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National sample survey of SSI woodland

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1. INTRODUCTION

1.1. The national SSSI sample survey programme

Sites of Special Scientific Interest (SSSIs) provide an essential component of the overall approach to nature conservation in England. Knowledge of the condition and management of the different habitats on SSSIs is central to the assessment of how well the SSSI system is working. Such knowledge helps to inform English Nature's policies and management advice, and enables the organisation to more effectively target resources where they are needed.

English Nature's Monitoring Strategy for SSSIs (Felton 1992) identified the need for a programme of sample surveys to explore the links between management, occupiers' wider interests, external threats and the nature conservation status of sites. The strategy recommended that conservation officers conduct a strategic sample survey on a nationally selected sample of sites to establish the state of particular habitat types within the SSSI series as a whole. This would be distinct from, but complementary to, the routine assessments of condition or recording of activities on individual sites carried out by conservation officers in Local Teams.

The programme of sample surveys has developed in response to the recommendations in the monitoring strategy. The principal objectives of the programme are to:

- assess the extent to which nature conservation objectives are being met for each particular habitat
- assess the nature and extent of any threats to the features of interest in each habitat
- provide an overview of the interests, management activities and priorities of occupiers, and the relationship between these factors and the achievement of nature conservation objectives.

Within the context of these objectives, the sample survey programme aims to identify all influences that affect 5% or more of sites containing each broad habitat type (Felton 1992).

The sample survey programme was initiated in 1992, with a pilot study of lowland grasslands (Sketch 1995). This was followed by a sample survey of lowland heathland (Brown *et al.* 1998). The sample survey described in this report is the third in this programme of studies.

1.2. Woodland and woodland conservation in England

The sample survey reported here was restricted to semi-natural woodland. Semi-natural woods are defined as those composed predominantly of trees and shrubs that are native to the site and which have grown up from stump regrowth (as in coppices) or have regenerated naturally as opposed to being planted (Spencer & Kirby 1992).

Ancient[1] and long-established semi-natural woodlands are generally the most important woodlands for nature conservation (Peterken 1977, 1981; Reid *et al.* 1996). Ancient woodland covers about 2.6% of England's land area; of this, approximately 60% is semi-natural woodland, whilst the remaining 40% has been converted to plantations, usually of non-native species (Spencer & Kirby 1992). Many plantations on ancient woodland sites in the south-east retain rich plant and animal communities along rides (Warren 1992). These types of woodland form the main 'pool' from which woodland SSSIs are drawn (Nature Conservancy Council 1989; Thomas *et al.* 1997). However, recent woodlands[2] can also be of conservation value. In the north-west, for example, some recent semi-natural woodland may be as rich as that on ancient sites (Whitbread 1990). Recent woods constituted *c.* 30% of the woodlands present in a random sample of 69 SSSIs (Thomas *et al.*1997). However, some of these recent woodlands may be judged to be of lower conservation value than the habitats, such as lowland heathland, which they have replaced.

The composition and distribution of semi-natural woodlands have been described elesewhere (see for example Ratcliffe 1977; Peterken 1981; Rodwell 1991) and will not be repeated here. Woodland NVC types (from Rodwell 1991) are listed in Appendix 1.

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[1] Ancient woodlands are those which have persisted continuously at the same site since AD1600, and are thus distinguished from more recent secondary woodland (Peterken 1981). Ancient woodland may have been felled many times for timber or underwood production (Rackham 1980); in more recent decades, many ancient woodlands have been felled and replaced with plantations (Spencer & Kirby 1992).

[2] Recent woods are those that have developed naturally or been planted on land that has been grassland, moorland, heathland or some other type of open vegetation, at some time in the last four hundred years (from Thomas *et al.* 1997)

2. METHODS

The methodology used in the present study was adapted from that employed in the two previous sample surveys (Sketch 1995; Brown *et al.* 1998).

2.1. Site selection

A draft list of 'woodland' SSSIs was produced by searching English Nature's 'COREDATA'[3] database; sites were selected if semi-natural broadleaved woodland was identified as a criterion feature. Citations were checked for those SSSIs where habitat information had not been entered on 'Coredata', with sites being added to the list if woodland was cited as reason for notification.

150 SSSIs were randomly selected from the 'population' of woodland SSSIs, with the selection stratified by the areas of English Nature's Local Teams. The number of sites selected within each area was proportional to the total number of 'woodland' SSSIs within that area. Ten of these sites were replaced on the advice of local Conservation Officers, or when checks of citations indicated that woodland was not of significance.

Conservation Officers in English Nature's Local Teams were asked to randomly select a single 'unit' (a sub-unit of the SSSI with a single management regime, normally managed by a single occupier) within each selected SSSI. These are subsequently referred to as 'units' or 'site units'. Conservation Officers were asked to select two units within some large, multi-occupancy SSSIs.

2.2. Data collection

The survey was conducted during 1995 and 1996 and consisted of two elements: a questionnaire, which was completed with the assistance of the site's owner or occupier; and a site visit to assess the condition of the woodland within the selected unit.

The questionnaire (see Appendix 2) was designed to collect contextual information concerning the ownership and management of the woodland within the selected site unit. The questionnaire also included sections to identify the character of the property which included the site unit and to establish whether the woodland was subject to any grant schemes or management agreements.

The selected site units were visited by staff from English Nature's Local Teams, or in some cases by contract surveyors, and a Site Condition Form (see Appendix 3) was completed for each unit. Surveyors were asked to record the condition of the site, any threats to it, and whether or not they felt that the management was likely to maintain or enhance the features of interest on the site.

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[3] 'COREDATA' has since been superseded by English Nature's Information System'ENSIS'.

2.3. Condition assessments

The condition of the woodland within each unit was assessed using the categories defined by Rowell (1993). These have been restated by the Joint Nature Conservation Committee (1997), as follows:

- *Favourable, maintained.* An interest feature should be recorded as [favourable] *maintained* when its conservation objectives were being met at the previous assessment, and are still being met.

- *Favourable, recovered.* A feature of interest can be recorded as having *recovered* if it has regained favourable condition, having been recorded as unfavourable on the previous assessment.

- *Unfavourable, recovering.* A feature of interest can be recorded as *recovering* after damage if it has begun to show, or is continuing to show, a trend towards favourable condition.

- *Unfavourable, no change.* An interest feature may be retained in a more-or-less steady state by repeated or continuing damage; it is unfavourable but is neither declining or recovering. In rare cases, an interest feature may not be able to regain its original condition following a damaging activity, but a new stable state may be achieved.

- *Unfavourable, declining.* Decline is another possible consequence of a damaging activity. In this case, recovery is possible and may occur either spontaneously or if suitable management input is made.

- *Partially destroyed.* It is possible to destroy sections or areas of certain features or to destroy parts of sites with no hope of reinstatement because part of the feature itself, or the habitat or processes essential to support it, has been removed or irretrievably altered.

- *Destroyed.* The recording of a feature as *destroyed* will indicate that the entire interest feature has been affected to such an extent that there is no hope of recovery, perhaps because its supporting habitat or processes have been removed or irretrievably altered.

Using this system, the condition of each feature of interest[4] is assessed against the nature conservation objectives which have been set for that feature. These objectives describe broad targets which should be met if the condition of the interest feature is to be judged as 'favourable'. The definition of 'favourable' condition is not necessarily the same as the condition of the feature at the time that the site was notified as an SSSI.

This system of assessing site condition had only recently been introduced when the sample survey was conducted

[4] An *interest feature* is defined as 'the special interest for which an SSSI has been notified or could be notified in light of current knowledge' (Rowell 1993).

and formal objectives had not been set for many sites. Condition assessments reported here were therefore dependent, to a large degree, on the experience and judgement of individual surveyors. It is also important to note that 'unfavourable' condition does not correspond to the categories of loss and damage formerly used by English Nature and its predecessor, the Nature Conservancy Council. The condition of a feature of interest is reported as 'unfavourable' if it departs significantly from the long-term desired state. This does not necessarily mean that the condition of the feature has deteriorated since the notification of the site as an SSSI. Similarly, 'unfavourable' condition does not necessarily equate to bad management; the condition of a feature of interest may be assessed as 'unfavourable' due to factors associated with past management (perhaps pre-dating notification), or due to factors beyond immediate control, e.g. long-distance air pollution or climate change.

2.4. Analysis

Information from the completed survey forms was entered into two tables of a 'Paradox'[5] database; one table held data from the questionnaire and the second table held data from the site condition forms. Each site unit was assigned a separate identifying code so that the information in the two tables could be linked.

Data from the questionnaires were collated to provide summary information on

i. the occupier groups involved in woodland management;
ii. the types of property in which SSSI woodlands occur;
iii. woodland use and management; and
iv. the proportion of SSSI woodlands managed with the aid of grant schemes and/or management agreements.

Similarly, data from the site condition forms were collated to provide information on

i. the overall condition of woodlands assessed in the sample survey;
ii. the nature and frequency of threats to the features of interest; and
iii. the extent to which current management will maintain or enhance the features of interest.

In addition to providing a national overview for each of these issues, the data were also analysed to provide information on the regional variation in occupier categories, property types, management and condition. For the purposes of this exercise, the survey area was divided into five broad regions: northern England, the Midlands, eastern England, the south-east and the south-west. These were based on groupings of Government Regions, as indicated in Table 1.

[5] 'Paradox' is a relational database management programme; ® Borland International, Inc.

Table 1. Groupings of Government Regions used to assess regional variation in the survey data.

	Government Regions
Northern England	North East; North West; Merseyside; Yorkshire & Humberside
The Midlands	East Midlands; West Midlands
Eastern England	Eastern; London
South-east England	South East
South-west England	South West

The relationship between woodland condition and different aspects of the site and its management can be examined through a series of 'single factor' analyses. These might include comparisons of site condition in relation to occupier categories, property types, management activities or grant schemes. However, the results of such 'single factor' analyses may be misleading, as there may be significant correlations between the different factors considered.

To overcome this problem, the relationships between woodland condition and aspects of the site and its management were explored by multivariate analysis. Multivariate analysis enables the factors (or groups of factors) which significantly influence woodland condition to be identified. The statistical analysis programme 'Minitab'[6] was used to identify the two best models with one, two or three 'predictors' for each condition class. The 'predictors' were the factors recorded on the questionnaire (e.g. property types, management activities, etc.). Regression analyses were then used to evaluate the relationship between site condition and the factors selected by the 'best subsets' analysis.

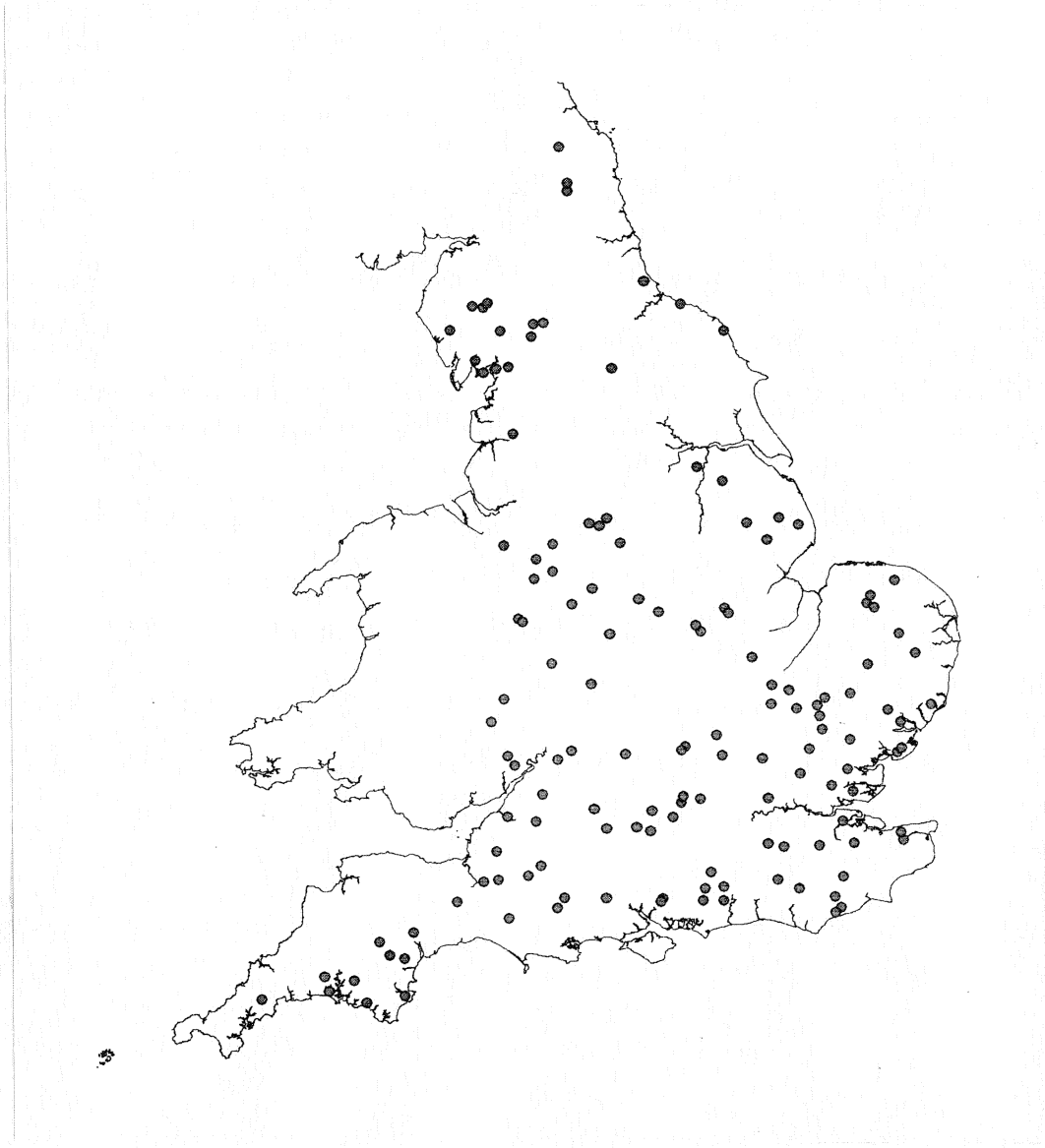
[6] ® Minitab, Inc.

