



Climate change & street trees project

Social Research Report

The social and cultural values, and
governance, of street trees

Norman Dandy

March 2010

Contents

Summary	3
1 Introduction	4
1.1 What is a 'street tree'?	4
1.2 The Street Tree 'Problem'	5
1.3 Report structure	8
2 The social and cultural values of street trees.....	9
3 The governance of street trees	15
3.1 What is governance?.....	15
3.2 Governance affecting the removal of street trees from the urban environment.	16
3.3 Governance affecting the retention of street trees in the urban environment ...	17
3.4 Governance affecting the planting of street trees in the urban environment.....	24
3.5 Governance affecting the use of street trees in the urban environment	26
3.6 Key legal concepts.....	28
'Hazardous' trees	28
Ownership.....	29
'Nuisance'	31
4 Discussion	32
4.1 Research needs.....	34
4 References.....	35

Acknowledgements

This research was conducted by Forest Research's Social and Economic Research Group as part of the Climate change and street trees project, funded by the Forestry Commission. The author wishes to thank Derek Patch of the Arboricultural Advisory and Information Service for reviewing and commenting upon the draft report.

Summary

1. Street trees are a distinct component of urban forests providing particular benefits and interacting with people and communities in distinct ways.
2. The number of street trees in the urban environment is not increasing rapidly enough, large valuable trees are being lost, and street trees are unevenly distributed across the UK's urban areas.
3. Street trees are removed mostly in response to health and safety concerns, but also new development and fears of subsidence, and a lack of resources with which to obtain appropriate knowledge contributes strongly to this loss.
4. Street trees can possess a range of social and cultural values, relating to aesthetics, safety, community, business and history. However, it is unlikely that research to date has revealed the full range of values.
5. Values of street trees may vary with changing socio-economics and/or demographics, but little evidence exists relating to this and is significantly divided.
6. The governance promoting the removal of street trees is very strong, resting upon the clear liability upon land (tree) owners for harm caused, and a general lack of constraint upon their management actions. Several items of legislation relating to the provision of infrastructure services promotes street tree removal.
7. Limited resources restricts actors' capacity to obtain appropriate knowledge, and thus make 'informed' decisions, relating to trees and their management in urban areas (especially in relation to 'health and safety' and subsidence issues).
8. Elements of formal governance promoting the retention of street trees (tree preservation orders & felling licences) are generally weak. In particular they can be bypassed if individual trees are deemed 'dangerous'.
9. Planning legislation can broadly support the retention and planting of trees in relation to new development in the urban environment.
10. Informal designations (such as 'veteran' trees) can promote tree retention.
11. Some formal governance exists to promote the planting of new street trees of which greater operational use could be made. This includes the power for local planning authorities to exercise compulsory purchase powers on certain areas of land specifically to plant trees.
12. Forestry Commission policy strongly advocates the planting of trees, with a recent emphasis on urban areas, if not explicitly street trees. Several other public, private and 'third sector' organisations' policies promote street tree planting.
13. Property rights (ownership) and cultural norms are likely to affect street tree use.
14. Considerable further research is needed to support relevant stakeholders' provision of future well-treed urban streets.

1 Introduction

1.1 What is a 'street tree'?

Put simply a 'street tree' is a tree located next to or within a public road. More precisely, a street tree is a tree located on land forming or adjacent to a 'highway' which affects, in some way, those using that highway. Street trees occur commonly as individuals but also, of course, in lines or small groups. Indeed trees are integral to the definition of some roads, with the Oxford English Dictionary defining an 'avenue' as "a broad road or street, often with trees at regular intervals along its sides". Clearly this definition includes trees alongside roads in both urban and rural areas. This report focuses, however, upon those in the built urban environment.

Trees are valuable wherever they are located. However, street trees in the urban environment can have particular and specific values which are being increasingly widely recognised (see for example, Read et al. 2009). For example, their capacity to provide shade and associated cool air temperature (Gill 2009) is especially valuable in urban areas. This is just one example of how trees can help urban communities and workers mitigate and adapt to climate-change. The types of social and cultural value which street trees can possess is explored in Section 2 of this report. Furthermore, street trees constitute a much larger proportion of canopy cover in urban areas relative to rural areas. Having said this, street trees in urban areas are, by and large, proximal to far greater numbers of people and buildings than their rural counterparts. This brings with it increased opportunities for interaction, both positive and negative.

