35.0
Sporting and game interests	22.7
Shelterbelt	18.4
No specific use	12.6
Timber production	5.6
Coppice wood production	2.5
Other	3.2

Land Use Consultants 2007 report that leisure (59%) and nature conservation (56%) are the two most important 'purposes' for owners of wood lots in Kent. Just under one-third (29%) of these owners noted that their wood was an 'investment' and timber and firewood production are low priority (both 13%). Only one of these owners said that shooting was a 'purpose' of their ownership. Similarly, in East Anglia 'conservation and sporting are the main objectives [for woodland owners, '] with timber and financial objectives playing a very small role' (Sharpe et al. 2001).

McMorran (2008: 158) notes that 'conservation and biodiversity can be seen to be a primary objective for 89% of the surveyed forest and woodland area. From an area perspective, landscape also replaces timber as the second most common primary objective. Timber [increases in importance] when area [rather than number of management units] is taken into account, being a primary objective for 67%...'

Furthermore, Church and Ravenscroft report that for six sites in south-east England:

> While relatively few of the respondents used their woodlands for commercial timber production (23% of the respondents) or recreation (19%), many of them (73%) claimed that their woods were a wildlife habitat, a landscape feature (68%) and a reserve for nature (48%). [2008: 9]

Sharpe et al. also conclude that, in East Anglia, 'Conservation and sporting are the main objectives, with timber and financial objectives playing a very small role' (2001: 1). And in Wales, the 'most common use of farm woodland was to enhance wildlife habitats and to provide shelter for animals' (Wavehill Consulting 2009: 5).

One area where woodland owners do make productive use of their woodlands is for woodfuel. However this use is not particularly planned or managed, and involves social relations that can override economic factors. For example, amongst existing woodland owners, 48% of those surveyed in Wales reported collecting firewood for their personal use and 25% noted that they 'give away' timber/firewood (Wavehill Consulting 2009). A smaller survey of woodland owners in Fife, Scotland also found that all those surveyed used firewood from their woods in open fires and most also gave it to others. (Secker Walker 2009). In the Blackdown Hills, 61% of small woodland owners used their own wood as fuel (Greenshields 2009)

Many of these are reasons given for *having* woodland, not necessarily for managing it. The East Anglia study by Sharpe et al. (2001) pinpoint this. It is one of the few studies to separate current objectives, from desired objectives. Although timber and financial objectives play a 'very small role' more than 75% of respondents consider that timber is an important *potential* source of income.

Finally in some cases results vary according to woodland size, but this aspect is under-researched. One study that does separate the aims by *number of owners,* and by *area of woodland,* finds that:

> most owners regard landscape protection, nature conservation and private recreation as the three principal aims of management with timber production and provision of shelter falling some way behind these. If the area of woodland to which these

> responses relate is considered, the importance of timber production is much greater, becoming the third most important aim. Sporting also is shown to be much more significant and the provision of shelter a minor aim. (Render 2004) [p 191].

McMorran (2008) reports a similar finding. Owners of small woodlands focus less on timber and sport, and more on shelter, than the owners of large woodlands do. The implication is that the extent of management objectives should perhaps be measured in terms of the area of woods that it applies to rather than the number of management units.

Render also notes that large woodland owners list 'investment purposes' as an objective, more often than small woodland owners. This author conceptualised 'investment' both in terms of 'real estate' and as 'capital' (i.e. where a one off timber sale could provide significant income at key points in life). Investment is cited very little by others and may be more common in some parts of the country than others (although this latter point is not supported, or otherwise, by the evidence).

Objectives of new woodland creation

Reasons given for woodland planting were similar, but often related to the objectives of a particular grant scheme. The motivation for Scottish farmers to plant trees, under the Farm Woodland scheme (FWS), was primarily for 'environmental' benefits including landscape, amenity, wildlife and sport. Income and timber were much less important, and timber was the principal planting objective in only 10% of cases (covering 19% of the land) (Crabtree and Appleton 1992). As the objective of the FWS was to provide environmental benefits the main stated motivations are perhaps not surprising, however timber production is still a low priority.

A study from Lancashire is broader, identifying 'shelter' (33%), 'improve countryside' (30%), and 'conservation' (27%) as the first three motivations for establishing *new* woodland. Other less important reasons included a 'use for otherwise unproductive land' (20%), 'commercial' (13%) and sport (7%) (Bell 1999)..

Clearly there is geographical and social variation in the aims of farm woodland planting, but shelter, landscape and conservation feature more highly than commercial motivations. Sport purposes vary, and probably depend geographically on the market for such activities as well as historical / cultural legacy. Shooting interests are a key factor in new planting and woodland management for a significant number of new entrants (Ward and Manley 2002b) although this finding appears to contradict that of Land Use Consultants above (regarding woodlot owners).

As ownership, and attitudes, continue to change, the opportunities for increased planting may rise. In a recent study of landowners enrolled in the Woodland Trust's FREEwood scheme, 70% of participants stated that they wished to create woodland in order to improve biodiversity or for green reasons (e.g. absorbing carbon, doing something for the environment) (Cunningham 2009).

On the other hand much of the literature focusing on farmers and woodland creation cited a number of reasons commonly given for not having woodland. For example, of the Lancashire farmers interviewed by Bell (1999), 40% had never considered tree planting. A small number of respondents gave reasons for this, including 'land is too good', unsuitable land, aesthetic factors, not interested, unfavourable economics, and too long term. We return to these aspects in later sections.

Overall, surprisingly few studies of woodland creation focused on the reasons to plant trees, rather than on the reasons to adopt grants.

Values and attitudes underlying woodland management

Overall, the studies of woodland owners indicate a strong personal connection with their woodlands, a belief that it is managed to the extent appropriate, and a lack of belief in economic potential. Many also identify a strong ethic of 'custodianship' focusing on a sense of obligation to protect the landscape and woodland heritage, rather than allowing public access. The issue of access is addressed separately below as so much of the evidence focuses on that aspect of owners' attitudes.

A substantial study of woodland owners in the Chilterns provides a valuable overview of their attitudes to ownership (Render 2004). The data illustrates nicely that the great majority (90%) find their woodland a pleasure, but that for 75% it brings no income, nor even covers its costs for 52%. Opinions are mixed on whether it is too much work or worth the money. When these responses are adjusted in relation to the area of woodland, more area derives income than does not, and only 5% of the area is deemed neglected by its owners.

One important factor here is the psychology of ownership (Sime, Speller, and Dibben 1993). This can have various effects, depending on who the owners are, but the fact of owning a resource such as farmland is seen as a means to enacting or implementing one's values in the world. Woodland owners have a similar sense of ownership but expressed through their woods rather than their crops. For example,

> motives for owning woodlands include aesthetic, silvicultural and conservation concerns linked to a broader sense of custodianship stressed by English landowners generally ... the emphasis on privacy also hints at the right to control that owners perceived to be imbued by property rights. (Church and Ravenscroft 2008)

These connections with 'the perceived and actual rights of ownership' affect a desire to control their property, and hence to grant recreational access and will also shape responses to government incentive arrangements. Church & Ravenscroft (2008) cite a wide body of studies on agri-environmental scheme take-up, supporting this conclusion.

The sense of custodianship, or at least responsibility, is also implied in Wibberley's [somewhat vague] conclusion that 'quite a few may be motivated to manage more constructively by guilt re their need to care for woodland heritage' (Wibberley 2002).

Woodland ownership in Wales presents a similar picture. A recent large scale survey of farmers with woodland in Wales concludes that the typical farmer who has not received a grant will not feel that his woodlands are too small to be managed, but that such management is unlikely to bring financial reward (Wavehill Consulting 2009).

The changing social make-up of landowners is likely to shift the balance of landowners' values. One article written from a personal perspective illustrates two new owners' family-oriented reasons for ownership, and for managing to return to traditional systems (such as coppicing) with remarks such as 'It's there for me and for my five kids and two grandchildren to enjoy for life' (Carter 2007).

Most studies of woodland owners' values are qualitative but one study attempts to put a figure on the relative values of different functions. In a study of the valuation of non-market benefits of woodland by private woodland owners in Wales, Samuel and Thomas (1999) found 23% and 35% respectively of the unpriced value of their woods was attributed to wildlife and biodiversity. They also found landscape values to be approximately equal.

We can see from this evidence that it is often difficult to distinguish between owners' values, and their objectives. In other words, few studies focus on how personal values / beliefs / attitudes compare with the use that owners actually make of their woods. If we could identify this more clearly, we would be able to focus on the barriers that stop people from managing according to their values. The few which hint at this include Sharpe (2001) in East Anglia who point out that lack of economic objective does not imply lack of personal preference for making money from the woodlands, only a lack of belief that it is possible.

Others appear to be managing by neglect, out of a belief that this is the best course of action for wildlife. Groups discussions with woodland owners noted that 'lack of management is quite often because of genuine belief that leaving them [the woods] untouched is best' (Wibberley 2002). Similarly half of those who gave reasons for not doing more work in their woodlands in Surrey, either liked it as it was, or felt they did enough work (Betts and Ellis 2000).

The review identified very little research into the question of what is considered good management. Almost exactly half of the Bedfordshire farmers in Burgess et al (1998) study considered their woods 'managed'. A Mindspace report notes that 80% of Scottish farmers who have planted woodlands are 'managing' these, either themselves or through others (2010: 18). McMorran states:

> Owners [in the Cairngorm National Park area] also almost all view their woodlands as being managed; only two respondents stated that their woodlands were neglected and unmanaged.(2008: 154).

In contrast, in central Scotland:,

> General impressions, provided by the farmers, of the state of woodlands were of neglect and undermanagement. Only 8% of farmers claimed to undertake any woodland management (2% management of existing woodland; 6% management of new plantings). (Clark and Johnson 1993: 17)

These findings suggest a variable conceptualisation of management. There is a wider issue of indifference: for example in Fife the most frequent response to the question 'why keep the woods' was 'they have always been there' (Secker Walker 2009). Greenshields' study in the Blackdown Hills reported that most owners were 'happy as they were' (Greenshields 2009).

Of those surveyed in the Chilterns, more than half disagree that their woodlands are neglected. The author points out that this may be a sampling issue, in that fewer than half of those surveyed, responded – and as discussed above, those who didn't respond are likely to be those who are less interested in their woodlands. As he notes, 25% of those who did respond think their woodland is neglected (Render 2004).