3. RESULTS

3.1. Initial and actual sample size

Survey returns were received for 141 of the 150 SSSIs originally selected. Two units were sampled on 16 of these sites, giving a total sample size of 157 site units. The distribution of sites included in the sample survey is shown in Figure 1.

Figure 1. Distribution of sites included in the national SSSI sample survey of woodlands.

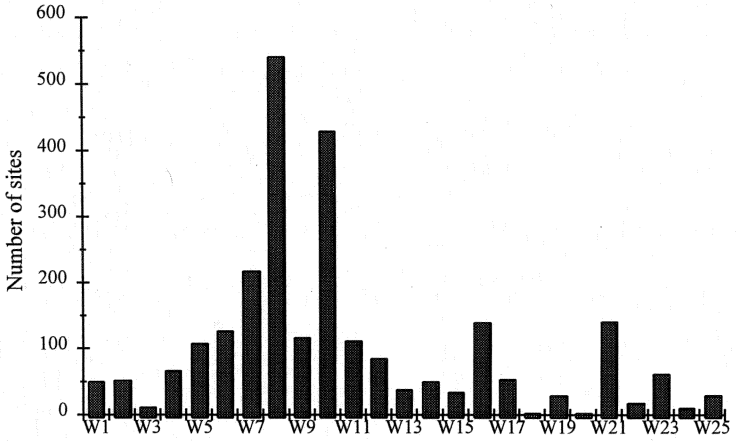


3.2. Woodland character

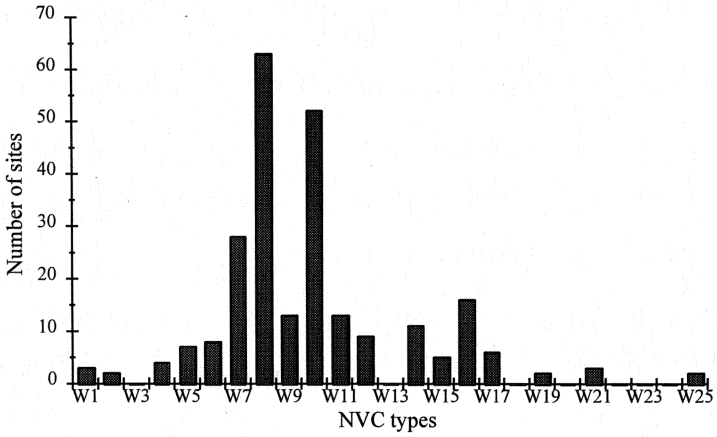
The occurrence of each woodland NVC type within the SSSI series as a whole was determined by a search of English Nature's ENSIS database and is shown in Figure 2a (see Appendix 1 for a listing of NVC types). The occurrence of NVC types recorded in sites sampled in the survey closely corresponds to their occurrence in the SSSI series overall (Figure 2b).

Figure 2. Occurrence of woodland NVC communities (a) within the SSSI series and (b) within the SSSI sample survey. Sites may have more than one NVC type.

(a)



(b)



Excluding NVC types W18-W25 (scrub communities or woods of northern Britain), which were not included in the selection criteria for the sample survey, the difference between the occurrence of NVC types in the sample survey and in the SSSI series as a whole was not significant (χ^2 analysis; grouping NVC types W1-W4) .

3.3. Ownership and uses

3.3.1. Occupier categories

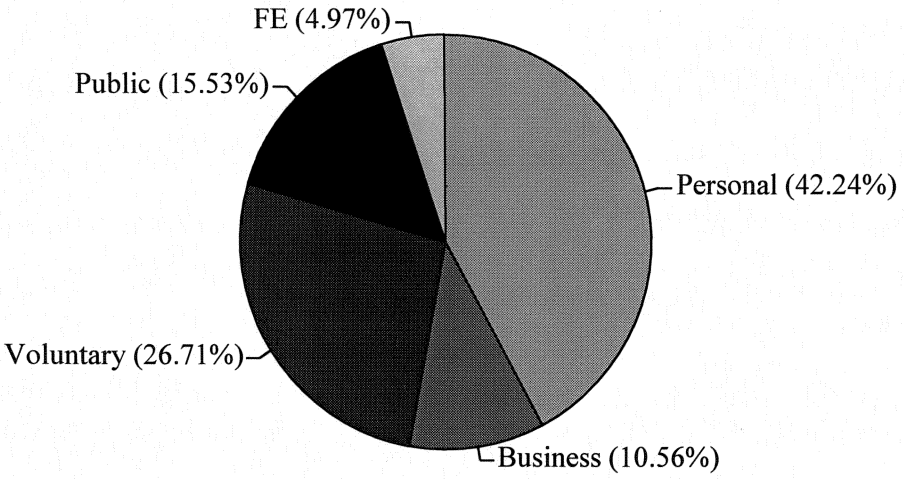
Occupiers of each survey unit were asked to describe the nature of their occupancy, choosing one of the following five categories:

- Personal occupier
- Business occupier
- Voluntary organisation
- Public ownership
- Forest Enterprise (FE).

Further details of the ownership categories are given in the sample survey questionnaire (Appendix 2).

The proportion of site units in each occupier category are shown in Figure 3. Four units were associated with two occupier categories, giving a total of 161 occupier-unit links. Sixty-eight units were in personal occupancy, with the voluntary sector being the next largest group with 43 units.

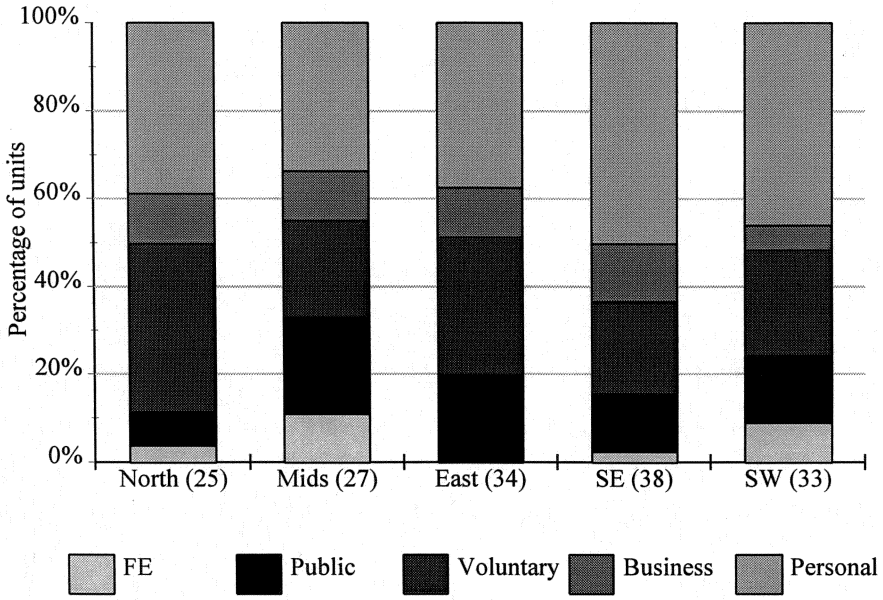
Figure 3. Percentage of site units within each occupier category. N = 161 site units with four units being managed by more than one occupier group. FE: Forest Enterprise.



Regional variation in occupier categories

Despite some apparent variation (Figure 4), regional differences in the number of sites managed by each occupier group were not significant ($\chi^2 = 5.98$, d.f. = 8, $p = 0.649$; *Business* and *Forest Enterprise* excluded from analysis due to the small number of units within these categories).

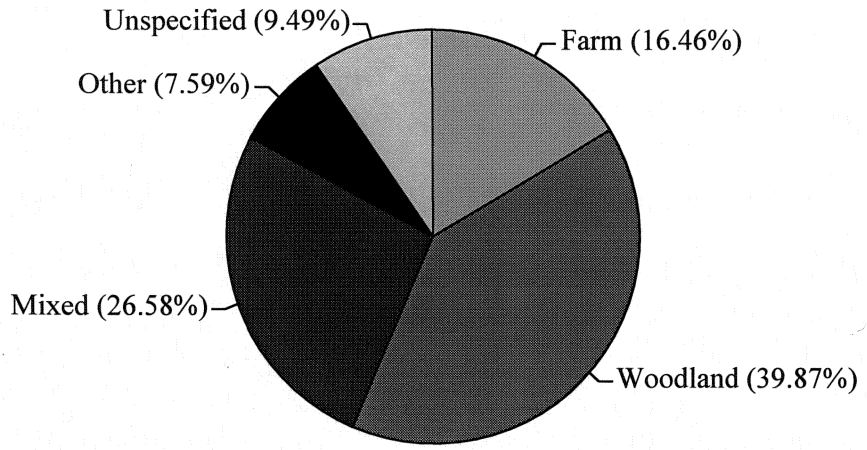
Figure 4. Percentage of units in northern England (North), the Midlands (Mids), eastern (East), south-eastern (SE) and south-western (SW) England managed by each occupier category. Numbers in brackets are the number of units within each region. FE: Forest Enterprise.



3.3.2. Property types

The land holding ('property') containing each survey unit was classified as either *Farm* - predominantly agricultural; *Woodland* - predominantly woodland, regardless of whether the woodland is managed for timber production; *Mixed* - mixed agricultural and forestry estate; or *Other* - other land use where the woodland is incidental to the main holding. Figure 5 shows the proportion of site units within each property type.

Figure 5. Percentage of site units within each property type. N = 158 site units, with one site unit occurring in two property types.

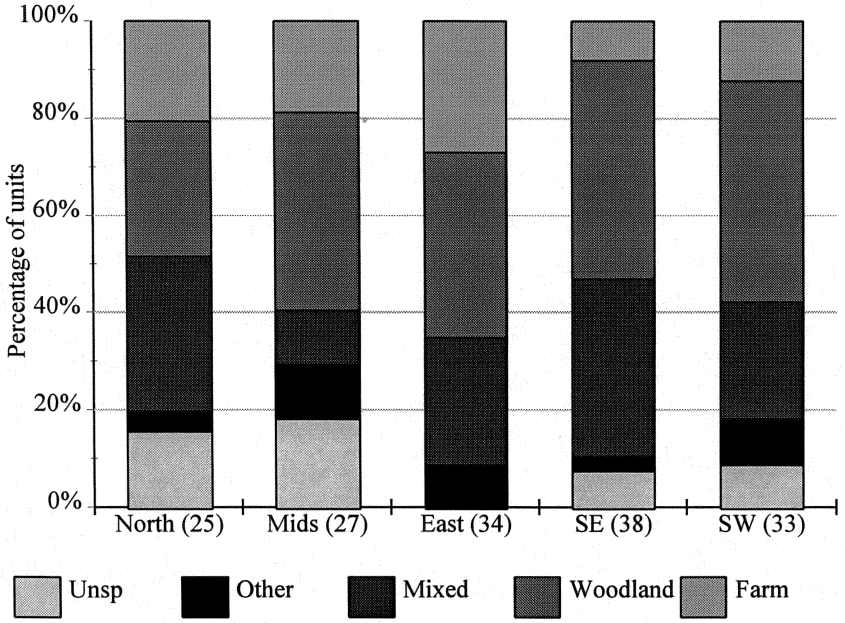


Sixty-three units (nearly 40% of the sample) were part of a woodland property, with a further 42 units being part of a mixed estate. Woodland is not usually an important component of farm properties, by definition, and it is therefore unsurprising that relatively few units were contained within this category. One unit was classified as being part of both a 'mixed' property and an 'other' property type. Property types were unspecified for 15 units.

Regional variation in property types

The regional variation in property types is shown in Figure 6. 'Farm' properties accounted for a smaller proportion of sites in south-eastern England, in comparison to other areas, whilst 'woodland' properties were less common in northern England than in other regions. Overall, however, regional differences in the number of sites within each category were not significant ($\chi^2 = 17.03$, d.f. = 12, $p = 0.151$; *Unspecified* grouped with *Other*).

Figure 6. Percentage of units in northern England (North), the Midlands (Mids), eastern (East), south-eastern (SE) and south-western (SW) England within each property type. Numbers in brackets are the number of units within each region. Unsp: Unspecified.



Property types in relation to occupier categories

The relationship between property type and occupier category (as defined above) is shown in Figure 7 and Table 2. Personal occupiers managed 85% of all units within 'farm' properties and 62% of all units within 'mixed' estates. In contrast, the voluntary sector did not manage any units within the 'farm' category, with 70% of the units managed by this sector occuring within 'woodland' properties. Seven (41%) of the 17 units managed by business occupiers were within the 'mixed' property type, and one third of all units within the 'other' category were managed by this occupier group. A further one third of units in the 'other' category were managed by the public sector, which also managed 10 of the 15 units for which no property type was specified. As might be expected, all units occupied by Forest Enterprise were within 'woodland' properties.