People interact with street trees (gaining value from them and being impacted by them) in ways that can be different from how people interact with trees located elsewhere. All this means that street trees in urban areas are thus worthy of considerable specific attention from policy, practice and research. However, to date very little research has focused upon street trees per se, despite the considerable attention given to urban forestry (urban greenspace; green infrastructure) more broadly. (O'Brien, Williams and Stewart 2010).

Street trees are found in cities, towns and villages across the whole of the UK and beyond. They are not, however, evenly distributed. As Tables 1 and 2 (next page) show, towns with very low percentage canopy cover are located primarily in the North-east, whilst those with the highest are located in the South (East and West).

Table 1. Geographical distribution of the 20 towns with the lowest percentage canopy cover. (Source: Britt and Johnston 2008)

Region	n	Towns
North-East	11	Peterlee, Skelton, Barnard Castle, Shildon, Ashington, Amble, Redcar, Hartlepool, Stockton-on-Tees, Langley Park, Bishop Auckland
North-West	1	Blackpool
Yorkshire & Humberside	2	Hemsworth, Dearne
East Midlands	2	Ibstock, Wirksworth
West Midlands	3	Stoke-on-Trent, Newport, Rushall
Eastern	1	Sudbury
South-East	0	
South-West	0	
London	0	

Table 2. Geographical distribution of the 20 towns with the highest percentage canopy cover. (Source: Britt and Johnston 2008)

Region	n	Towns
North-East	0	
North-West	1	Windemere
Yorkshire & Humberside	2	Huddersfield, Sheffield
East Midlands	1	Whaley Bridge
West Midlands	1	Knowle
Eastern	1	Chigwell
South-East	8	Hythe, Midhurst, Tadley, Princes Risborough, Oxford, Crawley, West Kingsdown, Heathfield
South-West	6	Budleigh Salterton, Tavistock, Poole, Truro, Bristol, Christchurch
London	0	

1.2 The Street Tree 'Problem'

There is a widespread concern that urban tree canopy cover is decreasing and that, as one element of that, street trees are being removed from urban areas more rapidly than they are being replanted. In fact, recent data challenges this broad generalisation. For example, a report for the London Assembly noted "Overall London is not losing its street trees. ... there has in actual fact been a net gain of over 8,000 ... an increase of just 1.66 per cent" (London Assembly 2007: 4, emphasis added). Further to this, the Trees in Town II report, which covered urban areas across England, reported an overall

increase in the mean number of trees per hectare (from about 50 to 60) from a similar survey conducted in 1992, although the authors advise caution in relation to these figures due to data issues (Britt & Johnston 2008: 43-44).

Thus it may not be the case that urban tree cover is decreasing generally, however, underlying this are more nuanced and complex concerns regarding distribution, planting and, especially, tree removal. For example, it is widely perceived that large broadleaved trees are commonly being removed and replaced with smaller, sometimes shorter-lived species which are believed to pose fewer problems, but which are in no way of comparable value either in the short or long term (London Assembly 2007: 4).

“a recent assessment of trends in urban tree condition and cover, Trees in Towns II, highlighted the decline in ‘large canopy trees’ in the urban environment. The trend runs counter to the future needs of society as there is clear evidence of the role of trees in adapting the urban environment.” (DEFRA 2010: 42)

Furthermore, as Tables 1 and 2 above illustrates, urban tree cover is by no means evenly distributed, either across the UK nor even within well-treed urban areas such as London. Taking these factors into account the ‘problem’ is perhaps best sub-divided into three key issues;

1. overall the number of street trees is not increasing as much as desirable to meet the needs of urban communities;
2. big, broadleaved trees of considerable value within urban areas are being lost;
3. street trees are very unevenly distributed across the UK’s urban areas.

Street trees are removed, or otherwise lost, for a number of reasons but perhaps four are key. These include removal in response to building subsidence claims, pressure from development, and a lack of maintenance resources, but chief amongst them is removal of trees where they are perceived to be a risk to public health and safety. A 2007 review of London’s street trees stated that “the bulk of trees are removed for health and safety reasons” (London Assembly 2007: 4). There are some important questions to be asked, however, regarding the necessity of tree removal on this scale as the most current and thorough survey of urban tree condition found that “Very few [trees] were considered to be either in poor condition (2.4%), or dead or dying (0.4%).” (Britt & Johnston 2008: 102). These same authors note;