The study of 'new entrants' concludes that while some over-manage, others under-manage their woods. This can be seen as a value judgement. As the authors recognise, 'this lack of management of agricultural land, scrub and woodland could be described as positive nonintervention, with conservation benefits by default rather than by design' (Ward and Manley 2002a). In a study based on personal experience rather than formal evidence gathering, Cater (1994) claims that new small woodland owners differ from

traditional ones in terms of a positive attitude towards management and a different set of motivations.

Smaller woodland owners may have different values from larger although this is rarely studied explicitly. One third of woodland owners interviewed in Surrey thought that large healthy trees should never be felled. Owners of larger woodlands were less likely to take this view than owners of smaller woodlands (Betts and Ellis 2000).

The value attributed to wildlife also accounts for some mixed views on control of squirrels rabbits and deer, with only about half of those in Surrey being in favour of excluding such animals (Betts and Ellis 2000). This is a very different result from that in East Anglia where 88% 'manage their pests, largely in the form of shooting' (Sharpe et al. 2001).

Values and attitudes affecting woodland creation

A significant number of the earlier studies (those conducted in the late 1980s and 1990s) report a widespread antipathy towards forestry, amongst farmers, and relate this to the 'culture of farming'. For example, Watkins et al. (1996) cite Scambler (1989) describing 'unfavourable tradition-bound attitudes to forestry', and support this with a number of other studies which conclude that farmers 'aren't interested', and grants are not enough to tempt them.

From their own data, they conclude that (even in an area where the land is naturally poor for agriculture):

> Most farmers are not against woodland per se, but do not appreciate it on their farmland, which they see as a preserve for agricultural production, even to the point of it being 'morally' wrong to convert it to woodland after so many have struggled in the past to make the land cultivable. (Watkins, Williams, and Lloyd 1996).

Burgess et al. 1998 cite Mutch and Hutchinson (1980) who conclude that, unlike Scandinavia and North America, there is no general tradition of farm forestry in Britain. Mindspace (2010: 19) note that 13 of 37 farmers who had not planted trees on their land stated that there was 'nothing that would influence them to plant trees', illustrating a significant degree of reluctance.

One study, which is focused particularly on resistance to tree planting in one of the Community Forests, relates this resistance to the culture of farming. This focuses on social status gained through the aesthetics of crop management, which woodland cannot match (Burton and Wilson).

> Being accepted as a 'real farmer' by the farming community has a number of requirements and obligations both to the land, the community and to the previous generations of farmers. These obligations can exert considerable influence on land-use decisions. … To turn farmers into the entrepreneurial farmer-forester-leisure provider requires a change in the role of the farmer and a change therefore in the accepted social behaviour of the 'good farmer'. (2000: 4 and 17).

Silcock and Manley also identify cultural factors associated with the 'aesthetics' of woodland management. In particular they identify resistance to the 'untidy' appearance of woods relative to traditional agricultural crops. The maintenance of 'productive' land, and the converse resistance to 'abandon' land to woodland regeneration, are also identified as being important by this study. In Scotland similar attitudes are reported:

> farmers displayed deeply embedded psychological and moral reasons for focusing on food production … they perceive the planting of trees to conflict with their production-oriented ethos of farming and with farmer ideology about 'looking after the countryside' (Clark and Johnson 1993: 15)

Several other studies present similar views. Quotations from farmers in the Lancashire study (Bell 1999), for example, included:

- I want my land for livestock
- the land looks better under grass
- It will be a shame to plant this sort of land with trees. It is good grazing land.
- It would be sacrilege to plant this land with trees.

As we can see there are regional aspects to the cultural attachment to farming – in this case, to grazing and the landscapes associated with this land use.

Time is another significant factor, in that woodland management or creation may not show results (and therefore provide social status and social / psychological reward) perhaps in the lifetime of the current farmer (Burton and Wilson 2000). Silcock and Manley (2008: vii) also identify 'the long length of the 'crop' cycle for woodland products relative to conventional farming' as being a barrier to woodland expansion on farmland.

Values and attitudes to public access

We discuss attitudes to public access in this separate section because it is an emotive issue which has received more attention than others.

Barriers associated with increasing public access in private forests include concerns over liability and lawsuits (Brown 1974, Sime, Speller, and Dibben 1993, Snyder et al. 2008,

Urquhart, Courtney, and Slee 2009), loss of rights (Bateman et al. 1996), vandalism and theft (Sime, Speller, and Dibben 1993), loss of privacy (Church, Ravenscroft, and Rogers 2005, Sime, Speller, and Dibben 1993, Urquhart, Courtney, and Slee 2009) and conflicts with other activities, such as hunting (Snyder et al. 2008) and wildlife (Sime, Speller, and Dibben 1993).

More qualitative studies provide a flavour of these concerns:

> Two of the owners showed substantial concern that woodlands provide opportunities for fly tipping and the accumulation of litter and dog excrement. (Agbenyega et al. 2009: 555).

Several studies in the early 1990s focus on the requirements that accompanied the creation of England's community forests, with strong links between woodland creation and public access. It is this latter aspect which was reported as a particular barrier for many farmers (Bishop 1992). 'The Community Forest's role in promoting public access has also created resistance to the Community Forest.' (Burton & Wilson 2000: 6). Likewise, Watkins et al. report 'a very low level of enthusiasm about this scheme (Watkins, Williams, and Lloyd 1996).

In their study in south-east England, Church et al. (2005) found woodland owners had benign attitudes towards public access, with only a few owners reluctant to allow any access. In a later paper based on the same study, Church & Ravenscroft report that

> Approximately 80% of the respondents owned woodlands that are accessible from public rights of way. ... Two thirds of the respondents experienced no problems or no more than minor inconvenience with respect to access, with only a few of the remainder reporting 'very severe problems' with access. (2008: 10)

However, an earlier study in England by Sime et al. (1993) found that the majority of private woodland owners surveyed were not in favour of open access in their woodlands, with older respondents less in favour than younger owners. There appeared to be a presumption among owners that allowing access meant open access, resulting in a 'theme park' woodland; something they were not in favour of. Of woodland owners surveyed in East Anglia, 70% provide access in the form of rights of way, but of those, 75% only did so because required to by law. Overall fewer than 39% were willing to increase public access. Some of them apparently did not believe there was a demand for access. Again issues of control and liability were mentioned (Sharpe et al. 2001). Although financial incentives were mentioned, it was not clear that they would have any effect.

One of the most detailed studies points to a concern over privacy, and the need to maintain wildlife habitats (Sime, Speller, and Dibben 1993). It focuses particularly on the issue of control, and concludes that this is central to convincing owners to allow more access. For

example, overall owners welcomed groups such as bird watchers, local people, conservation groups and school groups. They did not welcome, but tolerated, town dwellers, orienteering groups, joggers and families. They were against access for New Age travellers, motor-bikers, Gypsies, mountain bikers, campers and unsupervised young people. However those who already provided access were less hostile to providing further access, than those who did not – suggesting that experience could modify these concerns. Interestingly, experienced providers of access in south-east England found that it was local users who created the most problems with access (Church and Ravenscroft 2008)

Not surprisingly different ownership groups have different attitudes to access. Render (2004) found that this was in fact the only difference in management aim between the private and public / voluntary sectors. Private landowners, contractors and private non-forestry businesses/owners felt that owners should be able to do as they wish with their land, and were concerned they would lose control with increased access. Similarly a study in Sussex found that private owners did not feel a duty to provide access. However, public bodies and non-profit organisations felt they had a duty to provide access (Church, Ravenscroft, and Rogers 2005).

Woodland creation presents similar concerns about public access:

> Twelve farmers (63%) initially stated that they were unwilling to allocate land for public access recreational woodland. Of these the most commonly stated reason for refusal was that the farmer did not want to allow public access to the farm ... (Bateman et al. 1996: 36).

These resistances were, not surprisingly, not mentioned in studies of responses to grant schemes, where access was not a condition of grant provision (e.g. Crabtree et al. 1998). More surprising is the absence of studies of tree planting *after* the acceptance of a grant – all the studies of farmer attitudes to the community forests, for example, appear to be *a priori* studies highlighting their resistance. It would be most valuable to explore how attitudes have or have not changed, with the benefit of experience and hindsight, in areas where high levels grant provision were linked to access.

The economic motive

Not all researchers agree on the need to understand farmers' environmental values and attitudes. For many, landowner decision-making and behaviour is largely, some argue *exclusively*, a function of finance and economics: quite simply, land-uses that offer good profits will be adopted. Such profits can originate from 'the market' or government

grants, or a combination of both. Crabtree et al. (1998), for example, highlight the role of government incentives in land use change and propose that:

> Changes in the environmental services produced by farmers now largely result from government procurement through agri-environmental policy and do not result from the private conservation activities of farmers.

For them, therefore, it is simply a matter of understanding the finances and finding the 'tipping point' – that is, the financial threshold at which individuals begin to adopt certain land management behaviours/options. Once again, this threshold amount might potentially be reached through the influence of market forces, the provision of government grants, or both, but the consistent rationale is that economics overshadows other influences on landowners' decisions.

The evidence suggests significant debate amongst landowners and managers around the appropriate proportion of management costs that should be met by the market or by government grant. This can vary significantly in relation to different land uses, and the ratio of public and private good delivery. For example, substantial grants can be expected where public access and recreation is the primary management objective, whereas Dandy (2009b) reports that owners consider the existence of grants is not a substitute for commercial market forces and the market should pay for woodfuel production. In this case, grants should only be considered to 'plug' funding gaps that the commercial market does not fill.

What evidence is there for the 'economic motive'?

The existing evidence relating to the importance of financial return (profit) for landowner decision-making offers mixed conclusions. Church & Ravenscroft, for example, state:

> While over half of the respondents rated the availability of finance as very important or vital to granting access it is important not to overstate its role as others felt that it was not so important, or was irrelevant to them. (2008: 11)

The evidence identified by this study suggests that, whilst financial considerations such as balancing costs are relevant, the landowners studied are not *primarily* motivated by making money from woodlands. This is reflected by the commonly low ranking of commercial / timber production amongst stated management objectives. For example, Blackstock and Binggelli conclude that ' timber production was not, necessarily, considered the prime aim of farm woodland management.' (2000: 22). A study by Church and Ravenscroft also supports this argument. They note that 'relatively few [23%] of the respondents used their woodlands for commercial timber production' (2008: 9) (also, see section above). Landowners' motives and objectives are, however,

very likely to be influenced by knowledge, or perhaps a lack of knowledge. Bell 1999 noted landowners claiming 'I don't know what I can do to make it pay.' Perhaps most significant here is the seemingly widespread perception that woodlands and forestry cannot offer substantial economic returns (e.g. Burton and Wilson 2000: 4; see also Sharpe et al. 2001). There is convincing evidence that landowners do consider woodlands to be able to provide a small, and useful, income and that this is desirable. A concern that woodlands don't generate large profits does not, of course, necessarily indicate that owners *want* to make a profit from them. Rather it indicates that, for many, there is at least some need to balance costs. In East Anglia, Sharpe et al. 2001 noted that a large majority (87%) of woodland owners felt that they would manage their woods if they only break even.