Figure 7. Percentage of units managed by each occupier group within each property type. Numbers in brackets are the number of units managed by each occupier group. Pers: Personal; Bus: Business; Vol: Voluntary sector; Public: Public sector; FE: Forest Enterprise.

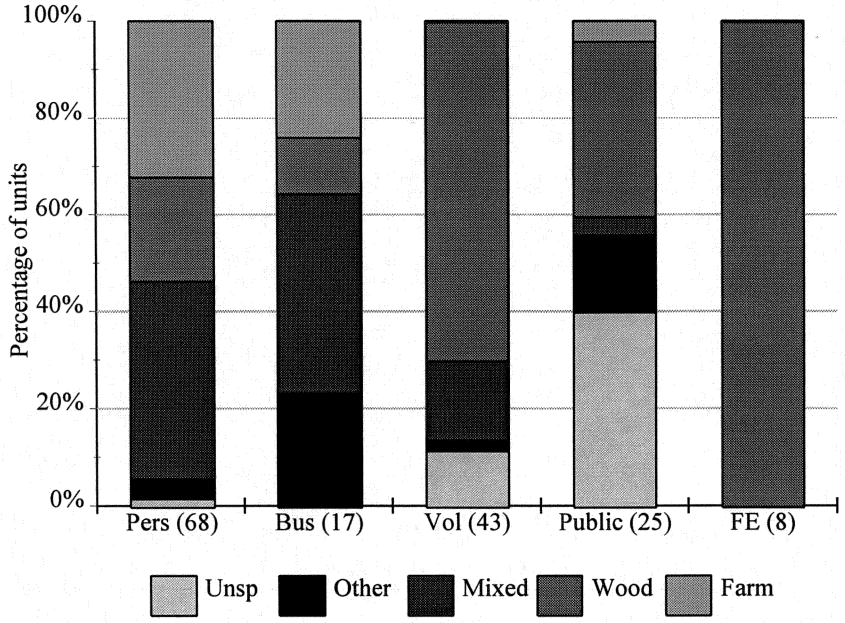


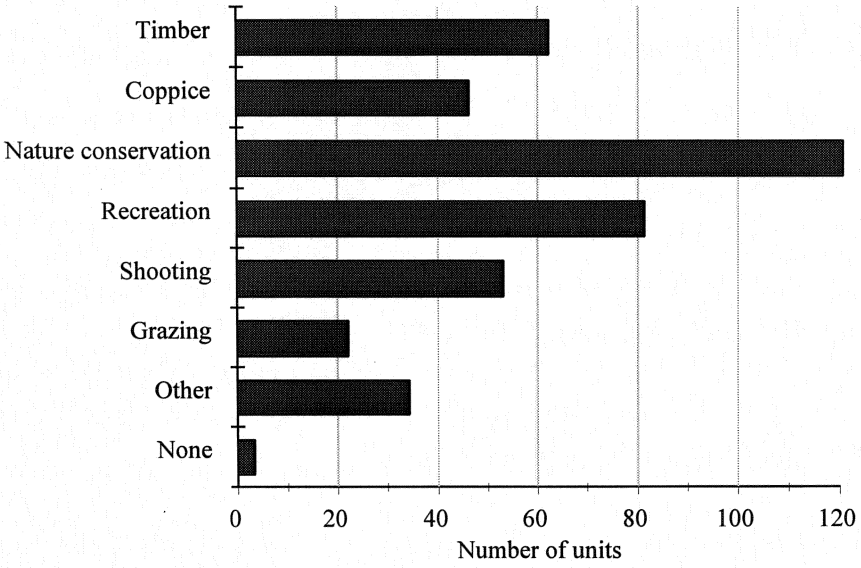
Table 2. Number of units managed by each occupier group in relation to property types. Four units were managed by more than one occupier group and one unit fell within two property types.

	Property type				
	Farm	Woodland	Mixed	Other	Unspecified
Personal	22	15	28	3	1
Business	4	2	7	4	0
Voluntary	0	30	7	1	5
Public	1	9	1	4	10
FE	0	8	0	0	0

3.3.3. Use and management

Occupiers were asked to specify the use and/or management of each site unit (see Questionnaire, Appendix 2). Uses or management activities were recorded for 154 of the 157 site units surveyed. Many units had more than one use and, overall, the mean number of activities per unit was 2.7. Use for nature conservation was the most common activity, occurring on 120 site units (Figure 8). Recreational use occurred on 81 site units, whilst timber and coppice production occurred in 62 and 46 site units, respectively.

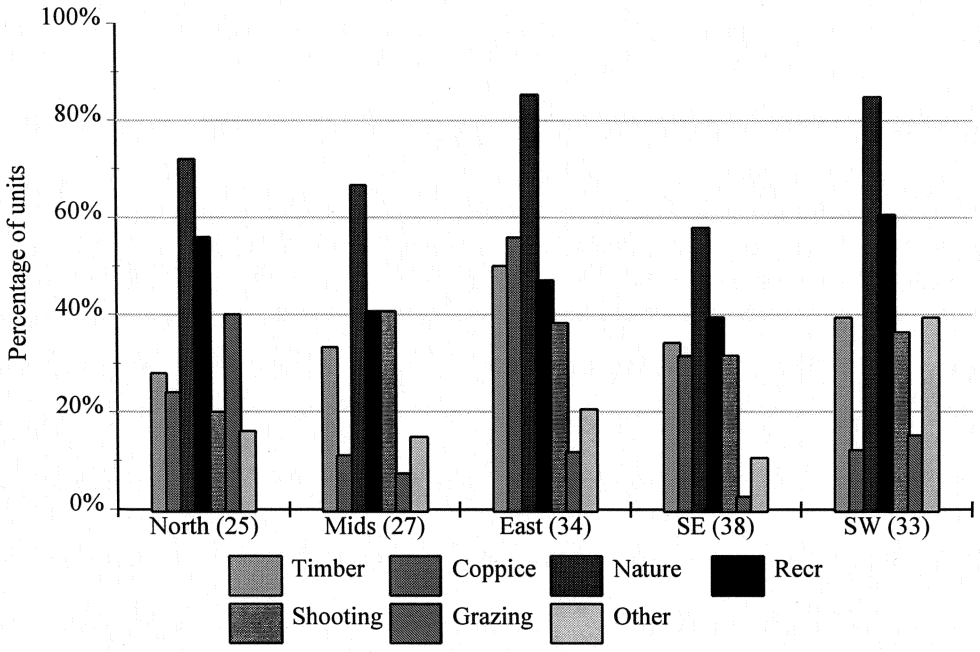
Figure 8. Use or management of site units within the sample survey. More than one use or management activity may occur on each unit.



Regional variation in the use and management of woodlands

Regional differences in the use or management of woodland are shown in Figure 9. Variation between regions was particularly notable in the percentage of sites used for coppice production and grazing: 56% of the units in eastern England were managed for coppice production, compared with fewer than 15% of those in the Midlands and south-western England; and grazing occurred on 40% of the units in northern England, compared with just 7.4% of those in the Midlands and 2.6% of those in the south-east.

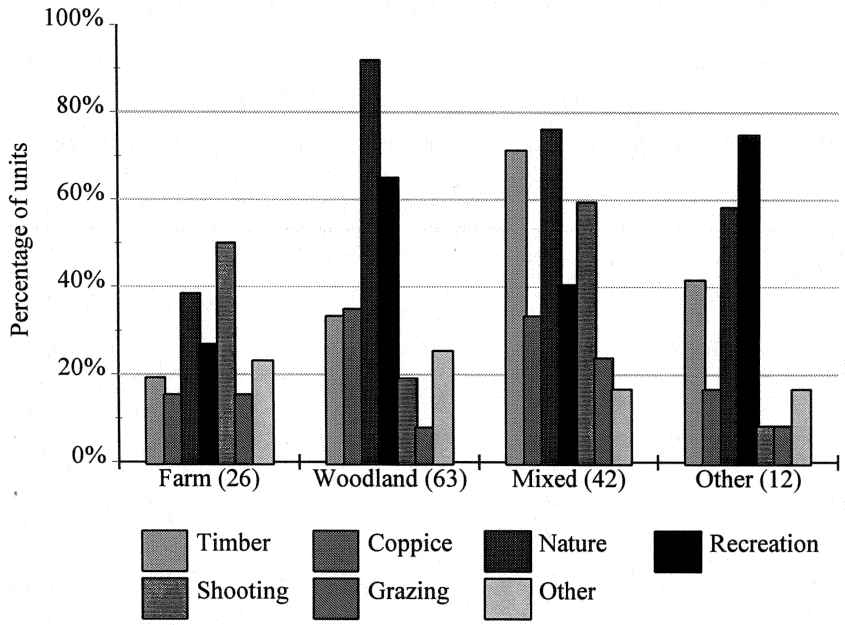
Figure 9. Percentage of units within each region (northern England [North], the Midlands [Mids], eastern [East], south-eastern [SE] and south-western [SW] England) subject to each use or management activity. Numbers in brackets are the number of units within each region. More than one use or management activity may occur on each unit. Nature: Nature conservation; Recr: Recreation.



Use and management in relation to property type

The relationship between property types and the use or management of site units is shown in Figure 10. Timber and coppice production each occurred in roughly one third of all 'woodland' property units; coppicing also occurred in about one third of units within 'mixed' properties, but some 71% of units within this property type were managed for timber production. Timber and coppice production were least common on 'farm' properties. Nature conservation activities occurred on more than 90% of units within 'woodland' properties and 75% of units within 'mixed' properties, but less than 40% of 'farm' woodlands. Shooting was more than twice as common on 'farm' and 'mixed' properties than in 'woodland' properties. Grazing was also more commonly associated with 'mixed' properties.

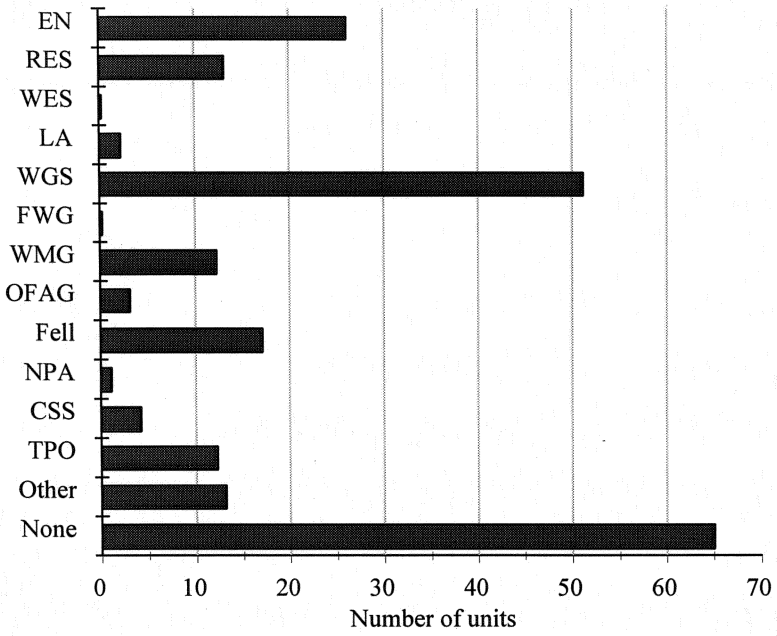
Figure 10. Percentage of units within each property type subject to each use or management activity. More than one use or management activity may occur on each unit. Numbers in brackets are the number of units within each property type. Nature: Nature conservation.



3.3.4. Grants, management agreements and regulations

Ninety-two of the 157 site units surveyed were subject to one or more grant schemes, management agreements or regulations. The Woodland Grant Scheme was the most common of these, with the occupiers of 51 site units (nearly one third of the total) receiving grant aid through this scheme (Figure 11). In total, some 66 site units were subject to grant schemes or other agreements administered by the Forestry Authority. Thirty-six occupiers had English Nature management agreements, under Section 16 of the *National Parks and Access to the Countryside Act 1949* or Section 35 of the *Wildlife and Countryside Act 1981,* or received payments through English Nature's Reserve Enhancement Scheme. Relatively few units were associated with incentives such as the Countryside Stewardship Scheme (four units) or National Park Agreements (one unit).

Figure 11. Number of site units subject to management agreements, grant schemes or other regulations. More than one management agreement/grant scheme/regulation may apply to each unit. EN: English Nature management agreement; RES: Reserve Enhancement Scheme; WES: Wildlife Enhancement Scheme; LA: Local Authority management agreement; WGS: Woodland Grant Scheme; FWG: Farm Woodland Grant; WMG: Woodland Management Grant; OFAG: Other Forestry Authority Grant; Fell: Felling Licence; NPA: National Park Agreement; CSS: Countryside Stewardship Scheme; TPO: Tree Preservation Order.



Grant schemes and management agreements were more frequently associated with sites managed by the voluntary sector than with those managed by other occupier groups (Table 3).

Table 3. Number and percentage of site units within each ownership category subject to management agreements, grant schemes or other regulations ('agreements').