“It may be understandable ... if many local authorities and transport agencies tend to take a cautious approach – which frequently results in the removal of street and roadside trees before they become over-mature. Policies for routine

removal of all large trees during the early stages of maturity and/or replacement of large species with smaller, 'safer' alternatives should, however, be challenged." (ibid: 100)

Safety issues are a major aspect of local authority tree management demanding substantial resource expenditure (ibid: 302). 54% of local authorities assert that tree work for 'community safety' is very important (10%) or important (44%) (ibid: 285), and over 30% of local authorities carried out some tree work in response to every request received (ibid: 291). Storm damage, disease and old age are the most commonly cited causes of a tree posing a safety 'hazard' due to the possibility of falling branches. Also, shed leaves or fruit may cause a path to become slippery or fruit may be poisonous.

Safety issues are clearly also linked to the environmental pressures under which trees exist in the urban environment. Raised levels of soil and atmospheric pollution along with increased summer temperatures resulting from the urban 'heat island' effect may place trees under considerable stress. Further to this is the damage caused to trees by utility companies, highway authorities, and other 'developers'. All of these pressures contribute to the likelihood of a tree becoming a hazard.

A second cause of tree removal is where their roots are perceived to be the cause of subsidence of neighbouring buildings.

"... about 5% of all trees removed over the past five years have been as a result of subsidence claims from insurance companies, although some [London] boroughs have reported losses of between 10-40% for this reason." (London Assembly 2007: 4)

"Fear of subsidence claims is possibly the single greatest threat to street trees in London ..." (Greater London Authority 2005: 34)

Dealing with claims of perceived tree-related subsidence is, again, a significant dimension of local authorities' tree work, although this appears to vary substantially with geography (Britt and Johnston 2008: 227) and be largely reactive (ibid: 229).

A third, more indirect or passive, cause of tree loss (or perhaps, more broadly, of the imbalance of tree loss and gain) is a lack of resources (logistical, financial and knowledge) for comprehensive urban tree programmes. As the 2007 London review noted;

“A lack of adequate funding has led to poor quality maintenance, less planting, inadequate engagement with communities and poor auditing of sub contractors.”
(London Assembly 2007: 18)

The fourth key reason for significant street tree loss is the pressure of development in urban areas. Mynors cites “ill-sited new development” as “one of the greatest threats to the continuing existence of trees” (2002: 374). Individual trees are routinely removed to make way for new buildings, and/or damaged during construction work.

Whilst there may well be many reasons for the loss and removal of street trees these four causes appear to be the most significant, with health and safety fears being the largest single cause. Each of these has a particular governance and value environment with some aspects of this demanding tree removal and others resisting this and/or protecting and replacing them.

1.3 Report structure

There are two main elements of the report – a review of the social and cultural values associated with street trees (Section 2) and a review of the governance affecting the presence and absence of street trees in the urban environment (Section 3). These relate to Milestone M1 of Work Package 5 within the Climate Change & Street Trees project plan. Funding for further work on this Work Package has been withdrawn.

2 The social and cultural values of street trees

There is a considerable literature exploring the myriad social and cultural values attributed to trees, woodlands and forests, including a substantial sub-focus upon urban forestry. It is perhaps surprising, therefore, that only a relatively small number of papers address the social and cultural values of street trees specifically. A study by Welch (1994) indicated the structural distinctiveness of street trees from other elements of the 'urban forest' (specifically 'park trees'), and probably more importantly, as noted above, people can interact with individual street trees in ways quite different from other elements of the 'urban forest'. Of the published materials the vast majority of research has been conducted in North America (with only two published studies generating primary data relating to the UK¹), and nearly all of the studies are quantitative, but contain little spatial analysis. Studies are heavily focused upon aesthetic appeal and preferences.

Having noted these limits, a review of the available literature identifies a number of benefits which urban communities can obtain from street trees, and thus values which they can possess. These are listed in Table 3 below;

Type of Value		Variables / Indicators	Value captured through...		
			... seeing tree	... using 'tree space'	... the tree's relative position
Aesthetic		Form; size; age ² ; height; species (flowering/fruit-bearing ³)	X		X
Safety	crime	reported crime; calls to police; domestic violence incidence		X	
	road	traffic speeds; RTAs; incidence of 'road rage'; perceived time elapsed	X		X
Community		higher occupancy; reduced household turnover; use of community spaces; increased interaction		X	
Privacy					X
Business added-value [economic]		Revenue; number of customers		X	
Naturalness			X	X	
Home & family				X	
Spiritual			X [?]		
Restorative / Health		Natural appearance	X	X	X
Historical		age	X [?]		