Various studies highlight this perception of poor economic returns, and note that they can act as a barrier to the management of existing woodland. Church and Ravenscroft for example state,

> Overall, the findings suggested that few private owners own their woods in order to achieve a financial return; indeed it was widely asserted that woodlands could be a drain on finances. (2008: 10).

Sharpe et al. conclude (amongst owners with more than 5 ha of woodland) that 'poor perceptions of woodland profitability have dampened many landowners enthusiasm for managing their woodlands commercially' (2001: 2). 77% of their respondents expressed 'no confidence in the potential of their woodlands to diversify their incomes'. They find that while 'many' are keen to manage their woodlands, 57% attribute failure to do so, to economic deterrents. McMorran notes that, of woodland owners within the Cairngorm National Park area,

> 50% do not consider their woodlands as sources of income and a further 56% state that their woodland does not pay for itself. (2008: 154).

This study also found that 75% of the woodland owners felt that 'low timber prices' were a key constraint on woodland management, with 'lack of markets' (68%) and 'management costs' (67%) also crucial. Interviews with 'new entrants' led Ward and Manley to conclude that compared with farmers they are less concerned with 'making an income' from their land and more open to managing their land in an environmentally sustainable way. Bell (1999) recorded landowner views such as that woodland was 'not worth it, it's not productive', and 'there is no commercial basis for this woodland'.

Management for woodfuel production perhaps presents a special case. For example in Fife, the main reasons cited by landowners that limit greater fuelwood production were financial. In existing woodlands, the cost of extracting firewood is too high and the sale

price too low. Farmers perceived that short rotation coppice (SRC) would bring a lower financial return than agricultural crops, and the woodfuel market as uncertain. (Secker Walker 2009). A range of economic influences (amongst others) affecting the wood fuel sector and landowners' decisions were identified in a workshop held in south-east England by Forest Research and the Rural Research and Strategy Partnership (RRSP) (Dandy 2009a). These included a lack of a regional market infrastructure, long-term market viability, price, and the complexity of woodfuel as a product. Bell reports that when asked, 'have you heard of short rotation coppicing?' 74% of the respondents had. When asked, 'Would you consider this option?', seven farmers did say they would but qualified it with comments such as, 'depending on the financial return', and 'I'd consider anything profitable and convenient to do' (Bell 1999 :9).

Similar perceptions apply to creating new woodlands. Burton and Wilson conclude that 'The majority of farmers in this study did not believe that woodland was an economically viable option.' (2000: 4). This was because income was never as much as that 'lost' through not doing agriculture, woodland was considered slow and inflexible to market change, there is no guaranteed market, and too much land needed. The perception that economic returns from establishing woodlands is low is also revealed by Bateman et al. (1996) who conclude that the financial returns offered under Community Woodlands Scheme (£950/ha), even when combined with the Farm Woodland Premium Scheme (up to £250/ha), are 'poor' by agricultural standards (p. 21-22). Further to this, grant payments are made only over 10 (for conifers) or 15 years (for broadleaves) whilst recipients cannot reconvert the land for 20 or 30 years. Mindspace (2010: 18) also report that just 2 of 41 farmers (<5%) listed 'short-' or 'long-term income' as an influence on their decision to plant trees.

Other studies assert that the economic motive more broadly is relevant to landowner decision-making, although these tend to relate to woodland creation / planting. For example, the representatives of farming organisations that participated within Silcock and Manley's study identified a range of economic factors as being key influences on woodland expansion. These included grant payments, reluctance to lose any Single Payment (SPS), the high cost of land and associated potential opportunity costs, and the relative profitability of livestock sector (Silcock and Manley 2008: Section 5.6.2). Lloyd et al. asserts that 'it is the lack of financial incentive that exerts the principle deterrent effect' to farmers' adoption of woodland as an alternative land use (1995: 362). However, this assertion appears questionable as it is an interpretation of 4 prior pieces of 'survey evidence' of which one at least (the only currently available for review; Watkins 1984b) asserts exactly the opposite. In asking 'To what extent do the grants positively encourage [woodland] planting?', Watkins provides evidence that they do not including the result that '53 [woodland owners] (90% of those answering the question) did not consider that the scheme would make them seriously consider planting new small woods' (1984: 220).

Bateman et al. note that, in their study of willingness to accept compensation (*WTApa*), seven farms 'who initially rejected the principle of such allocation … stated a sum which they would be willing to accept in annual compensation for allocating land out of agriculture and into public access woodland'. They conclude from this that 'if the price was right, such farms would consider a move out of conventional agriculture.' (1996: 37). Indeed, those seven farms represented 58% of those 'who initially rejected the principle of such allocation' and so this seems a significant behavioural impact. However, the level of compensation considered acceptable in these cases of change was very high. For their sample, the average profit per acre under existing production £125/acre (1996: 35), but the mean stated *WTApa* was £250/acre (p.37). The same mean amount applied for prior and post 'willing' farmers. The Mindspace (2010) report claims that 'Everything is underpinned by money', although this conclusion seems rather misplaced when note is taken that only 22% of all its respondents offered 'Poor financial return' as a 'main concern/negative about planting trees' (1996: 21), thus for the remaining 78% either the assumed poor financial return is not a concern, or they believe that a good return can be made.

Perhaps more convincing is the evidence that suggests that woodlands can provide a small, and useful income, and that this is desirable for owners. Carter (2007), for example, illustrates how some new (small woodland) owners come to buy woods (e.g. inheritance; redundancy), and that making a small income from charcoal; timber; logs; inheritance tax breaks is desirable. Also Blackstock and Binggelli note that

> Contrary to widely held views farm woods do provide useful, if sporadic income for the farming community, either at times of National crisis (Wars, fuel shortages etc.) or, more recently and short sightedly, through agricultural improvement grants. (2000: 26)

Land Use Consultants (2007) note that 64% of woodlot owners would wish to 'make a modest profit' if they ever sold their woodland.

Delivery mechanisms

Ways in which landowners are encouraged to create or manage woodland, or discouraged from removing it, include financial incentives, regulations, and advisory services. In this section we review the evidence relating to the efficacy of these approaches.

Grants

Do grants *change* behaviour?

Evidence described above suggests that economics plays a relevant, but not dominant role in landowners decision making about woodland management and creation. Given this it is useful to consider the impact of government grants – which aim to encourage certain land management behaviour by improving the economic conditions around it. In short, can grants change economic conditions sufficiently to change land owner behaviour? Somewhat surprisingly the studies identified only rarely ask whether grants in fact trigger landowners to manage or plant[4] woodlands additional to, or differently from, that which would have occurred in their absence. This might be explained by a simple presumption that they must, and indeed some evidence supports this. For example, in a study conducted in East Anglia, 82% of owners said that more grants would encourage them to bring their woods into management, with 73% saying that better markets would have the same effect (Sharpe et al. 2001). Church and Ravenscroft note the importance of grants for governmental and 'third sector' landowners' decision-making with over 60% rating them as 'very important or vital.' (2008: 13), along with some interesting observations around the perceived importance of grants to contractors.

> for most contractors and agents their involvement with an owner is dependent on money being available to pay them which is often more likely when there is a grant ... many of the agents and contractors use the availability of grants as a basis for approaching owners. (2008: 13)

Reports that farmers are attracted by the right price are much more anecdotal. This is not to say it is not the case but the issue has not been thoroughly researched. One report, based on professional experience rather than evidence gathering, concludes that

> the launch of the Farm Woodland Premium Scheme in 1992 has finally offered a more appropriate and viable package to famers in the [South-West] and has already attracted much interest. (Cater 1994: 131)

However, more of the (few) studies that have asked this question cast doubt on this presumption. Ward and Manley note simply that 'many ['new entrants' to the land market] accept that they do not necessarily need the grant aids' (2002a: 50). Burton

[4] The available evidence relating to the impact of grants on behaviour change makes disaggregation of woodland management and creation difficult. In this section they are discussed together. Having said this, Elliss and Frost note that 'nearly three-quarters of respondents thought that there was not enough support for existing woodland compared with support for new funding'.

and Wilson discussed financial reward as an incentive to manage woods for public recreation and access concluding that:

> Despite reports to the contrary in other studies, there was little indication that farmers attitudes would change if access were made a matter of payment. (2000: 6).

In a rather old study, Watkins reports the finding that:

> Of the owners who had already received grant aid, just under a half considered that they would have planted as they did if the grant had not been available. (Watkins 1984: 223).

More current and detailed are the findings reported by Church and Ravenscroft (2008). They reveal considerable scepticism about the power of grants to induce *additional or different behaviour* in the private sector. That is, grants may be important for those owners already engaged in forestry, but appear to be of little effect when trying to motivate landowners to become engaged initially, particularly where access is involved.

> [J]ust 14% of private owners **not involved** in commercial forestry rated grant aid as vital or very important in determining whether or not they choose to provide public access to their woodlands. ... [W]ell over half of private owners not involved in commercial forestry felt that the availability of grants was irrelevant to their decisions, and that since they did not acquire the woodlands for financial return, the availability of grants was not a prime concern when considering future management and use ... Private owners **involved** in commercial forestry, however, had quite varied views with over 60% of these owners feeling that the availability of grants was very important or vital to their decision, although over 30% of this category felt that grants were not very important or irrelevant. (2008: 12-13, emphasis added)

Further to these findings, Church and Ravenscroft make reference to other work drawing similar conclusions:

> Hampicke's (2001) work represents something of a departure in recognising that, while the state might wish to calculate the efficiency of using financial and other incentives to foster or prevent particular management actions, private owners rarely undertake similar calculations. Consequently, research that concentrates on owners' propensity to take up incentives runs the danger of assuming that there is a direct linkage between incentive and action, even though it is widely acknowledged that this is not the case (see Mills et al., 1996; Erickson et al., 2002; Burton, 2004). (Church and Ravenscroft 2008: 5)

A Mindspace (2010) survey of farmers noted that just 15 of 41 respondents (36%) who had planted trees said, unprompted, they had done so because grants were available. The same report states that only 6 of 37 respondents (16%) who had *not* planted trees said, unprompted, that grants could positively influence them. Betts and Ellis (2000) point out that although woodland owners *say* they want more grants, they know little about them and appear to be content with their current levels of management; they conclude that advice is at least as important in motivating change.