Occupier category	Total number of units	Number of units with agreements	Percentage of units with agreements
Personal	68	32	47.1
Business	17	9	52.9
Voluntary	43	38	88.4
Public	25	13	52.0
Forest Enterprise	8	3	37.5

3.3.5. Potentially Damaging Operations[7]

Potentially Damaging Operations (PDOs) were recorded on 36 units (23% of the total) and are summarised in Table 4. The most frequently recorded PDOs related to activities associated with woodland management or recreation. There was some inconsistency between surveyors in the recording of PDOs and, where activities had been consented, they were frequently unrecorded. Thus, for example, 78 units were managed for timber and/or coppice production, but PDO 12 (tree and/or woodland management) was recorded for only 10 units.

Table 4. Potentially Damaging Operations (PDOs). More than one PDO may occur in each unit.

PDO Number	Description	Number of units
1	Cultivation	1
2	Grazing	6
4	Mowing or other methods of cutting vegetation	3
5	Application of manure, fertiliser or lime	1
7	Dumping, spreading or discharge of any material	4
8	Burning	3
9	Release of any wild, feral or domestic animal, plant or seed	2
10	Killing or removal of any wild animal	1
11	Destruction, displacement, removal or cutting of any plant or plant remains	8
12	Tree and/or woodland management	10
13c	Management of aquatic and bank vegetation for drainage purposes	1
16a	Freshwater fishery production or management	1
23	Engineering works or the erection of permanent or temporary structures	1
26	Use of vehicles or craft	2
27	Recreational or other activites	10
28	Game and waterfowl management and hunting practices	3

[7] Potentially Damaging Operations are activities that may be carried out by the owner or occupier of an SSSI but which may result in damage to the features of interest on the site. Owners or occupiers are therefore required to notify English Nature of their intention to carry out any of the specified operations.

3.3.6. External threats[8]

External threats were recorded for 48 units (Table 5), but in most cases did not appear to be particularly severe. The frequency with which public pressure was listed is consistent with the emphasis placed on recreational issues by Reid *et al.* (1996), although the review by Anderson and Radford (1992) suggested that recreational impacts were usually very localised

Table 5. Factors listed as possible external threats. Some units might have more than one threat listed.

Threat description	Number of units
Recreation/pressure of public access	13
Browsing/grazing by deer	7
Rubbish dumping/vandalism	4
Invasion by exotic species	4
Development proposals	3
Falling water table	3
Sheep/cattle grazing	3
Air pollution	2
Water pollution	2
Repairs to structures	2
Spray drift	1

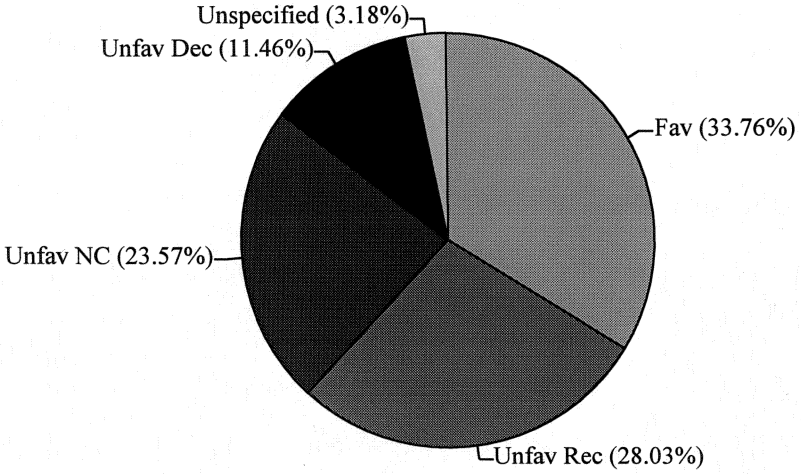
Several of the threats were almost certainly under-estimated. Other studies looking at the use of Woodland Grant Schemes in ancient woodlands and SSSIs (e.g. Currie 1996; Pryor 1998) have particularly drawn attention to the threat posed by poor deer management.

[8] External threats are activities which occur outside the boundaries of the site or which are beyond the occupier's control, but which may be damaging to the features of interest within the site.

3.4. Woodland condition

The condition of woodlands surveyed in the national SSSI sample survey is summarised in Figure 12. The condition assessment categories are defined in Section 2.3; further details are given in Appendix 4. The categories of *favourable, maintained* and *favourable, recovered* have been combined for the purposes of analysis.

Figure 12. Condition of woodlands surveyed in the national SSSI sample survey (n = 157 site units). Fav: Favourable; Unfav Rec: Unfavourable, recovering; Unfav NC: Unfavourable, no change; Unfav Dec: Unfavourable, declining.



Overall, 53 of the 157 units assessed in the sample survey were in favourable condition; a further 44 units were considered to be in unfavourable condition but recovering towards a favourable state. Woodland condition was considered to be unfavourable and declining in 18 site units.

Where surveyors noted the basis for their assessments, the main reasons for woods being classed as 'unfavourable, no change' or 'unfavourable, declining' were the presence of exotics, neglect of coppicing, grazing by stock or deer and past (pre-1985) planting of conifers (Table 6).

Table 6. Factors leading to units being classed as 'unfavourable, no change' or 'unfavourable, declining'. Some units had more than one factor listed.

Factor	Number of units classed as	
	No change	Declining
Presence of exotics (mainly sycamore)	13	6
Neglect of coppice	11	5
Grazing by stock/deer	8	4
Past planting of conifers	7	1
Loss of open space	1	4
Pheasant rearing	3	1
Neglect of pollarding	3	0
Elm disease	1	2
Nutrient enrichment	2	0
Other silvicultural operations	2	0
Loss of red squirrel/spread of grey	1	1
Water level changes	0	1
War games	1	0
Development	0	1
Storm damage	1	0

These factors often only affected a part of each specified unit. They had in every case been operating for at least 10 years and in some cases pre-dated notification of the site as a SSSI. Some of the conifer stands and rhododendron patches were of 19th century origin; they were therefore more likely to lead to the unit being classed as 'unfavourable, no change' rather than 'declining', because the main adverse effects had already happened. Loss of open space (rides, glades, etc.) has a more rapid impact on the interest of the site and in four out of five cases this factor led to the area being classed as 'declining'.

Where woods were classed as 'unfavourable but recovering' the reasons for 'recovery' (Table 7) closely match the factors given in Table 6. The main discrepancy is that only two sites were listed where grazing had been brought under control, compared to 12 where it was identified as still a problem. Management leading to 'recovery' had in every instance been introduced within the last 10 years, usually in the last five.

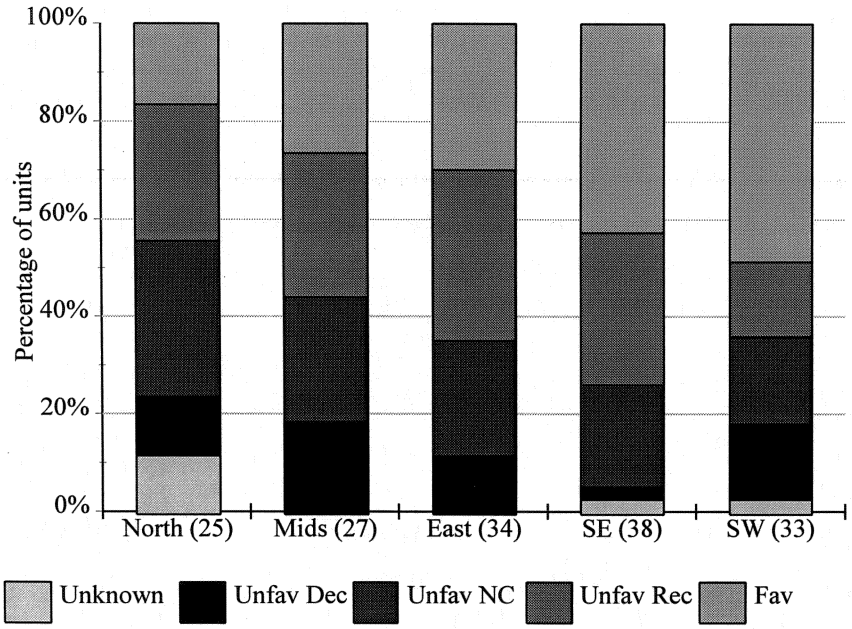
Table 7. Factors leading to a wood in 'unfavourable' condition being classed as 'recovering'. Some units had more than one factor listed.

Factor	Number of units
Restoration of coppice	16
Removal of conifers	12
Removal of other 'exotics'	10
Open space management	4
Recovery from storm damage	4
Other silvicultural operations	4
Grazing control	2
Elm regrowth	2
Recovery from recreational damage	1
Restoration of pollarding	1

Regional variation in woodland condition

The most notable variation between regions was in the proportion of sites which were assessed to be in 'favourable' condition (Figure 13). Fewer than 20% of woodlands in northern England were in 'favourable' condition, whilst more than 40% of sites in the south-east and south-west fell within this condition class. Overall, however, differences between regions were not significant ($\chi^2 = 11.31$, d.f. = 8, $p = 0.186$; *unfavourable, declining* grouped with *unfavourable, no change*).

Figure 13. Percentage of units in northern England (North), the Midlands (Mids), eastern (East), south-eastern (SE) and south-western (SW) England within each condition assessment category. Numbers in brackets are the number of units within each region. Fav: Favourable; Unfav Rec: Unfavourable, recovering; Unfav NC: Unfavourable, no change; Unfav Dec: Unfavourable, declining.



Comparison with other assessments of woodland condition

Most site visits for the sample survey of SSSI woodlands were conducted during 1995. Other woodland SSSIs were visited during this period as part of routine monitoring, or for other reasons. The condition assessments of the sample survey are compared with those of 'routine' monitoring in Table 8.

Table 8. Percentage of units within each condition class for sites visited during the sample survey of SSSI woodlands and for semi-natural broadleaved woodlands visited as part of routine monitoring during 1995. Numbers in brackets are the number of assessments.

Condition assessment	Sample survey (157)	Routine assessments (398)
Favourable	33.8	53.0
Unfavourable, recovering	28.0	12.8
Unfavourable, no change	23.6	24.9
Unfavourable, declining	11.5	7.8
Part destroyed	-	1.3
Destroyed	-	0.3

The proportion of sites within each condition category differed significantly between the sample survey and routine monitoring ($\chi^2 = 25.96$, d.f. = 3, $p < 0.001$). This discrepancy was largely attributable to differences in the number of sites classified as 'favourable' or 'unfavourable, recovering'. If these two categories are combined, differences between the sample survey and routine monitoring are not significant ($\chi^2 = 2.07$, d.f. = 2, $p = 0.356$). Possible reasons for this are considered in Section 4.1.

3.5. Multi-variate analyses: predicting woodland condition from aspects of the site and its management

The relationship between woodland condition and aspects of the site and its management was explored by multivariate analysis (see Section 2.4). Using this process it is possible to identify the factors (or groups of factors) which are consistently associated with each condition class. These factors may be useful as 'predictors' of site condition.

3.5.1. Predictors of 'favourable' condition

No aspects of sites or site management recorded in the survey were consistently associated with 'favourable' condition.

3.5.2. Predictors of 'unfavourable, recovering' condition

The best single-factor model for predicting the occurrence of woodlands in 'unfavourable, recovering' condition was based on an association with Forestry Authority grant schemes. Sites managed with the assistance of Forestry Authority grants (e.g. the Woodland Grant Scheme) were more likely to be in 'unfavourable, recovering' condition than sites which were only subject to other management agreements/grant schemes or which were not subject to agreements (Figure 14). The regression equation between Forestry Authority grants and sites assessed as 'unfavourable, recovering' was fairly weak but highly significant ($r^2 = 0.129$; $p < 0.001$).

The best two-factor model involved woodlands which were part of a 'woodland' property (as defined above) and which were subject to grant schemes or agreements administered by the Forestry Authority. The regression between these two factors and 'unfavourable, recovering' condition had an r^2 value of 0.164 and was also highly significant ($p < 0.001$). Some 50% of sites which were within woodland properties and subject to Forestry Authority grants were in 'unfavourable, recovering' condition (Figure 15), whereas only 29% of woodland property sites without Forestry Authority grants, and 20% of sites within other property types, fell within this condition class.

Figure 14. Condition of woodlands on sites subject only to Forestry Authority grant schemes, sites subject to other management agreements only, and sites without agreements. Numbers in brackets are the number of units in each category. Fav: Favourable; Unfav Rec: Unfavourable, recovering; Unfav NC: Unfavourable, no change; Unfav Dec: Unfavourable, declining.