Along similar lines (of triggering additional or different behaviour), Wavehill Consulting report on the impact of a small scale grant trial scheme in Wales (First Steps) in terms of generating applications for the main Better Woodlands for Wales (BWW) scheme. Whilst the sample is very small, three of the six farmers who were considering applying for a BWW grant said that they would have considered doing so regardless of whether or not they had been supported by the First Step scheme and another two thought it possible that they would have. Just one believed that he/she would not have done so unless supported by First Step. This same study states that just one-quarter (26%) of its respondents felt that 'financial benefits' were the 'best thing' about the Better Woodlands for Wales grants scheme (2009: 30). This study also noted that 35% of landowners not receiving grants said that nothing would persuade them to plant more woodland.

Indeed, in many of the studies there appears to be a percentage of the sample that simply is not interested. For example:

- Ten farmers did not consider that any incentive could be large enough to encourage them to plant. (Bell 1999: 18)
- 13/37 farmers 'stated that there was nothing that would influence them to plant trees' (Mindspace 2010)
- 78.5% had no plan to increase woodland (Burgess, Goodall, and Wharton-Creasey 1998)
- 5 of 19 farmers refused to state a sum which they would be willing to accept in annual compensation for allocating land out of agriculture and into public access woodland (Bateman et al. 1996).
- 16% of woodland owners in a range of sites 'was against all types of access an … would resist all inducements to change its negative attitude' (Sime, Speller, and Dibben 1993)

These findings cast doubt on the value of attempting to design incentives to attract all landowners.

Perceptions of grants

Many studies highlight the number of woodland owners and farmers not in receipt of grants. The overall proportion and significance is difficult to estimate. One study that does this well is Render (2004). He notes that although only 52% of his respondents from the private sector are within a grant scheme, those respondents represent 92% of the woodland area – in other words those not participating own a very small share of the woodland. Furthermore, however, he points out that those who responded represent only about 50% of those invited to respond, and that there are still others who were not even invited on account of not being known as owners. All of these are likely to be non-participants, and so the overall coverage of grant participation remains unknown.

The evidence reviewed by this review highlight four primary aspects of landowners' perceptions of grants and grant schemes. These relate to (i) bureaucracy and administration, (ii) economic adequacy, (iii) control and property rights, and (iv) restrictiveness and flexibility.

Bureaucracy and administration are a very consistent feature of landowners' perceptions of grants, or more accurately grant schemes (Church and Ravenscroft 2008, Cunningham 2009, Dandy 2009a, Elliss and Frost 2002, Urquhart, Courtney, and Slee 2009, Wavehill Consulting 2009). Overall these studies show that landowners perceive grant schemes to be bureaucratic, complicated and an administrative 'burden'. Some studies offer somewhat contradictory evidence, for example, Wavehill Consulting (2009) identifies the 'straightforward' process as one of the best things about the grants schemes it was examining, yet it also, somewhat confusingly, identifies 'paperwork' and complexity as amongst the worst things. Other studies do report positive perceptions of grant scheme administration. Ward and Manley (2002b), for example, conclude that although there is some frustration attached to the administrative loading of grant schemes, this is not in itself obstructing their use. They identify an acceptance by landowners that there is some necessity or inevitability of this in receiving public funding.

A survey undertaken in 2009 assessed the success of the Woodland Trust's FREEwoods scheme, which supported the planting of 84 ha of native woodland in England in 2008-2009 (Cunningham 2009). Over half of those surveyed were aware of FC grants, but often indicated that they found the application process frustrating, inflexible and bureaucratic. However, they were very positive about the FREEwoods scheme, especially liking its simplicity and that it was free.

A number of studies indicate that landowners consider grants to be economically insufficient – that is, that they do not offer substantial enough quantities of money

(Bateman et al. 1996, Bell 1999, Crabtree and Appleton 1992, Dandy 2009a, Sharpe et al. 2001, Silcock and Manley 2008, Urquhart, Courtney, and Slee 2009, Watkins, Williams, and Lloyd 1996, Wavehill Consulting 2009, Wibberley 2002). This is not necessarily a simple or ubiquitous phenomenon. For example, Bateman et al. note how it might vary with existing land management activities.

> Farms with higher profit levels from existing activities demand higher levels of compensation for entering the woodland scheme. Furthermore those who are only willing to consider small scale planting require higher per-acre payments. This implies, logically, that large scale plantations, which presumably will benefit from economies of scale, are considered viable alternatives at a relatively lower per-acre subsidy rate than small scale woodlands. (1996: 38)

This is also noted by Crabtree and Appleton (1992) who find that grants under-compensate farmers for the costs of woodland establishment, but note that this effect is often associated with proposed planting on high quality arable land, whereas most farmers planted on their poorest land, and made compensatory adjustments elsewhere. Given the cultural factors highlighted above, Burton and Wilson (2000) suggest that grant givers should calculate the economic costs to the farmer, and then add an additional increment as an incentive to compensate for concerns about public access.

There is a perception that 'management grants and the additional supplements were viewed with uncertainty and were thought to be badly organized and inadequate' (Watkins et al. 1996: 169) by farmers, based on a number of studies in the 1990s (Ni Dhubhain and Gardiner 1994 , Sandys 1994 , Scambler 1989, Watkins, Williams, and Lloyd 1996). The respondents in Silcock and Manley's study stated that grant scheme payment terms were too low (2008). Dandy (2009) reports landowners' perceptions that, given the general 'climate' of public spending over the coming years, grants will decrease in amount still further and be less available. Some studies highlight that owners can sometimes want the full cost, or more, of woodland establishment to be covered by grants (Bell 1999; Dandy 2009; Urquhart, Courtney and Slee 2009).

Much of the research undertaken in relation to woodland planting in the UK dates from the 1990s when new government initiatives were being introduced to encourage farmers to plant trees on agricultural land. An opinion poll by the Royal Agricultural Society of England in 1994 indicated that inadequate financial incentives and the absence of tax relief were the greatest barriers to woodland planting by farmers in the UK (RASE 1994). Bateman et al. (1996) found that farmers' willingness to accept values suggested that subsidy payments were too low to attract many to provide recreational woodland. This concurs with Scambler (1989), Watkins et al. (1996) and Bell (1999) who found that farmers had little interest in forestry or woodland. Similarly, Clark and Johnson (1993) found that farmers interest in new planting in the Central Belt of Scotland and

knowledge of financial incentives was low. In this study, farmers saw trees as useful for shelter and beneficial in the landscape, as did Lancashire farmers in a study in 1999 (Bell 1999). These findings are all specific to the 1990s and grant incentives have changed since then.

Another common perception amongst landowners is that accepting grant money from government will entail a loss of control over their property – particularly when linked to grants for public access (Sime, Speller and Dibben 1993; Urquhart 2006; Urquhart, Courtney and Slee 2009; Cater 1994). Sime et al. (1993) indicated that many private woodland owners have a strong sense of attachment to their woodland and want to maintain control of its management. They concluded that maintaining rights of ownership and control appears to be more important than the offer of a grant, with owners more likely to accept public access under a temporary agreement. In a study undertaken in England by Urquhart (2006), woodland owners again indicated a strong sense of perceived property rights, with statements such as, ' It's our land and we want to keep it that way' and 'I don't like being controlled by the system'. In this regard, Sime et al. (1993) suggest that grant conditions need to reassure owners over issues such as property rights, control over entry and/or use of the woodland, and owners should be provided with legal and financial support against theft and vandalism.

Clearly linked to this concern Church & Ravenscroft (2008) found that the extent to which incentive goals were consistent with owner objectives was an important factor in uptake:

> [T]he findings from the interviews showed that a majority of the respondents claimed that for access grants to appeal to owners they need to be linked to the owners' wider objectives for owning woodland, especially silvicultural management ... the propensity of owners to take up any incentive is not driven primarily by financial goals. Rather, it is a function of their predisposition towards the goals of the recreational access incentive scheme and the extent to which these goals are congruent with their self-identity as (largely) custodians of their woodland. (Church & Ravenscroft 2008: 13)

A fourth key perception held by landowners referred to by a number of studies is that grants result in an inflexible and restrictive land management regime (Cunningham 2009; Urquhart, Courtney and Slee 2009; Wavehill Consulting 2009). One aspect of this is that, whilst agricultural crops with annual cycles offer opportunities to adapt or change land management, forestry operates over much longer timescales. Accepting grant money means that the landowner is tied in to that land use for very long time periods, with no opportunity for change. This is especially problematic for older landowners who may not see a woodland 'crop' cycle (Burton and Wilson 2000).

Despite these four areas of concern, Render (2004) finds that grants (those allocated by area at least) can be preferred to tax incentives for the provision of certain public benefits (particularly landscape protection and nature conservation) (Table 7-25).

Influences on grant uptake

The evidence reviewed by this study highlights three key explanations for landowner uptake, or lack thereof, of grants. These relate to (i) interest, (ii) knowledge, and (iii) availability of suitable land.

Two studies (Watkins 1984, Wavehill Consulting 2009) find that a lack of interest in woodlands and forestry is a significant reason for landowners not to apply for grants. 'Lack of interest' is however a vague reason, and it is disappointing to find that few studies explore this more deeply.

More tangibly, two studies (Ward and Manley 2002a; Wavehill Consulting 2009) cite lack of landowner knowledge and awareness of grants as a barrier to their application for grants. Crabtree et al. (1998) analysed data about non participant farmers in the Farm Woodland Premium Scheme and found that 36% were not aware of the scheme. However they concluded that non-awareness was strongly associated with other predictors of non-participation, and that it should not be treated as the focus of intervention. In a study of woodland owners in Surrey, of the 15 people who thought financial incentives would encourage them, only half had any knowledge of grants (Betts and Ellis 2000). Information does appear to make a difference: Coed Cymru and/or the Forestry Commission have had a greater influence on a farmers' decision to apply for a woodland grant than any of the other factors or group noted. 20-32% of farmers also cited 'help and advice' as the 'best thing' about the BWW and First Step grant schemes respectively (Wavehill Consulting 2009).

Others imply that farmers are barely aware of the economics of farm forestry and that this somehow impedes them from applying for grants. For example, some studies seek to assess landowners' 'knowledge' of woodlands and forestry by asking them to estimate the value of their trees and/or woodland products (e.g. Bell 1999; Wavehill Consulting 2009). In the Wavehill Consulting study, those interviewed were asked to estimate the value of their trees in terms of the firewood, fencing and the timber it could produce. Over 90% were unable to provide any kind of estimate. Also in this study, few of those landowners who would be interested in planting more woodland could give any kind of indication of grant size, or annual income, that would be necessary to persuade them to plant additional woodlands; 87% saying that they had no idea. Over 80% of farmers could not respond when asked to estimate how much grant was available for planting

new woodlands, thinning and felling and re-stocking. The range of amounts quoted by those who could respond is also noticeable. (Wavehill Consulting 2009).

Along very similar lines, Bell notes;

> Farmers do not appear to have a great understanding of forestry. There was an enormously varied response to the estimate of the monetary value of wood products. ... There was a wide range of costs estimated for planting an acre of woodland and little idea of the grant level currently available. (Bell 1999: 2)

And in Northern Ireland this finding extends to farmers with woodland:

> When the farm foresters were asked 'when will your wood be ready for harvesting' 58% of the respondents did not know. ... Only 14% of those interviewed provided an estimate for the amount of timber, per acre that their woods would produce at final harvest. ... Eighty four percent of the farmers questioned did not know how much money they would receive from their timber (Blackstock and Binggeli 2000: 23)

Whilst these studies may offer support for farmers' ignorance of grants, they seem to offer in fact further support for the idea that it is not finance that is the primary motivator of those who choose to manage their woodlands.

Another two studies highlighted the perceived lack of availability of suitable land as a barrier to grant applications. Watkins states that in his survey 'The most frequently given reason ([*n*=]21) was the lack of a suitable area to plant' (1984: 221). This perception is also closely linked with culturally defined categories addressed above, such as 'this is vegetable growing land no compensation is possible especially as there is no guaranteed market'.(Bell 1999: 18).

The study by Wavehill Consulting (2009) lists a number of management objectives which drive grant uptake. Of those that had received grants in Wales, improving fencing and to enhance the woodland were the most likely motivators for enrolment in the Woodland Grant Scheme (WGS) and its successor Better Woods for Wales (BWW) (Wavehill Consulting 2009). Recipients of BWW grants also cited financial reasons, while recipients of a First Step grant indicated that the ability to plant trees and improve wildlife habitats were the main drivers. A full summary of the drivers for uptake of these grants is presented in Table 3.

Influences on whether nor not to enrol in a grant scheme were likely to be family and partners, as well as the Forestry Commission and Coed Cymru (Wavehill Consulting 2009). It is also interesting to note that the majority of farmers who had engaged in grant schemes rated them as good or very good.

Table 3: Stated drivers for grant uptake in Wales

WGS	BWW	First Step
1. To fence woodland (29%)	7. To create better woodlands (20%)	14. To plant trees (35%)
2. A need to thin/clear woodland (17%)	8. Financial and cost reasons (20%)	15. Coed Cymru (29%)
3. Issues relating to steep ground on farm (16%)	9. To fence woodland (18%)	16. Wildlife (26%)
4. Issues relating to unproductive or wet land on farm (16%)	10. To better manage woodlands (18%)	17. To fence woodland (23%)
5. Wildlife (16%)	11. To meet Tir Gofal requirements (14%)	18. To provide shelter/shade (16%)
6. Somebody told farmer about grant (13%)	12. To plant trees (11%)	19. To access advice and assistance (16%)
	13. Wildlife (9%)	

Source: Wavehill Consulting 2009 (Frequency: WGS:77; BWW: 74; First Step: 31)

Regulations

There is a lack of evidence relating to owners' attitudes towards woodland regulations. What evidence exists is mostly anecdotal or addressed as part of broader analyses of owner motivations and goals for management. Very few studies explore knowledge of regulations directly. About half of the respondents in a small study in Surrey 'had little or no knowledge of the statutory controls on felling' (Betts and Ellis 2000).

However several studies report an indirect effect of some awareness and perceptions of regulations. Farmers in Lancashire found the sense that 'There is no going back' a disincentive to plant (Bell 1999); and loss of land is also one of the fears of less conventional owners (Cunningham 2009). This disincentive can be particularly strong in regions where land prices are affected by development options Burton & Wilson (2000: 4).

One study by Lloyd et al. (1995) reports older surveys indicating that farmers are deterred from establishing woodland principally by lack of financial incentive, but also by perceived 'loss of flexibility' owing to controls such as felling licences which restrict the conversion of woodland back to agricultural land. The authors suggest that abolishing felling restrictions on new woodland may encourage more farmers to enrol in tree planting schemes on their land. Their study is based on a secondary interpretation of data collected in the 1980s but similar views have been expressed recently by representatives of the commercial sector.

For the newer owners, the idea of living in, or building holiday homes in woodland may be important. For example Carter (2007) notes the awareness that one new (small woodland) owner had of regulations:

> planning rules closer to home are so restrictive that you can't even spend more than 28 nights a year on your own woodland while you look after it. There are tight restrictions on how many trees you can clear and how much wood you can sell, too.

At a workshop on woodfuel production from private woodlands in East Sussex, participants noted a wide range of legislation and regulation that is perceived as impacting negatively upon decisions to engage in woodfuel production. These included felling licences, European competition law, smokeless zone regulations, waste (ash) disposal, listed landscapes, and tree preservation orders / Conservation Area regulations (Dandy 2009: 5).

On the voluntary regulation side, certification schemes monitor the sustainability of wood products and, in the UK, is administered under the UK Woodland Assurance Scheme (UKWAS) which is recognised by the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC). Over 40% of UK forests are certified, accounting for over 60% of production (Garforth and Thornber 2002).

In their report, Garforth and Thornber (2002) conclude that public, private and NGO organisations have differing motivations for certification. They found that trusts were likely to certify to support the principle of certification; small woods and estates enrolled for market and ethical reasons; large woodlands and forest management companies were likely to certify for market reasons and improved access to markets and Forest Enterprise enrolled to illustrate sector leadership and as a result of market pressures. The study found that while certification had a positive influence on forest management, there were increased costs to forest owners without any clear financial benefits. Barriers to certification were cited as cost, time and paperwork, especially for small enterprises.

Certification is also designed for productive forests so some of the requirements are not compatible with and may conflict with other objectives, such as conservation or shooting. Further barriers included a lack of guidance and the complexity of the guidelines, difficulties in getting certified without prior management planning (usually in the form of WGS) and the invasive nature of the audit.

Knowledge and information

In this section we focus on evidence for the role of information and knowledge, independently of grant acceptance.

Most studies which address this highlight a perceived deficit in the knowledge of private woodland owners. As discussed above, some studies highlight a lack of basic knowledge about the resource, implying that this indicates a lack of interest in management. For example, Bell found that only 33% of owners with woodland were able to attribute an age to their woodland (Bell 1999: 10). Farmers highlight this lack of knowledge themselves, reinforcing the cultural identity of 'farming does not include trees'. For example, in lowland Scotland, most farmers who were interested in forestry wanted to sell it to agencies for forestry – this was because they didn't feel knowledgeable about forestry themselves (Scambler 1989). Farmers interviewed in Fife indicated that lack of information about short rotation forestry was a disincentive to try it (Secker Walker 2009).

However it could be argued that there is no reason why farmers need to have specialist forest management knowledge if they have the contacts and relationships to bring in contractors. Lack of knowledge may be a greater disincentive to new woodland planters without such contacts.

Existing woodland owners cited lack of knowledge less often. One striking description from Central Scotland highlights the farming / woodland split however:

> Woodland management … appeared to lie outside the frame of requisite land use knowledge. Difficulty was experienced in describing the extent and structure of existing woodland cover: 'strips', 'shelter belts', 'rows of trees', were phrases used to describe small areas of woodland that ranged from moribund Scots pine shelter belts, to dense, unthinned, aging Sitka spruce plantations. As a result farmers' definitions of woodland cover on the farm … were heavily prompted and remain unverified (Clark and Johnson 1993: 17).

In Surrey lack of knowledge met with a more positive approach: 75% of respondents in Surrey felt they wanted more knowledge about woodland management (Betts and Ellis 2000). In East Anglia, 21% of woodland owners (of > 5ha) said that a lack of relevant advice deters them from managing their woodlands, and almost half (48%) specified that a lack of knowledge of how markets work, has the same effect (Sharpe et al. 2001). Common information needs were the quality, cost and location of contractors and labour, which supports the conclusion above that owners are happy to buy in relevant knowledge. In the Chilterns, 55% of private owners with more that 20 ha felt 'very' or 'quite' knowledgeable, whilst only 26% of those with less than 20 ha felt the same. 67%

of those in the public and voluntary sectors felt similarly knowledgeable but relied on consultants and contractors (Render 2004) .

This lack of participation in formal networks is noted by others as well. In Northern Ireland

> Almost 85% of the farmers questioned did not belong to any forestry organisation ... 72% of the farmers questioned answered that they would not join. (Blackstock and Binggeli 2000: 23).

Greenshields, interviewing small woodland owners in Somerset, also found that nearly half would not be interested in the formation of a woodfuel production group, because they were 'happy as they were' (Greenshields 2009)

Consequently Ward and Manley (2002a) warn against a breakdown of the existing informal networks of management help, which rely largely on the presence and pro-activity of existing farmers operating amongst new entrants. No single solution could remedy deficiencies in the information network, as new entrants are a diverse group of individuals. A range of measures should be considered, including targeting of advice via land owning and farming organisations, sporting organisations, land agents, a well advertised internet site and monitoring of structural change at a local level.

What sources do woodland owners seek for advice? The evidence for this is quite mixed, and highlights the diversity of the stakeholder groups, but there is a consistent thread of reliance on (and expectation of) the FC.

The Sustaining England's Woodlands study indicates that the FC is seen as an 'ally' but risks losing this status. The famous 'can-do' approach of Woodland Officers is recognised by those responding to the survey, and contrasting with the more office-based approach of other agencies. Partnership with a wider range of organisations is however strongly advocated (Elliss and Frost 2002).

In the accompanying qualitative study, regional meetings with woodland owners highlighted this need for practical field advice, and recommended that the FC make more of its good standing with landowners. Mixed opinions are reported however, with some seeing the FC as uninterested in small woodlands, but others highlighting the approachability of FC staff (Wibberley 2002). The consultation groups highlighted an interest in 'new flexible grants' being linked to on-going advice. Local authorities are also popular sources (Betts and Ellis 2000).