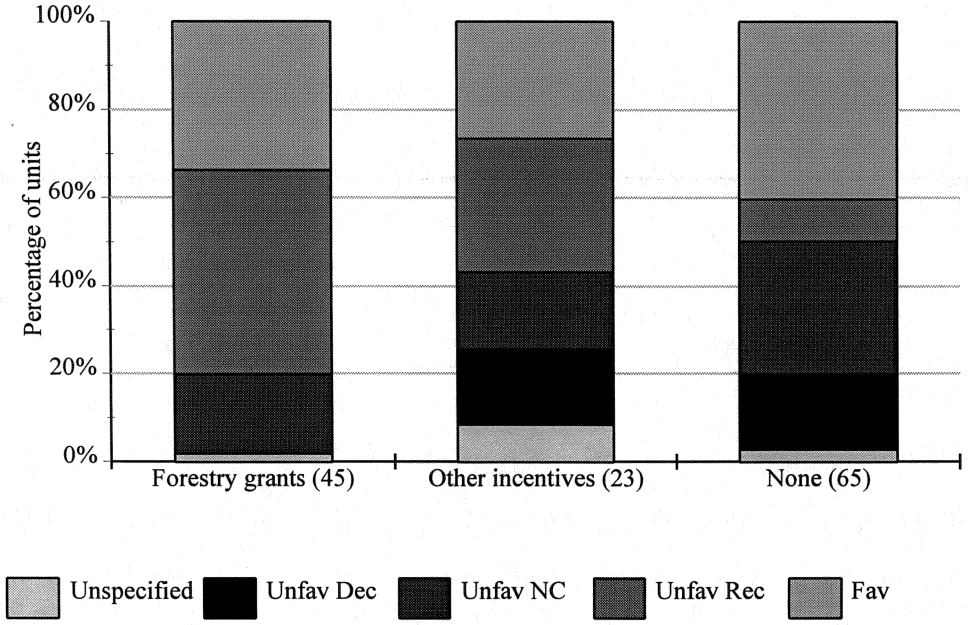
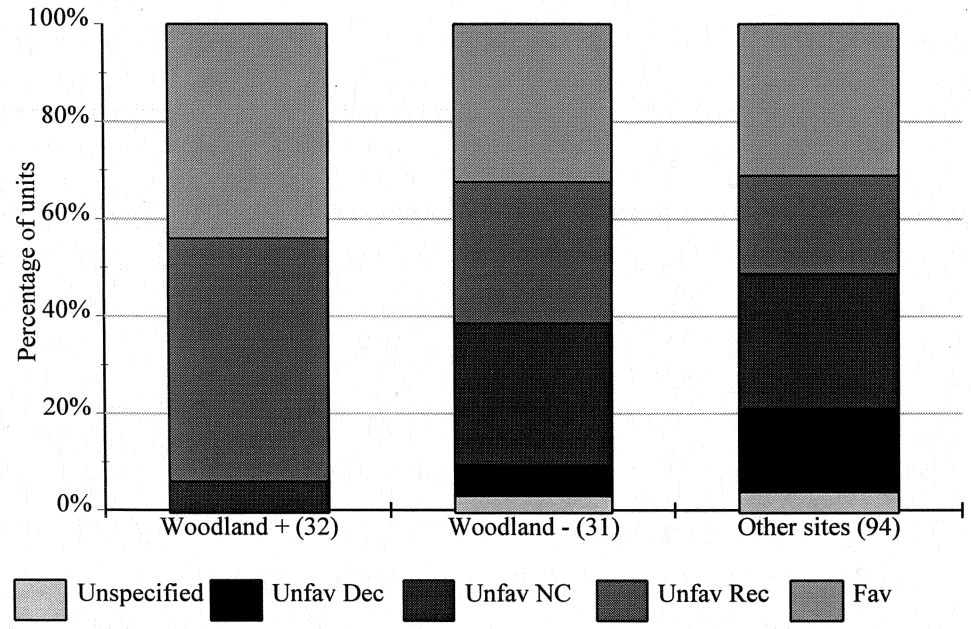


Figure 15. Condition of woodlands on sites within 'woodland' properties and subject to Forestry Authority (FA) grant schemes (Woodland +)*; sites within woodland properties but not subject to FA grants* (Woodland -)*; and sites within other property types. Numbers in brackets are the number of site units in each category. Fav: Favourable; Unfav Rec: Unfavourable, recovering; Unfav NC: Unfavourable, no change; Unfav Dec: Unfavourable, declining.*

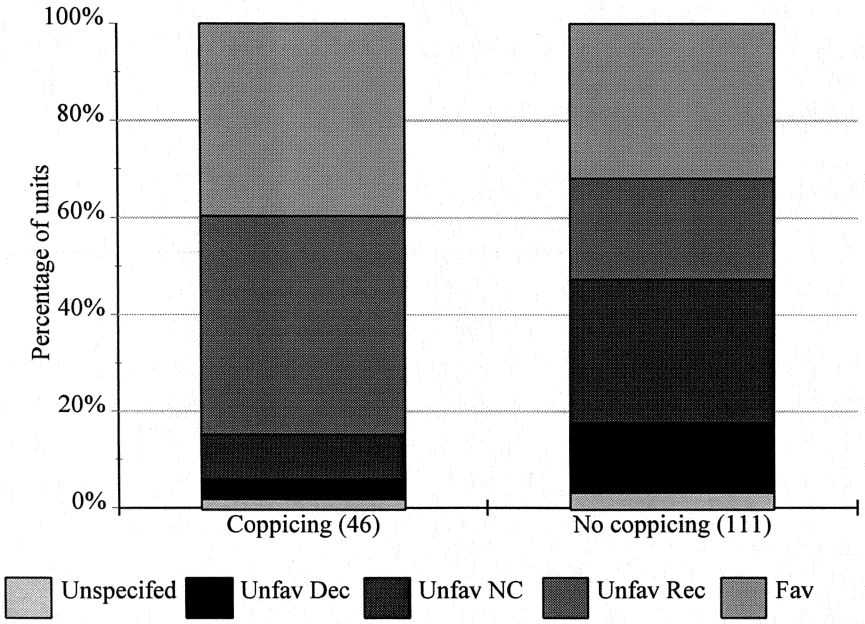


The association of 'unfavourable, recovering' condition with sites which were (a) within woodland properties, and (b) subject to Forestry Authority grant schemes results, incidentally, in a positive correlation between the voluntary sector and this condition class; as noted above, the majority of sites managed by the voluntary sector were within woodland properties (Section 3.3.2) and received grant support (Section 3.3.4). However, if woodland properties are considered in isolation, the condition of sites managed by the voluntary sector did not differ significantly from that of sites managed by other occupier groups (χ^2 analysis; $p > 0.10$).

3.5.3. Predictors of 'unfavourable, no change' condition

In agreement with the observations of surveyors noted above (Section 3.4), an absence of coppicing was identified as the single factor most closely associated with sites where woodland condition was assessed as 'unfavourable, no change' (Figure 16). However, the relationship, whilst significant ($p < 0.01$), was weak ($r^2 = 0.051$). The regression for the best two-factor model was stronger ($r^2 = 0.091$; $p < 0.005$) and indicated that woodlands which were part of 'farm' properties and which were not coppiced were more likely to be within this condition class than were other sites.

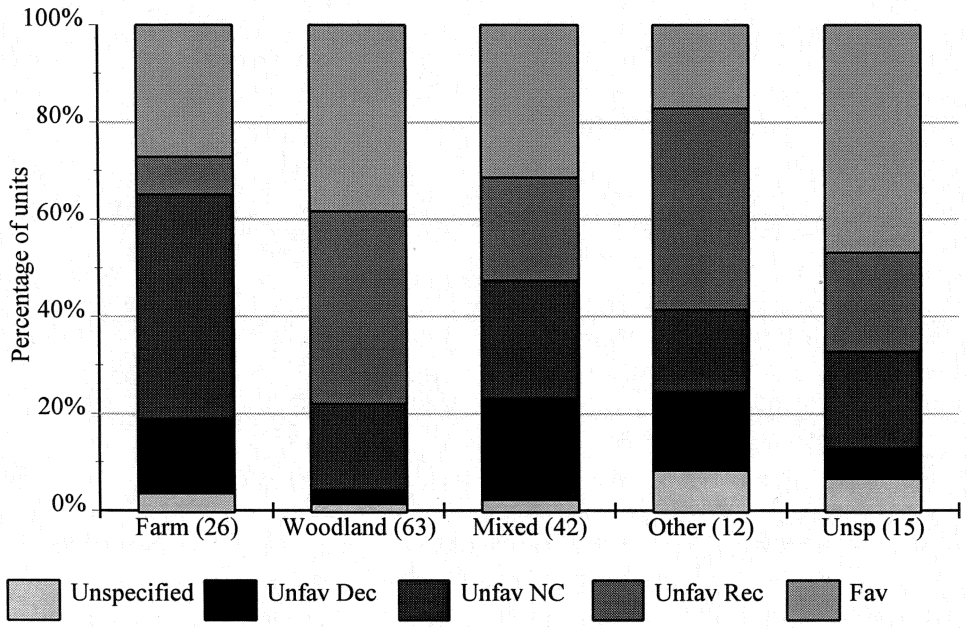
Figure 16. Condition of woodlands with and without coppicing. Numbers in brackets are the number of site units in each category. Fav: Favourable; Unfav Rec: Unfavourable, recovering; Unfav NC: Unfavourable, no change; Unfav Dec: Unfavourable, declining. The condition of coppiced woodlands was more likely to be classified as 'unfavourable, recovering' than that of woodlands which were not coppiced, and less likely to be classified as 'unfavourable, no change'.



3.5.4. Predictors of 'unfavourable, declining' condition

Forestry Authority grants were also identified as the single factor which best predicted the occurrence of 'unfavourable, declining' condition, only in this case the association was a negative one. Sites which were subject to Forestry Authority schemes were *less* likely to fall within this condition class than sites without these schemes; indeed, Figure 14 (above) illustrates that no sites with Forestry Authority grants were in 'unfavourable, declining' condition. The regression between Forestry Authority grants and this condition class was weak ($r^2 = 0.051$) but significant ($p < 0.01$). Similarly, sites which were part of 'woodland' properties were less likely to be in 'unfavourable, declining' condition than were other sites (Figure 17), although the relationship was again weak ($r^2 = 0.047$; $p < 0.01$).

Figure 17. Woodland condition in relation to property type (Unsp: Unspecified). Numbers in brackets are the number of site units in each category. Fav: Favourable; Unfav Rec: Unfavourable, recovering; Unfav NC: Unfavourable, no change; Unfav Dec: Unfavourable, declining. Sites which were within 'woodland' properties were less likely to be in 'unfavourable, declining' condition than sites in other property types.



The best two-factor model for predicting the occurrence of this condition class indicated that sites which were part of 'mixed' properties and which were not subject to Forestry Authority grants were more likely to be in 'unfavourable, declining' condition than were other sites. The regression between these two factors and 'unfavourable, declining' condition had an r^2 value of 0.100 ($p < 0.001$).

3.6. Management prognosis

3.6.1. Will current and planned management maintain or enhance the features of interest?

Surveyors were asked to assess whether, in their opinion, current management[9] would maintain or enhance the features of interest on the sites surveyed (see Site Condition Form, Appendix 3). The effects of management could not always be predicted, and for these sites management outcomes were listed as 'unknown'.

The management of sites in 'favourable' condition was, in nearly 90% of cases, appropriate to ensure that the features of interest would be maintained (Table 9). Current management was thought likely to enhance the interest on 39 sites; unsurprisingly, the majority of these were classified as 'unfavourable, recovering'.

Of particular concern is the number of sites where management will not maintain the features of interest. Poor management appeared to be a minor problem for sites classified as 'favourable' or 'unfavourable, recovering', but was more common on sites where condition was 'unfavourable, no change' or 'unfavourable, declining'. The surveyors considered that, with current management, woodland condition would decline in roughly one quarter of sites classed as 'unfavourable, no change' and continue to decline in nearly three quarters of sites where condition was 'unfavourable, declining'.

Table 9. Assessment of whether current management will enhance or maintain the features of interest on woodland sites (n = 157 site units). Assessments have been grouped according to the current condition of the woodland.

	Number of sites where current management will			
Current condition	Enhance	Maintain	Not maintain	Unknown
Favourable	-	47	2	4
Unfavourable, recovering	30	5	3	6
Unfavourable, no change	8	16	9	4
Unfavourable, declining	1	2	13	2

Using information from the Questionnaire (see Appendix 2, question 3.2), surveyors were also asked to assess whether *planned* management would maintain or enhance the features of interest. The results of these assessments are shown in Table 10.

[9] 'Management' includes non-intervention and neglect.

Table 10. Assessment of whether planned management will enhance or maintain the features of interest on woodland sites (n = 157 site units). Assessments have been grouped according to the current condition of the woodland.

	Number of sites where planned management will			
Current condition	Enhance	Maintain	Not maintain	Unknown
Favourable	-	42	1	10
Unfavourable, recovering	36	5	0	3
Unfavourable, no change	16	10	5	6
Unfavourable, declining	6	2	6	4

Encouragingly, planned management was thought likely to enhance the features of interest on a greater number of sites, whilst the number of sites where management would not maintain the interest was more than halved. However, this still left some 12 sites (more than 5% of the total sample) where woodland condition was thought likely to decline. Predicted management outcomes were also unknown for a greater number of sites.

3.6.2. Perceived difficulties in achieving conservation management

Woodland owners/managers were asked whether management which would enhance or maintain the woodland's conservation interest was difficult to put into practice (see Questionnaire, Appendix 2). Problems were identified on 79 units, including some that were in 'favourable' condition.

The most commonly listed issues related to the cost of management and the lack of resources for carrying it out (Table 11). However, lack of certainty regarding conservation objectives was considered to be a problem on 12 units (more than 5% of the total sample); and poor relations between English Nature and the owner / occupier were considered to be an obstacle to appropriate management on three units. Poor public perception of woodland management activities was also considered to be a problem on three units. These are issues which English Nature needs to address.

Table 11. Problems or difficulties in achieving the right conservation management. More than one issue was identified on some sites.

Problem	Number of units
Cost of management/lack of resources	38
Lack of certainty regarding conservation objectives	12
Shortage of labour	10
Practical difficulties, particularly poor access to or within the wood	10
Conflict with other interests	7
Public access issues	5
Lack of markets for produce	4
Grazing	4
Lack of interest by owner / occupier	4
Local opposition to management (e.g. coppicing) activities	3
Poor relations between English Nature and owner / occupier	3

4. DISCUSSION

4.1. Methodology

The methodology employed in this survey was based on that used in the previous sample surveys of lowland grasslands (Sketch 1995) and lowland heathlands (Brown *et al.* 1998). The survey provides an overview of the condition of sites at a particular moment in time, and of the factors which influence site condition. It is complementary to, but not a substitute for, other monitoring activities on SSSIs. The issues associated with each broad habitat type are likely to vary, and this is reflected by changes in the questionnaire and in the criteria used to assess site condition. The methodology was also adapted to incorporate developments in English Nature's procedures for monitoring SSSIs. Whilst attempts were made to ensure that the survey presented a reasonable reflection of the state of woodland in SSSIs, the following issues should be noted:

Selection of sites and site units

The sample survey reported here was based on a stratified random sample and was intended to be representative of what was happening to woodlands within the SSSI series as a whole. The similarity between the representation of woodland NVC communities in all SSSIs and in the sample (Section 3.2) suggests that the selected sites were generally representative of the series as a whole, in composition at least. However, the original selection included some sites where the woodland was not a feature of interest and occupied a very small area. Some of these were eliminated on the advice of Local Teams, and were replaced by other randomly picked sites, but a few remained in the survey.

Units within SSSIs were, at the time of the survey, defined on the basis of tenure or management, and surveyors usually only recorded one unit per site (see Section 2.2). In some instances only a small part of a wood was surveyed and this may not have been where the major management and interest were. SSSI units have now been redefined on the basis of interest features; it is also now possible to identify the units associated with particular interest features using ENSIS, English Nature's information system. In future sample surveys, therefore, it will be possible to randomly select a sample of *site units* (as opposed to SSSIs) from the total 'population' of units supporting a particular habitat type.

Condition assessments

This survey was the first major exercise for woodland using the condition assessment categories defined by Rowell (1993). Using this approach, the condition of each feature of interest is assessed against the nature conservation objectives which have been set for that feature (see Section 2.3). However, formal recording of nature conservation objectives, and the criteria for evaluating woodland condition using this approach, were still being developed at the time of the survey. The survey pre-dated, for example, work on defining criteria for assessing condition on sites proposed under the Habitats and Species Directive. Condition assessments were therefore more dependent on the experience of individual surveyors and may not always have been consistent across sites.

Differences between surveyors as a cause of bias

In general, any survey involving a number of surveyors spread across the country introduces the risk of bias, because different surveyors may interpret condition classes, threats and problems in slightly different ways. Efforts were made to keep instructions as unambiguous as possible, but inconsistencies between surveyors were still apparent (see, for example, comments in Section 3.3.5).

Comparison between survey and 'routine' site visits

Condition assessments made in the sample survey differed significantly from those made during 'routine' site visits over the same period (Section 3.4). The principal difference between the two groups of assessments was in the proportion of sites judged to be 'favourable' and 'unfavourable, recovering'. There is close correpondence between the sample survey and routine visits if these two categories are considered together (Section 3.4).

The variation between the sample survey and 'routine' site visits may reflect genuine differences in the condition of the sites which were assessed, but could also be due to differences in the interpretation of the condition classes. The distinction between a site which is 'recovering' and one which is 'favourable' may be difficult to define. This is perhaps particularly the case for woodland, where implementation of favourable management may lead to the gradual realisation of favourable condition over a period of several years (see discussion below). It should also be noted that the Site Condition Form (Appendix 3) and accompanying Guidance Notes (Appendix 4) used in the sample survey asked surveyors to provide a more detailed assessment of woodland composition and condition than would be required when completing a Site Unit Recording Form[10]. This may have influenced the evaluation of site condition.

These *caveats* notwithstanding, it is thought that the results presented in this report do provide a reasonable assessment of the condition of woodland on SSSIs, and of the management and threats associated with these woods. The discussion above does, however, further highlight the need for:

i. well-defined criteria which specify the conditions under which a woodland should be classed as 'favourable'; and
ii. training for conservation officers or surveyors in the use of these criteria.

[10] The Site Unit Recording Form (SURF) is used by English Nature's conservation officers to report on the condition of sites.

4.2. Woodland condition

None of the factors recorded in the sample survey were consistently associated with 'favourable' condition. Comments by surveyors in relation to sites classified as 'unfavourable', however, clearly identified a number of factors which were considered to be important determinants of site condition (Section 3.4). The most notable of these were coppicing; conifers and other exotics; and grazing.

Multi-variate analysis of the survey data (Section 3.5) confirmed that coppicing had a significant influence on site condition. This analysis also suggested that woodland condition was influenced by Forestry Authority grants and that property type was likely to be an important factor. It is important to note, however, that no single factor was strongly correlated with any of the condition classes; the strongest single-factor regression, between Forestry Authority grants and 'unfavourable, recovering' condition, had an r^2 value of only 0.129. This presumably reflects the fact that woodland condition is influenced by many different factors. Management activities may also be favourable in one situation, but unfavourable in another; examples in relation to coppicing and grazing are given below.

Coppicing

The nature conservation benefits of coppicing have been widely recognised (see, for example, Peterken 1981, 1991; Fuller & Warren 1993). Coppicing is of particular value for woodlands which have a long history of coppice management, where the fauna and flora may be dependent on the variety of habitats that coppicing creates (Peterken 1991). It is not, however, the most desirable management for every woodland and may be inappropriate in woodlands which have not been managed in this way previously, or where coppicing has been long-neglected (Peterken 1981, 1991; Kirby 1998). Coppiced woodlands are also generally lacking in particular features, such as dead wood, which have high conservation interest (Kirby 1998). For many sites, therefore, coppicing would not be an appropriate management regime and, overall, coppicing was only poorly correlated with woodland condition. There was very little difference in the condition of sites in the Midlands and eastern England (Section 3.4), despite a five-fold difference in the percentage of sites which were coppiced (Section 3.3.3), for example.

Conifers and exotics

Most surveyors considered the presence of conifers and exotics (such as rhododendron and sycamore) to be indicative of 'unfavourable' condition (Section 3.4). The presence of these features often pre-dated notification of sites as SSSIs. The fact that these sites are now considered to be 'unfavourable' frequently reflects the application of formal nature conservation objectives to these woods, rather than a recent deterioration in condition. Planted conifers have been removed from a number of ancient woodland sites (Table 7) to promote the restoration of semi-natural broadleaved woodland (Peterken 1996; Reid *et al.* 1996). A survey of areas where conifers had been removed has confirmed that this is likely to result in ground flora recovery (Radford 1998).

Grazing

The association between grazing and woodland condition is consistent with the observations expressed in several recent reports (Currie 1996; Hester *et al.* 1996; Pryor 1998). Grazing can prevent the regeneration and development of the ground flora and shrub layer and was identified as a cause of 'unfavourable' condition on 12 of the 157 sites surveyed in the present study. Grazing is not universally detrimental to woodland condition, however, and a low level of grazing by large herbivores can provide a greater diversity in vegetation structure and species composition relative to that in woods where herbivores are excluded (Mitchell & Kirby 1990; Kirby *et al.* 1994).

Woodlands in northern England were more commonly grazed than those in other regions (Section 3.3.3). This may involve sheep where woods are unfenced in stock-rearing areas. The higher incidence of grazing in the woodlands of northern England presumably contributes to the poorer condition of these sites, when compared to sites in other parts of the country (Section 3.4). Control of grazing will probably be necessary if these sites are to achieve their nature conservation objectives.

Some of the points raised above can be illustrated by reference to Roudsea Wood National Nature Reserve. This site was assessed to be in 'unfavourable' condition because it contains some small conifer stands and has been invaded by sycamore. The sycamore and conifer stands pre-date the time when management of the site by the former Nature Conservancy Council started, and there is a long-standing and successful programme in place to reduce them. Management is therefore satisfactory and woodland condition is improving.

There is also deer browsing/grazing in Roudsea Wood; this would be sufficient to prevent coppice regrowth if the coupes were not protected. The deer have also significantly affected the composition of the ground flora in places by reducing the amount of bramble, but this may be a positive factor, provided that there are some parts of the wood where bramble can form thickets. A favourable condition for the ground flora might therefore be defined as a mixture of grazed and ungrazed patches which could be achieved by:

- a substantially reduced deer population (but not their elimination); or
- having some temporary fenced areas within the wood, which is what is done.

The latter approach may involve more cost but it is within the direct control of a site manager; the former may only be possible if the site manager has agreement with neighbouring landowners. However, either, depending on circumstances, could be used to achieve a similar favourable result of a varied structure and composition for the ground flora across the wood.

The example above illustrates that favourable management (removal of conifers and sycamore) will not necessarily bring a site immediately into 'favourable' condition. Factors that result in woods being classed as 'unfavourable' may take many years or even decades to reverse; woodland condition is thus likely to be classed as 'unfavourable, recovering', rather than 'favourable', following the implementation of remedial management.

Forestry Authority grants

The cost of management was highlighted as the single most important obstacle to the achievement of nature conservation objectives (see discussion below). Grants which off-set some of the costs of management may therefore encourage owner / occupiers to undertake management which would otherwise be uneconomic. This may explain the association between Forestry Authority grant schemes and 'unfavourable, recovering' condition (Section 3.5).

Whilst this interpretation is perhaps intuitively appealing, a note of caution must be given. The sample survey provided an assessment of condition at one point in time only; one would need to know the condition of sites prior to the implementation of grant-aided work in order to evaluate the true effectiveness of these schemes. Similarly, the finding that sites with Forestry Authority grants were more likely to be 'recovering' than those with other grant schemes and management agreements (Section 3.5) may be misleading. Other agreements, such as those operated by English Nature, may be targetted at the sites in poorest condition or where Forestry Authority grants are not available; this would tend to bias their apparent efficacy. Given the apparent disparity between different schemes, however, and the need to ensure that resources are spent to best effect, this is an area which might benefit from further study.

These points notwithstanding, it is worth considering why Forestry Authority grants might be associated with a 'recovery' in woodland condition.

The Woodland Grant Scheme (WGS) was the most common of the Forestry Authority grant schemes. In addition to supporting production, this scheme promotes activities with conservation or environmental benefits. During the period that the sample survey was conducted, for example, managers of woodlands could receive payments under the WGS for work which would

- safeguard or enhance the special environmental value of a wood
- improve woodlands which were below current environmental standards
- involve projects with conservation benefits, e.g. coppice restoration or clearance of rhododendrons
- result in the exclusion of agricultural stock from woodlands (Forestry Authority 1994).

The impact of the Woodland Grant Scheme on SSSI woodlands has been studied in more detail by Currie (1996) and Pryor (1998). Pryor's conclusions were that it was generally beneficial, but that there was room for improvement. In particular, both Currie (1996) and Pryor (1998) highlighted the lack of provision within the WGS for measures to control grazing.

The use of woodland grant schemes on SSSIs is discussed further in a recent review by Kirby *et al.* (1998). Recent amendments to the WGS (e.g. Forestry Authority 1998) have gone some way towards addressing the problems identified by Currie (1996) and Pryor (1998). For example, the WGS now also provides grant aid for work which

will help bring woodlands which are under managed or of low commercial value back into management, or which will implement the forestry aspects of *Biodiversity: the UK Action Plan* (Anon. 1994). Use of the WGS may therefore be expected to result in further nature conservation benefits in the future.

Property type

The relationship between property type and site condition was generally of secondary importance to factors such as grant schemes and coppicing (Section 3.5; see also the discussion above). However, multi-variate analysis revealed that:

- *woodland* properties were positively associated with 'unfavourable, recovering' condition and negatively associated with 'unfavourable, declining' sites;
- *farm* properties were positively associated with sites assessed as 'unfavourable, no change'; and
- *mixed* properties were positively associated with 'unfavourable, declining' site condition.

Property type is, of course, likely to influence the interests and activities of site managers. Woodlands were the main land use within 'woodland' properties and would need to be managed if the estate was operated as a commercial venture. On the other hand, 'farm' properties were, by definition, predominantly agricultural (Section 3.3.2); the woodlands on these properties were likely to be incidental to the main business and were less likely to be actively managed. For example, coppicing, timber production, nature conservation and recreational activites were less common in 'farm' woodlands than in those on other property types (Section 3.3.3). 'Mixed' properties had both agricultural and woodland components, with woodlands being an integral part of the business. Indeed, there appeared to be greater use of woodland as a commercial enterprise on these properties, with some 70% of sites being managed for timber production (Section 3.3.3). Game management and shooting were major interests on both farm and mixed properties, occurring in 50% of units on farm properties and nearly 60% of those on mixed estates.

Property types were also correlated with occupier categories (Section 3.3.2). The voluntary sector managed nearly half of the sites which were part of 'woodland' properties, whilst the majority of 'farm' and 'mixed' properties were managed by the 'personal' occupier group. However, such associations can be misleading: occupier type did not affect the condition of sites which were part of 'woodland' properties, for example (Section 3.5.2). It may be that 'woodland' properties are largely uneconomic for all but the voluntary sector, which can off-set management costs against membership subscriptions (see below).

As with grant schemes, therefore, property types should probably be viewed as 'surrogates' for a combination of many different factors. This does not mean that the distinction is of no value, however. The results indicate, for example, that efforts to bring all SSSI woodlands into favourable condition will need to focus particularly on those sites which are part of 'farm' or 'mixed' estates.