Of farmers in Northern Ireland who would ask advice on forestry, the Forest Service was the preferred choice of most; farm forestry co-operatives had more impact in some

areas, and the farming press was also mentioned. Otherwise, forestry contractors and conservation groups were considered important. (Blackstock and Binggeli 2000: 24)

Woodland owners in the High Weald indicated that their preferred source of advice was Forestry Commission officers and woodland management books (Urquhart 2009). In Wales too, farmers are most likely to seek advice about woodland management from brochure and books, and forestry advisors (Wavehill Consulting 2009). They also found that owners who were involved in a grant scheme were more likely to seek advice, although there is some circularity to this finding.

Some studies find that owners are least likely to seek advice from friends and family, the internet or TV (Urquhart 2009). However, in the Welsh survey cited above, 43% of respondents indicated that they sought advice about woodland management on the internet (Wavehill Consulting 2009). A survey of farmers undertaken in Northern Ireland revealed that the Forest Service and the farming press were considered to be the main sources of advice, but farmers also gained information from the wider press, neighbours, contractors, forest co-operatives and agricultural advisors (Blackstock and Binggeli 2000). It is clear that one communication tool or advisory service does not suit all forest owners.

Ward and Manley (2002a), who focused on 'new entrants', found that many obtain management help and advice from local farmers; they sometimes transfer part of the land management responsibility to them. They rarely use specialist conservation advisory services. Levels of training in conservation and woodland management are low and, although lack of time was frequently cited as an obstacle, the fact that most new entrants were not within established networks of conservation advice and literature might also be a contributory factor. Mainstream conservation organisations did not figure significantly and respondents were unaware of FWAG and ADAS (Ward and Manley 2002b). Similarly in Kent a wide range of sources is cited – FC, Woodland Trust, wildlife trusts, and various projects – for woodlot owners (who are likely to be new owners) (Land Use Consultants 2007).

It is striking that several studies highlight a preference for more 'one-to-one' or 'face-to-face' contact, and conclude that it is 'personal advice that stimulates interested people actually to carry out management operations in their woods' (Betts and Ellis 2000).

Finally a neglected question is hinted at by Cater of *whom* to liaise with. She observes from experience that 'within the household it is often another member of the family – a wife or son – who triggers an interest in woodland management rather than the full-time farmer' (1994: 131). This seems to reflect the finding in Wales that grant acceptance is often influenced by other members of the family (Wavehill Consulting 2009).

Some studies highlighted more specific information needs, and again this varies greatly with research focus and sample. In Wales, hill farmers reported great interest in identifying and protecting woodland wildlife, followed by controlling invasive species. Very little interest is shown in some of the more commercial topics (Wavehill Consulting 2009). However woodland owners who had made the effort to travel to a one-day workshop in East Sussex reported confidence in their woodland management knowledge, but a lack of market knowledge (Dandy 2009b).

Finally few studies acknowledge alternative methods for sharing information. The workshop in East Sussex (which involved woodland owners already interested in management) noted 'having opportunities to visit actively well-managed woodlands is considered a key method through which to encourage owners to engage in woodland management, including woodfuel production. However, current social networks do not facilitate this.' (Dandy 2009b).

Can we generalise about different kinds of landowner?

Why create typologies?

Advocates claim that typological research and analysis can provide useful links between social groups and the behaviour of individuals within them. Whilst some organisations or individuals may claim to represent the 'landowning sector', landowners (both individuals and organisations) are, in fact, very diverse and the social 'world' in which they take decisions about their land is profoundly complex and changeable. Understanding (i.e. explaining and predicting) the behaviour of this group as a group is fraught with the difficulties of individual variation. On the other hand, understanding the behaviour of each landowner individually is, of course, an impossibly large task.

This basic problem leads some of those attempting to understand this social group to seek to identify a few important commonalities (common characteristics) that are shared amongst individuals which might explain most behaviour. Many studies correlate one (or more) landowner characteristics to one form of behaviour. For example, it has been suggested that younger farmers and those who own their own farms are more likely to be interested in forestry and forestry grants (Scambler 1989; Gasson and Hill 1990).

A second response, encountered widely in the international literature, is to attempt to construct coherent 'categories', 'classes', or 'types' of landowner through which to aggregate individuals around more than one of their primary characteristics. Advocates of this approach claim that once these categories have been established then the

behaviour of individuals within them can, in general terms, be understood and predicted. According to Boon, Meilby, and Thorsen (2004), 'typologies simplify and organize complex reality, they describe patterns but they do not describe individuals.' This approach is referred to variously as 'typology-building', 'segmentation', or 'classification', and can also be a prominent feature of formal 'stakeholder analysis'.

The claim that typology-building can identify groups of individuals who will behave similarly in response to certain stimuli (e.g. a product, a piece of information, or a government grant) is at the core of its attractiveness. This is because it is considered that groups can subsequently be 'targeted' efficiently and effectively to promote certain behaviours through the tailoring of interventions to suit them. Such a philosophy is, of course, at the heart of business marketing and advertising, but is commonly exported to other contexts, including the analysis of woodland/forest owners. For example, Hogl, Pregernig, and Weiss (2005) claim:

> The rationale for the study reported here is that a clear understanding of the structure of forest ownership in terms of the owners' goals, attitudes and behavioural characteristics is needed to design effective and efficient forest policy instruments. A typology of forest owners which differentiates groups with regard to relevant characteristics and which is applicable in the field might help to target forest policy towards specific owner groups more effectively.

According to this argument, high quality 'typology-building' (or 'classification', or 'segmentation') can provide an effective short-cut to behaviour change. In the forestry context, typological work is thus of potential benefit in relation to, for example, understanding the uptake of incentives (e.g. grants) and the more general management priorities, objectives and behaviours of landowners.

It is important to note that the notion of 'targeting' segmented social groups raises the question of whether, in a democratic state, groups should be targeted in relation to governmental interventions. This could be especially problematic if the same governmental intervention, e.g. a grant, were to be distributed differentially across social groups. It is perhaps more constructive to conceptualise typology-building as about understanding the range of services / incentives that are required to meet the needs of all stakeholders. In most cases quantitative survey data of forest owner objectives is used to generate typologies and analysed using factor and/or cluster analysis.

Finally, in order to 'target' effectively, it is key that typologies are constructed in relation to reasonably knowable categories of information and types of intervention. A typology which asserts that professional forestry advice is particularly effective at promoting certain behaviours amongst new owners, or members of certain organisations, is a potentially powerful tool – especially in the UK where ownership changes must now be

registered with government authorities. One which asserts that landowners who hold 'environmentalist' views are most likely to manage woodlands for wildlife conservation would perhaps be of less value.

Existing typological evidence

Despite finding more than 20 scientific papers published in the international literature attempting to classify, or build typologies of, private forest owners, only two studies in the UK (Urquhart 2009; McMorran 2008) have completed a detailed analysis of woodland owners using this approach. Urquhart 2009 focuses upon the 'provision of public benefits' (e.g. biodiversity, recreation, landscape, carbon sequestration), but also considers responses to public incentives. Subsequent to statistical analysis, it identifies six owner categories with differing objectives and behavioural tendencies - 'individualists', 'multifunctional owners', 'private consumers', 'conservationists', 'investors' and 'amenity owners'. This study asserts that some owner types are unlikely to apply for government grants, whilst others are more likely, but does not generate clear indicators regarding how to identify the various types.

McMorran (2008) offers three broad types of forest management in the Cairngorms area studied – 'sustainable multifunctional forestry', 'restricted functionality forestry' and 'dual function (access and conservation) forest management'. These broad types are broken down further into a total of 6 'sub-themes'. As with Urquhart (2009), this typology focuses primarily on management objectives as its core structuring variables. Less is said about the role of governmental interventions and the identification of owners' type.

Scambler (1989) provides a very simple classification of farmers in relation to forestry and woodland management, namely those with 'slight interest' and those with 'no interest'. The author concludes that youth, ownership, having a large farm, and location on upland or marginal land make farmers more likely to be 'slightly interested'.

Ward and Manley (2002a) adopt a classification of 'new entrants' to the landowning social group (new entrants being 'individuals who are buying rural land for the first time'), however this is an *a priori* classification set by the terms of reference of the research project. That is, the research was commissioned to investigate certain types of 'new entrant' which were deemed of interest. These were 'second home and weekend retreats', 'country lifestyle retreats', and 'hobby farmers' (2001a: 6).

One of the characteristics that is most difficult, but useful, to understand is the responses of landowners to incentive schemes. Crabtree et al. (1998) found that those farmers participating in woodland incentive schemes were not easily classified as any particular subsection of landowners, with 14% not 'active' farmers and 21% not

primarily depending on income from farming. In fact they conclude that they could model participation without including life cycle and social variables at all, and that large random studies of such are inefficient. Gasson and Hill (1990), cited in Crabtree et al 1998 (and apparently based on 'small and highly unrepresentative samples' of adopters and non-adopters of the Farm Woodland Scheme) identified a number of characteristics of grant scheme adopters noting that they were more likely to be younger, owner-occupiers, agriculturally qualified, with more profitable farms, existing woodland and successors present. Many studies, despite seemingly having sufficient data, do not attempt to classify landowners (e.g. Watkins et al 1996; Wavehill Consulting 2009).

Currently, evidence is weak relating to the identification of 'types' of landowners, and linking this to effective intervention or engagement strategies and identification characteristics.

Geographical variations

This study implies that there is considerable variation between responses in different parts of GB (and the UK, although we only have one study from Northern Ireland). This could generate a number of hypotheses about what motivates landowners in different regions, but few studies have explicitly compared them.

Urquhart (2009) found some regional variation in motivations for ownership between Cornwall, the Lake District and the High Weald. Woodfuel production (mainly in terms of private household supply) was most important in the High Weald, as was privacy, personal enjoyment and mitigating climate change. Cornwall owners were more motivated to enhance and protect wildlife habitats. In this study Cornwall and the Lake District had a higher uptake of government grant schemes than the High Weald.