4.3. Problems in achieving conservation objectives

Although coppicing and other positive management has been reinstated in many woods during the past decade (Section 3.4), many woodland managers felt that the cost of management remained a major obstacle to the achievement of nature conservation objectives.

There have been some recent initiatives to promote use of products derived from semi-natural woodlands, but there are fewer markets for these products than previously (Peterken 1981, 1996). The voluntary sector, which encompasses organisations such as the RSPB, the Wildlife Trusts and the Woodland Trust, can use membership subscriptions to off-set management costs and may also use volunteer labour for some management activities. These options are not available to 'personal' or 'business' occupiers, for whom sale of woodland products must generally meet the cost of management. This generally means that woodland management that provides nature conservation benefits, such as coppicing, must be subject to some financial support.

The potential value of Forestry Authority grants, most notably the Woodland Grant Scheme, in promoting appropriate management was discussed above. Under the Woodland Grant Scheme, up to 50% of the cost of work to enhance a woodland's value "for conservation, landscape or recreation" may be provided in grant aid; and payments of up to £35 per hectare may be made for work which will "safeguard or enhance the existing special environmental value of a wood" (Forestry Authority 1998). However, this level of financial support may not always be sufficient to promote the management desired for the purposes of nature conservation. Twelve of the 38 sites where cost was listed as a problem were in receipt of grant aid through the WGS, for example.

Uncertainty regarding nature conservation objectives was considered to be a problem on more than 5% of sites. Some of these problems were resolved during the course of the sample survey, which provided woodland managers with an opportunity to discuss management issues with their local conservation officer. Further progress has been made since the completion of the sample survey; ongoing work on the preparation of Site Management Statements[11], for example, has increased communication between English Nature and site managers. However, this is clearly an issue which English Nature needs to monitor and, if necessary, address at a wider scale.

4.4. Management prognosis: current and planned management

Current management was generally satisfactory for sites classed as 'favourable' or 'unfavourable, recovering' (Section 3.6.1). Where woodland condition was 'unfavourable, no change' or 'unfavourable, declining', however, surveyors generally felt that management changes would be required if the nature conservation objectives were to be achieved.

[11] English Nature has a commitment to prepare a Site Management Statement for each individual and organisation with significant influence over each SSSI. These statements set out what each tenure unit contributes to the objectives for the site as a whole and how these objectives can be achieved.

Encouragingly, planned management was thought likely to enhance the features of interest on many of these sites. Of course, this management must be carried out for its potential nature conservation benefits to be realised. Even taking planned management into account, however, more than 5% of woodlands surveyed were thought likely to decline in condition. Furthermore, the effects of future actions are obviously harder to predict than those of current management; accordingly, the effects that planned management would have on the features of interest were uncertain on some 15% of sites.

There is clearly a need for continuing dialogue between English Nature and site managers in order to

- raise managers' awareness of a site's features of interest and nature conservation objectives
- encourage management which is appropriate to these objectives
- raise awareness of grant schemes and other incentives which might be available to support appropriate management activities
- monitor the implementation of management and progress towards the achievement of nature conservation objectives.

These goals should be met through the ongoing process of preparing and reviewing Site Management Statements (Section 4.3). The outcomes of the SMS programme will need to be monitored to determine whether this is indeed the case.

5. CONCLUSIONS

More than a third of sites assessed in the sample survey were in favourable condition. A further 28% of sites were progressing towards this state.

Nearly a quarter of the sites were in 'unfavourable' condition and neither improving nor declining, but more than 10% of sites were thought to be 'unfavourable' and declining in condition. Current management was unlikely to reverse the decline in the majority of these sites.

The presence of exotics or conifer plantations, lack of coppicing and grazing were apparently the main causes of unfavourable condition. The majority of these factors were chronic (i.e. operating over long periods of time) and many were historical (e.g. past planting of conifers), often pre-dating notification of the site as an SSSI.

Planned management was thought likely to enhance the features of interest and reverse the decline in condition on many of those sites which were assessed as 'unfavourable'. Implementation of appropriate management will not usually bring a site into 'favourable' condition immediately, since problems may take many years or even decades to reverse. Even taking planned management into account, however, more than 5% of sites were thought likely to

decline in condition.

Cost was highlighted as a major obstacle to the implementation of management commensurate with nature conservation objectives. Grant schemes and incentives were therefore important in influencing management activities.

Forestry Authority grant schemes appeared to be the best indicators of favourable management, in that they were commonly associated with 'recovery'. Existing grant schemes may not be particularly effective in controlling grazing, however. Apparent differences between the effectiveness of schemes operated by the Forestry Authority and those managed by other agencies are worthy of further study.

The voluntary sector had the best take-up of grant schemes. Membership subscriptions may also enable the voluntary sector to manage woods where there is little or no economic incentive for this management.

Woodlands which were part of 'farm' or 'mixed' estates were least likely to be in 'favourable' condition or recovering towards that state. Efforts to promote woodland conservation should therefore focus on these property types.

More than 5% of respondents to the survey were uncertain of the nature conservation objectives for their woodlands. It is hoped that the preparation of Site Management Statements is leading to improved dialogue between English Nature and site managers, but this is clearly an issue that English Nature needs to monitor and address as necessary.

Inconsistencies between surveyors, and between the results of the sample survey and those of routine monitoring, highlight the need for greater clarity in the definition of condition classes. Consistency would also be improved if surveyors were trained in the assessment and recording of woodland condition.

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APPENDIX 1

WOODLAND NVC COMMUNITIES
(FROM RODWELL 1991)

Woodland NVC communities (from Rodwell 1991)

W1	*Salix cinerea* - *Galium palustre* woodland
W2	*Salix cinerea* - *Betula pubescens* - *Phragmites australis* woodland
W3	*Salix pentandra* - *Carex rostrata* woodland
W4	*Betula pubescens* - *Molinia caerulea* woodland
W5	*Alnus glutinosa* - *Carex paniculata* woodland
W6	*Alnus glutinosa* - *Urtica dioica* woodland
W7	*Alnus glutinosa* - *Fraxinus excelsior* - *Lysimachia nemorum* woodland
W8	*Fraxinus excelsior* - *Acer campestre* - *Mercurialis perennis* woodland
W9	*Fraxinus excelsior* - *Sorbus aucuparia* - *Mercurialis perennis* woodland
W10	*Quercus robur* - *Pteridium aquilinum* - *Rubus fruticosus* woodland
W11	*Quercus patraea* - *Betula pubescens* - *Oxalis acetosella* woodland
W12	*Fagus sylvatica* - *Mercurialis perennis* woodland
W13	*Taxus baccata* woodland
W14	*Fagus sylvatica* - *Rubus fruticosus* woodland
W15	*Fagus sylvatica* - *Deschampsia flexuosa* woodland
W16	*Quercus* spp. - *Betula* spp. - *Deschampsia flexuosa* woodland
W17	*Quercus patraea* - *Betula pubescens* - *Dicranum majus* woodland
W18	*Pinus sylvestris* - *Hylocomium splendens* woodland
W19	*Juniperinus communis* ssp. *communis* - *Oxalis acetosella* woodland
W20	*Salix lapponum* - *Luzula sylvatica* scrub
W21	*Crataegus monogyna* - *Hedera helix* scrub
W22	*Prunus spinosa* - *Rubus fruticosus* scrub
W23	*Ulex europaeus* - *Rubus fruticosus* scrub
W24	*Rubus fruticosus* - *Holcus lanatus* underscrub
W25	*Pteridium aquilinum* - *Rubus fruticosus* underscrub

APPENDIX 2

QUESTIONNAIRE

NATIONAL SAMPLE SURVEY OF SSSI WOODLANDS 1995

QUESTIONNAIRE

Section 1

SSSI Name:

County:

Natural Area:

SSSI Area: SSSI Grid ref:

Total area of woodland within SSSI in hectares:

Area of SSSI woodland sample management unit in hectares:

Total Area	
Ancient Woodland	
Ancient Semi-Natural Woodland	
Other (Recent) Semi-Natural Woodland	

Woodland sample management unit number: 1 within SURF unit number:

Owner of sample management unit:

Occupier name:

Address:

Is the woodland subject to an English Nature or Local Authority management agreement (specify)?

Is the woodland subject to any form of incentive scheme or regulation:

Woodland Grant Scheme		Tree Preservation Orders	
Farm Woodland Grant		National Park Agreement	
Woodland Management Grant		Countryside Stewardship Scheme	
- Restocking Grant		Wildlife Enhancement Scheme	
- Annual Management Grant		Reserve Enhancement Scheme	
Other Forestry Authority Grants		Felling Licence	
Others			

QUESTIONNAIRE Section 2

Visit by: Date:

If the answer to any question is 'other', please give details.

2 OWNER/ OCCUPIER DETAILS

2.1 Which of the categories below best describe the interviewee's status as regards the woodland sample unit? (circle answer)

a) Personal types of private occupation,
e.g. individuals, private family trusts, family partnerships.

b) Business occupiers,
e.g. companies, partnerships, syndicates, Royal estates, pension funds.

c) Organisations funded by voluntary public subscription and institutions with charitable status,
i) Conservation organisations e.g. National Trust, local naturalist trusts,
ii) Others e.g. churches, colleges.

d) Public ownerships,
e.g. Government departments, Government agencies, other government bodies; nationalised industry; local authorities; other public authorities.

e) Forest Enterprise.

2.2 Which of the categories below best describes the circumstances under which they manage the whole property which includes the woodland sample unit? (circle answer)

a) A farm property (including grazed parkland).

b) A mainly woodland property (regardless of whether this is managed for timber production).

c) A mixed agricultural/forestry estate.

d) Some other land use where the woodland is incidental to the main holding,
e.g. golf course, hotel, house, factory grounds, derelict land, land managed for amenity only.

e) If none of these seem to apply, please give a brief description:

2.3 Is the sample management unit managed as part of a larger block of woodland?

(Yes / No) If yes, please give approximate area(ha/acres):

2.4 Does the occupier manage any other woodlands?

(Yes / No)

3 USE AND MANAGEMENT OF SSSI WOODLAND

3.1 Is the wood used for (Tick appropriate boxes) :

Timber		Recreation	
Coppice Products		Shooting	
Nature Conservation		Grazing	
Other. . .			

Further detail if needed:

3.2 Woodland Management (Tick boxes and give detail of species and areas (ha / acres) affected. If more detail is required attach copy of approved plan of operation)

Management	Past 5 yrs Plan	Current 5 yrs Plan	Next 5 yrs Plan	Area, frequency and species affected
Coppicing				
Thinning				
Other Felling				
Extraction of timber or dead wood removal				
Planting				
Ride creation / maintenance				
Glade management				
Ditch / drainage maintenance				
Creation of buildings / structures				
Management for particular species				
Pheasant pens / feeders / etc.				
Weeding/ control of invasive plants				
Control / management of animals				
Non-intervention				
Other....				

3.3 Is there any or evidence of significant grazing or browsing by domestic or wild large herbivores?

4 PLANNED MANAGEMENT

If changes are planned to the management regime described above (section 3), please give details:

5 MANAGEMENT CHANGES

5.1 When was the current management regime introduced?

5.2 How has management changed over the last 50 years or so?

5.3 How would the woodland have been treated c. 150 years ago? (if it was present)

6 MANAGEMENT FOR CONSERVATION

Does the owner/occupier think that the ideal management for maintaining the woodland's nature conservation interest is difficult to put into practice?

APPENDIX 3

SITE CONDITION FORM

NATIONAL SAMPLE SURVEY OF SSSI WOODLANDS 1995

SITE CONDITION, MANAGEMENT AND THREATS

SSSI Name:

Please answer 1, 2 and 3 before the visit.

1. State the objective(s) for the woodland and associated interest:
(from Site Objective Statement)

2. What are the community or habitat types, stand type and structural type of sample unit?
(NVC if available)

3. Is there a monitoring project on the SSSI?

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4. Any physical loss of woodland area? (Yes / No)

at the boundary / within the woodland Area: Approx date:

Cause:

5 Current condition for the woodland sample management unit (see guidance notes for definitions) - circle one option on left and give more detail on right if possible:

Optimal	Maintained
	Recovered
Sub-optimal	Recovering
	Stabilised
	Declining
Destroyed or partially destroyed (give %)	

6. Describe the status or any change of status for (based on Woodland Record Sheet; see guidance notes)

a) **Characteristic species and features:**

i) Canopy:

tree health

mammal damage

growth form

age distribution

ii) Understorey:

iii) Field / ground layer:

iv) Regeneration of tree species:

v) Other features:
(e.g. dead wood)

b) **Criteria species or groups:**

c) **Invasive or exotic species:**

7. If there is any evidence of Potentially Damaging Activities? State PDO number(s) and describe them:

PDO number:

8. Are there any external threats affecting the wood or associated interest?

Evidence of pollution? (Yes / No)

Has a pollution recording form been completed? (Yes / No)

9. Is current or planned management likely to:

i) **Maintain the interest features for which the site was notified?** Current (Yes / No)
Planned (Yes / No)

ii) **Aid the recovery of the interest?** Current (Yes / No)
Planned (Yes / No)

10. If management is not appropriate, why not, and how could the objectives in question **one** be achieved:

11. Is owner/occupier present on site visit? (Yes / No)

Date of Visit: Survey completed by:

APPENDIX 4

GUIDANCE NOTES FOR
THE NATIONAL SAMPLE SURVEY OF SSSI WOODLANDS

Guidance Notes for the National Sample Survey of SSSI Woodlands, 1995

You should have been sent a questionnaire and a site condition form for each selected SSSI in your area. The site condition form should have a site map on the back of the second page. You need to fill in both the questionnaire and the condition form. For any site, the person filling in the forms should ideally be the owner/occupier's usual point of contact with English Nature. In addition to the site condition form and questionnaire, you have been sent a Woodland Record Card. Filling this in during the site visit will help inform the decisions you make on the site condition form, particularly questions 5 and 6. If a wood has been surveyed recently, it may not be necessary to fill in a Woodland Record Card. **The degree of detail you give on the record card is up to you**, but completed ones will be useful additional information on the wood for yourself as well as the Sample Survey work. Guidance notes for the record cards are reproduced after those for the site condition form.