New entrant activity is highest in hot spots of high amenity value and accessibility throughout Great Britain. It is most prevalent in East Sussex and the M3/M4 triangle to the west of London. Other notable areas include the rest of Southern England, Eastern Home Counties, West Midlands, Cheshire and the Welsh Borders, Suffolk, South West Wales and Yorkshire. (Ward and Manley 2002a)

Discussion

Evidence relating to influences on landowners' decision-making about woodlands is relatively abundant, but not consistently good quality. It is patchy in terms of geographical and stakeholder coverage, and hard to compare because each study measures a different set of parameters or uses a different method. For example, the Wavehill study of Welsh farmers focused on reasons to accept grants, not reasons to

plant trees, whereas that of Bell in Lancashire focused on reasons to plant trees. Opportunities to generate more useful and relevant conclusions are frequently missed. Two major FC-commissioned studies collect data on the respondents which they do not then use to segregate responses, so opportunities are missed to compare the attitudes, for example, of grant holders with those of non-grant holders. Furthermore most of the evidence is quantitative so overlooks explanations in landowners' own terms. Because of these concerns about quality and coverage, the following points are made for discussion, not as 'firm' conclusions.

The most important stated **management objectives and motivations** for both woodland management and new planting are often those requiring limited intervention (i.e. conservation & biodiversity; landscape; shelter; shooting), with productive management consistently low on the list. It is not clear from the evidence however whether this low priority is because of low expectations, lack of interest, or some other reason. It may be that these types of management objective represent some 'default' position the landowners resort to when and where they are asked to identify their objectives. More nuance is required in the understanding of owners' 'objectives', especially to enable greater synergies between them, public policy objectives and governmental methods of intervention / engagement.

There appear to be differences in the influence of '**economics**' on the various woodland management stakeholders. Whilst balancing the costs of woodland management is important to many, overall owners appear not to be strongly motivated by the desire to make money from their woods. The evidence suggests that landowners are infrequently inspired to *plant* trees by the desire to make money. This seems to be echoed somewhat by the fact that **grants** may have only a limited capacity to induce previously undesired woodland management or planting. They do appear to be an important influence upon the woodland management of those already engaged or with an existing interest – such as commercial forestry operations, and contractors, along with public sector and 'third' sector organisations.

Owners commonly **enjoy, and feel responsible for, their woods**. Most want to manage 'well'. This is, however, variously defined and understood – from straight rows of timber to non-intervention. In-depth studies of owners' understanding of woodland management have not been done, and the influence of social pressures such as this 'responsibility' thus remain unexplored. An ethic of custodianship is often identified, most often in relation to conserving landscape and natural heritage, rather than in providing 'public' benefit. Owners also wish to **maintain 'control'** of their property and this can deter both the provision of access and the acceptance of governmental grants. Attitudes to providing access are affected by experience and existing access rights.

Woodland creation is reported to conflict with the **shared traditional values** of agricultural society. It is suggested in some studies that a shift to new types of owners may change this, but there is no study of change over time or between these different owner types (old and new). This presents a considerable challenge to those stakeholders seeking to expand woodland cover. As with the need to understand the management objectives of the various stakeholders involved, further work is required to understand how forestry and woodlands can be brought within and/or link to the culture of farming in such a way as to achieve substantial planting on less productive agricultural land.

Evidence relating to the role of **regulation** in landowner decisions about woodland is lacking, although indirectly it is often reported that the 'one-way street' of woodland establishment is a disincentive. This links clearly to other findings – notably the desire to maintain control of, and be responsible for, one's own woodland, along with elements of wider farming culture.

Levels of **woodland related knowledge** seem to vary significantly, and be affected by length of ownership, size of woodland owned and 'membership' of woodland related social networks or organisations. This presents a considerable opportunity for stakeholders seeking changes in woodland management and increases in new planting. The evidence convincingly indicates that landowners feel a need for **reliable one-to-one advice** on woodland management. No study directly compares the effect of grants with the effect of advice, but given the mixed or weak evidence for impact of grants, there are grounds for proposing that advice has more effect. Individuals within public sector organisations, especially the FC, are important sources of advice, and for some are seen as more approachable than other officials. Others are more likely to approach local authorities and are not aware of the FC's role [new evidence not yet published, on community woodland groups in England].

The evidence reviewed by this study is unlikely to be representative of all owners, because there is always a proportion who choose not to respond to surveys, or who are not included in the sampling frame in the first place. Decisions need to be made about whether it is worth trying to reach every last owner. Crabtree et al. (Crabtree, Chalmers, and Barron 1998) argue that it is more important to study the exceptions who adopt incentive schemes than the 'average' farmer, who is not interested in incentives. Furthermore, where the evidence is separated on woodland area, more large woodland owners are interested in management than small. There is perhaps a need to target research (and efforts to understand landowners' decisions more generally) towards certain categories of owner who are most likely to change their behaviour, and/or whose behaviour change will have the greatest impact – rather than establishing overly broad generalisations which aspire to describe *all* landowners.

Evidence gaps

Following consultation with Forestry Commission and Woodland Trust colleagues, the project team has identified a number of key gaps in the existing evidence which deserve sustained attention in future research work.

1. The effects of a number of key contemporary **policy drivers** are virtually absent from the studies reviewed here. These particularly include carbon storage and markets, energy, ecosystem services, common agricultural policy reform, and the development of green infrastructure. Studies are urgently needed to address these.
2. The evidence reviewed focused on trees and woodland. However landowners are making decisions in the context of a wide range of land use options and incentives. A study is needed which situates attitudes to woodland in this **wider context including agricultural and agri-environmental incentives**.
3. **Change in land ownership**, and its impact, seem to be poorly understood, yet may be key points at which to influence woodland management behaviour. How much land changes hands, between whom, and how much 'real' change in management consequently occurs are therefore important questions.
4. Our overview suggests that **financial incentives interact with advisory services** in stimulating behaviour change. Few studies directly address this question, and even fewer have done more than ask owners what they think they would do if offered more of either. There is therefore a great need to look at *actual* behaviour change in relation to these two key interventions within the wider decision-making environment. Focusing on recent planters or grant adopters and asking what motivated them may provide such an opportunity.
5. Understanding of the impacts of **regulation** and legislation upon land owners' decisions is a substantial gap in the existing evidence. Furthermore, important questions relate to current procedures underpinning governmental **financial incentives**, which are perceived as highly bureaucratic, and which emanate largely from the EU. A study comparing the UK regime with another European country which did not adopt these procedures and incentive structure, would provide relevant insights.
6. Most studies focus on perceptions and future plans, or resistance to incentives in the face of new initiatives. There is a consequent need for ***retrospective* studies** of owners' attitudes in some of the areas which have experienced recent surges in planting, particularly the National Forest and some of the Community Forests, in order to explore possible *changes* in attitudes through experience. This could also provide material for more effective communication with owners in neighbouring areas, as demonstration and farmer-to-farmer communication is always more convincing than government entreaties and exhortations.

7. The results of such a study could usefully be combined with a systematic review of evidence about **planting rates in response to different grants** over time and space. The planting figures available present some discrepancies which make it difficult to interpret owners' responses.
8. There are no studies of **Local Authorities** as (wood)land owners / managers despite their considerable land holdings and public policy objectives. There are similarly no studies of **other institutional or business owners,** including NGOs, nor community woodland groups. A study of these owners may well reveal very different priorities and create considerable opportunities for engagement from woodland and forestry organisations.
9. There is no particular focus on **native woodland** evident in the literature. Given that the conservation of native species and landscapes is an objective that receives wide stakeholder support it is perhaps surprising that no studies have investigated the persuasive impact of these concepts upon landowners.
10. The omission of studies of **land managers and agents** is a significant problem given their common and widespread role within decision-making processes. Future research must engage with this sector to understand the extent and impact of its professional knowledge, advice, information and networks. Such stakeholders could be a route to significant and widespread land management behaviour change.
11. The evidence provides no discussion of attitudes towards different **silvicultural techniques**, particularly in reference to woodland creation. Direct seeding approaches may, for example, be more attractive and familiar to the farming sector than other forms of 'new planting'.
12. Whilst the combined evidence provides wide geographical coverage, it consists of location specific studies which are is patchy and unsystematic. The great majority are located in counties in England, particularly the well-wooded southern counties. Studies in Scotland focus predominantly on farmers' attitudes to woodland planting and grants, in the 1990s. Wales and Northern Ireland are poorly represented over the whole period. Future research must seek further understanding of differing priorities for rural development as they **vary from region to region**.

Appendix 1 – Knowledge Network Members

David Jenkins	Coed Cymru
Jon Hollingdale	Community Woodlands Association
Stuart Goodall	ConFor
Rupert Ashby	Country Land and Business Association
Paul Burgess	Cranfield University
Andy Mason	Forestry Commission - English Forest Industries Partnership
Mike Render	Forestry Commission England
Richard Britton	Forestry Commission England
Simon Pryor	Forestry Commission England
Alan Betts	Forestry Commission England
Angela Duignan	Forestry Commission England
James Ogilvie	Forestry Commission Scotland
Bob Frost	Forestry Commission Scotland
Barbara Anglezarke	Forestry Commission Wales
Emma Small	Forestry Commission Wales
Andy Wright	High Weald AONB
Philip Sansum	High Weald AONB
Bill Slee	Macaulay Institute
William White	National Farmers' Union
Keith Kirby	Natural England
Charles Watkins	Nottingham University
Jeremy Bolas	SEEDA
Nick Sandford	SEEDA woodfuel champion
Russell Rowley	Severn Gorge Countryside Trust
Angela Pollard	Small Woods Association
Phil Tidey	Small Woods Association
Patrick McKernan	Surrey ancient woodland survey
Gabriel Hemery	Sylva Foundation
Alistair Yeomans	Sylva Foundation
John Mitchener	Tandrige District Council
Ian Convery	University of Cumbria
Andy Weatherall	University of Cumbria
Jenny Rogers	University of Cumbria
Rob McMorran	University of the Highlands and Islands
Mike Chapman	UPM Tilhill
Tracy Pepler	Woodland Owner
Mike Townsend	Woodland Trust
Sarah Cunningham	Woodland Trust
David Saunders	Woodlots

References

Bateman, I. J., E. Diamand, I. H. Langford, and A. Jones. 1996. Household willingness to pay and farmers' willingness to accept compensation for establishing a recreational Woodland. *Journal of Environmental Planning and Management* 39:21-43.

Bell, M. 1999. *A survey of 50 farmers in Lancashire to determine their attitude to woodland planting and management*. Countryside Commission, Forestry Commission, Lancashire County Council, Environment Directorate, Agri-Business Services. Available at

Betts, A., and J. Ellis. 2000. *What Woodland Owners Want - An Attitude Survey*. Forestry Commission. Available at

Bishop, K. D. 1992 "Britain's new forests: public dependence on private interest?," in *Restructuring the Countryside: Environmental Policy in Practice.* Edited by A. W. Gilg: Avebury Studies Green Research.