The woodland management unit may be the whole SSSI or part of it. A single management unit[1] should be investigated on small SSSIs. For large multiple occupancy SSSIs two owner/occupiers should be contacted and one survey done for each of them (a 'large' woodland SSSI contains more than 100 ha of woodland). I do not have enough information to know which owner/occupiers manage the woodland on multiple-occupancy sites, so you will need to identify them and choose two at random (rather than choosing the most cooperative, which would bias the sample). You may be able to combine answering the questionnaire with a visit for another reason. Please photocopy the required number of forms and **outline the relevant management unit on the map**. The forms for woodlands which are within NNRs as well as SSSIs should be filled in by or with the site manager. Some woods may not be in active management; the questionnaire will still be relevant to them.

Initial contact with owner/occupiers will normally be by letter, outlining the objectives of the survey and asking if you can visit them and the site. If they do not wish to be interviewed face to face, the questionnaire could be answered over the phone, but this would only be a last resort. If they do not wish to be interviewed at all there is not much you can do about it - let me know about any sites for which the survey could not be done despite your efforts, and the reason for non-cooperation. The questionnaire should be completed before the site visit; the owner/occupier's presence on the site visit may well be advantageous for both of you but is not essential. If the occupier will not answer the questionnaire but will let you visit the site, fill in the site condition form and as much information as you can on the questionnaire (e.g. note any evidence of management seen on site visit). Section 1 of the questionnaire and questions 1, 2 and 3 of the site condition form should be completed before the visit. Records of recent site visits should be checked before the visit A copy of the PDOs list is needed for question 7 in the site condition form.

Any personal information collected is confidential and will not be published except in summary form without references to individual sites.

The work should be done and site condition forms, questionnaires and Woodland Record Cards returned to George Hinton at Northminster House by the end of **October 1995**. If you have any further questions about the Sample Survey please contact the Conservation Resource Monitoring Team.

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[1] A management unit is an area with a single management plan (sometimes divided into sub-compartments). This might, for example, include a coppiced area, a non-intervention area and some high forest; i.e. a single coppice coupe is not a 'management unit' for the purposes of this work. It will usually have a single occupier. You should interview the person best able to tell you what is happening in that area; this may be an individual occupier or the representative of a group.

Questionnaire

Section 1

Please check any answers filled in by the project officer. The woodland area is taken from the area of habitat classified as 'A1' on Cordata, so it may be out of date and is not available for all sites. Estimate the area of the management unit you are studying. If the wood contains ancient and semi-natural woodland, their area should be taken from the map in the Ancient Woodland Inventory. Mark the outline of the sample management unit on the SSSI map on the back of the site condition form. If the occupier is in, or plans to join, any scheme please give details here, and also give details if the woodland is subject to any restrictions in addition to SSSI status. If the site is subject to a Woodland Management Grant but the detail is unknown i.e. a Restocking or Annual Management Grant, just tick the Woodland Management Grant box.

Section 2

2.1 and 2.2 - Circle the appropriate answer. These questions are the same as those in the Forest Authority's census, so that we can assess SSSIs in a wider context.

2.4 - Circle the appropriate answer. Provide brief detail if available as some idea of whether other woods are managed for similar reasons would be useful.

Section 3

This section refers to the sample management unit you are investigating. The questions deal with current management. Adapt this section if there is no room to answer any question as fully as you would like.

3.1 - Further details may be added here if any of the forms of land use require explanation or have particular problems. For example visitor pressure and whether the manager has any control over visitor access.

3.2 - Detail on management area, frequency of management and species affected should be included if available. For example, frequency and coupe area for coppicing should be noted. If there is control of invasive species, please state which species. The long time scale of woodland management makes this question complicated. The current management regime refers to work in the current five year management plan, or if this is not relevant, work done in the last five years. Current management could be a lack of management or the reintroduced management after a time without. Adapt this section as appropriate if this information is not available in enough detail.

3.3 - Evidence of grazing or browsing may include trampling/dunging, browse lines, a grass dominated herb layer, regrowth and a sparse shrub layer. Herbivores include, for example, sheep, cattle, deer, and rabbits.

Section 5

This information would be useful if it is readily available, however, it does not have to be detailed. It will help assess the degree to which management is reinstating traditional practises as opposed to developing modern ones.

Section 6

This could be taken as a 'Yes/No' question but is for use as an opening for discussion. It may be answered earlier in the conversation, but is a chance for you and the occupier to discuss problems and possible positive management. Any external threats to the site discussed with the occupier could be noted here or under question 8 on the site condition form.

You may wish to ask this question in three parts, i.e. does the occupier know what the ideal management is; is it difficult to put into practice; and if so, why? You need to think about this question before meeting the individual occupiers, especially what you would say if they do not know how they should manage the site and want your advice.

If anything is discussed which you feel would be relevant but is not covered by any of the questions, note it after Section 5. If practical help with woodland management is available in your county you may wish to use this as an opportunity to discuss the options with the occupier.

Site Condition Form

Most of these question focus on the interest features for which the wood was notified. Kirby (1994), in 'An Approach to a Woodland Monitoring Framework', suggests eight aspects of a woodland which should be checked during monitoring if the wood has been notified for them as listed below:-

- an example of a woodland type,
- a site for vascular plants,
- a site for open ground invertebrates,
- a site for over-mature timber,
- a site for lower plants,
- a site for birds,
- a site for rare species,
- a minimum intervention site.

Questions 1, 2 and 3 should be answered from records before the site visit.

Question 1
The objectives are English Nature's conservation objectives for the site. Their source will depend on the work which has been done on the site - at best they can be taken from a Site Objective Statement or management plan. Objectives would be set for the interest features listed on the criteria sheet and any identified since notification (which would need to be differentiated). How specific the objectives are for a site will affect the answers to questions 5 and 9. Ideally the objectives would set standards against which site condition and management could be judged. The objectives should affect the features on which answers to question 6 focus. The best way to answer this question is to list the interest features for the woodland and then state the objective(s) for each.

Question 2
If the NVC communities are not known, give the Peterken stand types, or at least Phase 1 habitat types.

Question 3
This question refers to monitoring on the SSSI at a more detailed level than SURF. For example, has any site quality monitoring been done? This is a background question to help set the condition assessment in context.

Question 4
Site area 'loss' refers to recent *physical* loss of site area since notification e.g. widening of rides. Loss of woodland through habitat change should affect your answer to questions 5 and 6 rather than 4. If no loss has occurred please circle 'no'. If a loss of area has occurred then note the location affected (at the boundary/within the woodland), the area affected and the reason for the loss (you may also wish to mark it on the site map). If there has been loss of area this should also be noted for question 5 (i.e. part destroyed). Some woodlands may have expanded into other habitats; if this is known or believed to have occurred, note the fact here e.g. scrub encroachment on grassland.

Question 5
Answering this question should involve considering the long term objectives (question 1) and what is present now (plants and other features, question 6) in light of the management information (Questionnaire) and any additional information available.

For more information see the JNCC report 'Common Standards for Monitoring SSSIs' (Rowell 1993) and the SURF guidance. This section will involve a decision, based on your experience and knowledge of the

site. These terms were devised for use in the monitoring of a site for which clear objectives have been set and where there is good knowledge of the past condition of the site. If you know the site well enough you can choose an option including the 'dynamic' element on the right of the table (see definitions below). If you do not feel able to do this, choose an option from optimal, sub-optimal or destroyed (the three basic options on the left of the table). 'Optimal' condition means that the nature conservation objectives are being met and condition is at least within the limits of acceptable change. If the condition is sub-optimal then the objectives are not being met.

Circle one option and write explanatory notes at the side if you have doubts about the category chosen or wish to record more detail about a particular problem. If you feel that the woodland cannot be described by a single category, note the interest features in each condition category. Judgement should be based on the site visit, management questionnaire and any other recent information available (e.g. SURF visits or fixed point photography records). The site visit should be a brief inspection, (mainly structured according to a standard woodland 'walkabout' survey), rather than a detailed investigation, unless you are particularly concerned about specific aspects of the site condition. Completing question 6 should help answer this. If the answer to this question is based on more than just the site visit, please state other sources of information.

Below are definitions of the terminology as it would be applied if optimal condition and limits of acceptable change were clearly defined (Rowell 1993).

Optimal condition - this "is the management objective for the abundance, distribution, vigour (e.g. flowering performance, breeding success) of an interest feature or some other performance criterion. They should be based on informed judgements of the carrying capacity of the site following, if appropriate, recovery management."
Optimal Maintained - "A feature of interest can be recorded as *maintained* when it is present in the condition and abundance formally set as the desired *optimal condition* or, at least, within the *limits of acceptable change*."
Optimal Recovered - "A feature of interest can be recorded as *recovered* if it has regained, following sub-optimal condition, the condition and abundance formally set as the desired *optimal condition*."
Sub-optimal Recovering - "A feature of interest can be recorded as recovering after a damaging activity if it has begun to show, or is continuing to show, a trend towards..." optimal condition. note - for example, may be natural recovery after a damaging operation or due to positive management.
Sub-optimal Stabilised - "An interest feature may be retained in a more or less steady state by repeated or continuing damage; it is sub-optimal but neither declining or recovering. In rare cases, an interest feature might not be able to regain its original condition following a damaging activity, but a new, stable situation might be achieved."
Sub-optimal Declining - "An interest feature can be said to be *declining* when its abundance, distribution or vigour (e.g. flowering performance, breeding success) is decreasing, and is below the acceptable limits of change, within the confines of the site in question"..."In this case, recovery is possible and could occur spontaneously or if suitable management input is made." note - i.e. condition of the interest feature has declined since last observation.
Destroyed or partially destroyed - "The recording of a feature or site as *destroyed* will indicate that an entire interest feature has been affected to such an extent that there is no hope of recovery, perhaps because the supporting site fabric has been destroyed or irretrievably altered."

Question 6

The answers to question 6 should be based on a structured walk around the sample unit which should cover up to about 20 ha depending on the time available. During this walk a Woodland Record Sheet should be completed (see guidance notes below). If a phase 2 survey is available, referring back to the survey would help with planning the site visit. Describe and note any obvious change in status, which has occurred over the last five years or since the last survey, for:-

a) **Characteristic species and features:**

i) Contribution to canopy-*tree health* (crown dieback, stem decay, instability developing, other poor health); *mammal damage* (bark stripping, grazing, browsing); *growth form* - maiden, coppice, singled, pollard; and *age distribution*, e.g. all mature, some young, all over-mature,

ii) Understorey,

iii) Field/ground layer - includes bare ground, rock, litter,

iv) Regeneration of tree species - (see Woodland Record Card),

v) Other features - includes open space; dead wood; water; signs of recent management.

b) **Criteria species or groups:**

'Criteria species' refers to species of individual importance on citation/criteria sheets. List the criteria species relevant to the sample unit (or for whole SSSI if no more detail is known) and whether they are seen on the visit; or there is a known or suspected change in abundance from visits or records. The time of the visit should be optimised for recording these. If the criteria species are animals then the presence or change of suitable habitat (e.g. dead wood or open areas for some invertebrates) should be noted. If plants of interest are not seen but the area supporting them still looks capable of doing so this should be noted.

c) **Invasive or exotic species:**

Note the presence of invasive or exotic species and whether they are of significance, or decreasing or still of concern after control.

Question 7

This question overlaps with the questions on management and possibly the question on external threats. However the specific detail given here will be useful. The type of information to be recorded includes what is happening, the legality, is the PDO likely to recur, is the PDO beneficial, having no effect, or damaging and is spontaneous recovery or managed recovery likely.

Legality would include consented, unconsented, third party, expiry after four months notice, an emergency operations, covered by GDO, planning permission required and obtained or not obtained. Some beneficial management could be classed as PDOs; these should be differentiated.

Question 8

These are threats largely outside the manager's control, e.g. natural catastrophes, wild grazers, spray drift, recreational pressure and activities near the SSSI which are likely to affect it.

Question 9

This refers to **all** the interest features; specify any with which you can see problems. As with questions 2 and 5, the detail of the answers will depend on the work which has been done on the site and how familiar you are with it. Sources of information other than the site visit (particularly the questionnaire) can help with this question. The woodland habitat is itself an 'interest feature'.

Question 10

This links with question 9. It should not be a detailed management plan, but suggestions for improved or positive management (e.g. need to reintroduce coppice over a larger area or control of grazing). The answer may have two parts - how the management should change, and what the occupier needs to do to achieve this management change (also see section 5 of the questionnaire). If damaging activities are occurring which are not PDOs, they should be noted here if they are under the occupier's control and question 8 if due to a third party.