Blackstock, P., and P. Binggeli. 2000. *A needs survey for support for farm forestry*. Available at

Boon, T. E., H. Meilby, and B. J. Thorsen. 2004. An Empirically Based Typology of Private Forest Owners in Denmark: Improving Communication Between Authorities and Owners. *Scandinavian Journal of Forest Research* Suppl.4:45-55.

Booth, P. 2002. Nationalising development rights: The feudal origins of the British planning system. *Environment and Planning B: Planning and Design* 29:129-139.

Brown, T. L. 1974. New York Landowners' attitudes toward recreation activities. *Transactions of the North American Wildlife Natural Resources Conference* 39:173-179.

Burgess, P., G. Goodall, and A. Wharton-Creasey. 1998. *Bedfordshire Farm Woodland Demonstration Project: a baseline analysis of farm woodland in mid-Bedfordshire.* . Cranfield University. Available at

Burton, R., and O. Wilson. 2000. *Farmers' resistance to woodland planting in Community Forests: the influence of social and cultural factors*. De Montfort University. Available at

Carter, M. 2007. "Owning a plot of forest isn't just for the wealthy." Available at

Cater, J. 1994. Small woodlands and their owners: the Silvanus experience. *Quarterly Journal of Forestry* 88:128-133.

Church, A., and N. Ravenscroft. 2008. Landowner responses to financial incentive schemes for recreational access to woodlands in South East England. *Land Use Policy* 25:1-16.

Church, A., N. Ravenscroft, and G. Rogers. 2005. "Woodland Owners' Attitudes to Public Access Provision in South-East England." Edited by U. o. B. School of Environment. Edinburgh: Forestry Commission. Available at

Clark, G. M., and J. A. Johnson. 1993. Farm Woodlands in the Central Belt of Scotland: A Socio-Economic Critique. *Scottish Forestry*:15-24.

Crabtree, B., N. Chalmers, and N.-J. Barron. 1998. Information for Policy Design: Modelling Participation in a Farm Woodland Incentive Scheme. *Journal of Agricultural Economics* 49:306-320.

Crabtree, J. R., and Z. Appleton. 1992. Economic evaluation of the Farm Woodland Scheme in Scotland. *Journal of Agricultural Economics* 43:355-367.

Cunningham, S. 2009. "FREEwoods Survey," Woodland Trust. Available at

d'Agostino, J. V., R. J. Loomis, and B. Webb. 1992. Attitudes, Beliefs, Intended Behaviors, and Exhibit Evaluation. *Visitor Studies* 4:92-102.

Dandy, N. 2009a. *Summary of Woodfuel Work*. Forestry Commission. Available at
—. 2009b. *Woodfuel Workshop Summary report*. Forest Research. Available at
DECC. 2009a. *The UK Low Carbon Transition Plan: National Strategy for Climate & Energy*. Available at http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx
—. 2009b. *The UK Renewable Energy Strategy*. Department for Energy and Climate Change. Available at http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/res/res.aspx
Elliss, J., and B. Frost. 2002. *Sustaining England's woodlands: analysis of responses to consultation*. Forestry Commission England. Available at ***insert URL***
FC. 2003. *National inventory of woodland and trees - Great Britain*. Forestry Commission. Available at
Forestry Commission. 2010. "Woodland area, planting and restocking." Available at http://www.forestry.gov.uk/pdf/area2010.pdf/$file/area2010.pdf
Forestry Commission England. 2007. *A Woodfuel Strategy for England*. Available at http://www.forestry.gov.uk/england-woodfuel
Garforth, M., and K. Thornber. 2002. *The impacts of certification on UK forests*. LTS International, report to UKWAS Support Unit. Available at
Gasson, R., and P. Hill. 1990. *An economic evaluation of the Farm Woodland Scheme. Occasional paper no .17, Farm Business Unit, Wye College, Kent*
Available at
Gilbert, J. 2007. *Analysis of management and biodiversity data*. Forestry Commission. Available at
Government Social Research. 2010. "Rapid Evidence Assessment Toolkit index." Available at http://www.civilservice.gov.uk/my-civil-service/networks/professional/gsr/resources/gsr-rapid-evidence-assessment-toolkit.aspx
Greenshields, J. 2009. *Blackdown Hills, wood fuel cluster survey*. A survey and report produced with funding from the BH AONB and supported by the Neroche Scheme and the Forestry Commission. Available at
Hogl, K., M. Pregernig, and G. Weiss. 2005. What is New about New Forest Owners? A Typology of Private Forest Ownership in Austria. *Small-scale Forest Economics, Management and Policy* 4:325-342.
Ilbery, B., D. Maye, D. Watts, and L. Holloway. 2010. Property matters: Agricultural restructuring and changing landlord-tenant relationships in England. *Geoforum* 41:423-434.
Kirby, K. J. 2003. Woodland conservation in privately-owned cultural landscapes: the English experience. *Environmental Science & Policy* 6:253-259.
Land Use Consultants. 2007. *Woodlotting in Kent*. Land Use Consultants. Available at
Lloyd, T., C. Watkins, and D. Williams. 1995. Turning farmers into foresters via market liberalisation. *Journal of Agricultural Economics*:361-370.
Mather, A. S. 1987. The structure of forest ownership in Scotland: a first approximation. *Journal of Rural Studies* 3:175-182.
McMorran, R. 2008. Constraints and Opportunities for Integrated Multifunctional Forest Management in the Cairngorms Region of Scotland, UHI-Perth-College.
Mindspace. 2010. *Farmers research study. Report to Forestry Commission Scotland.* . Available at
Munton, R. 2009. Rural land ownership in the United Kingdom: Changing patterns and future possibilities for land use. *Land Use Policy* 26.

Mutch, W. E. S., and A. R. Hutchison. 1980. *The Interaction of Forestry and Farming: Thirteen Case Studies from the Hills and Uplands.* Department of Forestry and Natural Resources, University of Edinburgh. Available at

Ni Dhubhain, A., and J. J. Gardiner. 1994 Farm Forestry in the Rural Economy. Discussion paper presented at AES Conference, Exeter.

RASE. 1994. *Opinion Poll of Farmer Members, Autumn 1994*. Royal Agricultural Society of England. Available at

Ravenscroft, N. 1999. 'Post-feudalism' and the changing structure of agricultural leasing. *Land Use Policy* 16:247-257.

Render, M. G. 2004. The development of sub-regional policy for sustainable forestry, with particular reference to the Chilterns, UK., Buckinghamshire Chilterns University College, Brunel University.

Sandys, P. 1994 The woodland grant scheme: a review from the perspective of owners and managers. *Quarterly Journal of Forestry* 88:20-26.

Scambler, A. 1989. Farmers' attitudes towards forestry. *Scottish Geographical Magazine* 105:47-49.

Scottish Government. 2006. *Changing our ways: Scotland's climate change programme*. Available at http://www.scotland.gov.uk/Publications/2006/03/30091039/0

—. 2007. *Scottish Forestry Strategy*. Available at http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-6aggzw

Secker Walker, J. 2009. *Private landowners' engagement with woodfuel production: a scoping study in Fife*. A report to the Social & Economic Research Group, Forest Research, Forestry Commission. Available at http://www.forestresearch.gov.uk/pdf/Fife_Woodfuel_Survey.pdf/$FILE/Fife_Woodfuel_Survey.pdf

Sharpe, N., E. Osborn, J. Samuel, and R. Smith. 2001. *Anglia Woodnet woodland assessment project: stage II. Summary report.* . Anglia Woodnet. Available at

Silcock, P., and W. Manley. 2008. *The Impacts of the Single Payment Scheme on Woodland Expansion*. Land Use Policy Group. Available at

Sime, J. D., G. M. Speller, and C. Dibben. 1993. *Research into the attitudes of owners and managers to people visiting woodlands*. Report prepared for the Forestry Commission by Jonathan Sime Associates, Godalming. Available at

Snyder, S. A., M. A. Kilgore, S. J. Taff, and J. M. Schertz. 2008. Estimating a family forest landowner's likelihood of posting against trespass. *Northern Journal of Applied Forestry* 25:180-185.

Stockdale, A., A. J. Lang, and R. E. Jackson. 1996. Changing land tenure patterns in scotland: A time for reform? *Journal of Rural Studies* 12:439-449.

Urquhart, J. 2006. A qualitative analysis of the knowledge base of private woodland owners with respect to woodland management and public good benefit issues, University of Gloucestershire.

—. 2009. Public benefits from private forests and woodland in England: Investigating the opportunities for public good enhancement, University of Gloucestershire.

Urquhart, J., P. Courtney, and B. Slee. 2009. Private ownership and public good provision in English woodlands. *Small-scale Forestry*.

Ward, J., and W. Manley. 2002a. *New entrants to land markets: attitudes towards land management and conservation*. Land Use Policy Group. Available at

—. 2002b. *New entrants to land markets: final report*. Woodland Policy Group of the GB Wildlife & Countryside Agencies. Available at

Watkins, C. 1984. The use of grant aid to encourage woodland planting in Great Britain. *Quarterly Journal of Forestry* 78:213-224.

Watkins, C., D. Williams, and T. Lloyd. 1996. Constraints on farm woodland planting in England: A study of Nottinghamshire farmers. *Forestry* 69:166-176.

Wavehill Consulting. 2009. *A survey of farmers with woodland on their land. A report for the Forestry Commission Wales*. Wavehill Consulting. Available at

Whittaker, D., M. J. Manfredo, P. J. Fix, R. Sinnott, S. Miller, and J. J. Vaske. 2001. Understanding Beliefs and Attitudes About an Urban Wildlife Hunt Near Anchorage, Alaska. *Wildlife Society Bulletin* 29:1114-1124.

Wibberley, J. 2002. *Sustaining England's Woodlands: private woodland owners and the Forestry Commission (FC). Report on four Regional Woodland Consultation Meetings.* . Available at

Woodland Trust. 2009. *Woodland creation: why it matters*. Available at http://www.woodlandtrust.org.uk/en/why-woods-matter/creation/Pages/creation.aspx

Yeomans, A., G. Hemery, and N. Brown. 2008. *Developing effective methods for identifying woodland owners: an Oxfordshire pilot study*. Forestry Horizons & Department of Plant Sciences, University of Oxford. Available at