Table 3. The Social and Cultural Values of Street Trees.

¹ Hitchmough and Bonugli (1997) (Scotland); Schroeder (2006) (South-west England).

² maturity and size widely linked to other values.

³ fruit and flowers seen as a maintenance issue.

The aesthetic value of street trees has received considerable attention with detailed research, strongly linked to environmental psychology, into preferred form and size illustrating that people value street trees simply for their aesthetic attractiveness. Sommer and Sommer (1989), for example identified that street trees being 'pleasing to the eye' was a significant benefit to residents in eight Californian cities, and Flannigan (2005) identified visual attractiveness as the highest rated benefit of street trees for residents in South West England. Tree size is an important variable within this with the general preference for large, spreading, globular or round trees – although there is some variation across 'cultural' (national) groups. For example, Schroeder et al. (2006) suggest that UK citizens prefer smaller trees than US citizens, and considered shade to be less of a benefit. Tree size is also closely correlated with a variety of other categories of value, variables (e.g. age), and benefits (e.g. shade) which street trees can provide. For example, Heimlich et al. 2008 correlates a broad range of variables with tree maturity and size, including property value and utility bill decreases. Tree height has also been found to be an important variable, with trees over 25ft tall preferred to smaller ones in a US survey (Kalmbach and Kielbaso 1979), although Williams (2002) found a preference for 'medium' sized trees (including ash, eucalyptus and cypresses) amongst residents in Melbourne, Australia. Flowering species are considered by some to be more aesthetically pleasing, but also to cause more mess and thus require maintenance (as with fruit). Mynors (2002: 4) notes that 'highway trees' contribute significantly "to urban and suburban landscapes, improving attractive buildings and views, and helping to hide unattractive ones.". The specific benefit aesthetic appeal actually brings to individuals is not commonly explored within the published literature. It can, however, be linked to a human need to experience nature for general mental well-being (e.g. the biophilia hypothesis Wilson 1984; Kellert and Wilson 1993), and/or more specific mental needs (see 'restorative' value below). Commonly it is linked simply to mitigating/masking non-aesthetically attractive landscape features.

Considerable research (e.g. Kaplan & Kaplan 1989; Kaplan 1995) has illustrated the substantial capacity that 'nature' has to aid recovery from mental fatigue (specifically 'directed attention fatigue'), and this concept is extended to urban forestry (Kaplan 2002). Even quite limited exposure to natural scenes can induce 'fascination', the countervailing form of attention, which allows 'directed attention' to rest and recover. It is likely therefore that street trees have substantial restorative value. The positive emotions needed to recover from mental fatigue (and capture other values identified in this section such as those relating to community) were identified in response specifically to street trees, by Sheets and Manzer, who found that "Our subjects reported more positive feelings when viewing tree-lined city streets; they felt friendlier, more cooperative, less sad and less depressed" (1991: 301). Although not a category of social or cultural value specifically, street trees can have other demonstrable effects upon human health and well-being. Lovasi et al. (2009), for example link the presence of street trees to reduced rates of childhood asthma, and Borst et al. (2008) reveal a

positive relationship between the presence of street trees and preferred walking routes for elderly people – a key activity for the promotion of good health (although a later study did not show a significant relationship Borst et al. 2009) (see O'Brien et al. 2010 for a comprehensive review of the health and well-being impacts of urban forestry).

Treed spaces appear to have the potential to be safer than non-treed spaces – particularly in terms of reduced crime and safer driving. Trees may thus be considered to have a safety value. Kuo (1998a; 2001; 2003) identifies correlations between the 'greenness' of urban spaces (including trees) and reduced crime – in terms of fewer calls to the police and less domestic violence (also cited in Heimlich et al. 2008: 49). This phenomenon is linked to increased use of community spaces leading to stronger communities (thus there is a clear link to 'community' value).

"The presence of trees and well-maintained grass can transform these no man's lands into pleasant, welcoming, well-used spaces. Vital, well used neighborhood common spaces serve to both strengthen ties among residents and deter crime, thereby creating healthier, safer neighborhoods. ... Contact among neighbors and informal surveillance are, in turn, known to be linked to strength of community and levels of crime..." (Kuo 2003: 148, emphasis added)

Burden also links trees to improved 'security' through increased ownership and surveillance.

"Trees create more pleasant walking environments, bringing about increased walking, talking, pride, care of place, association and therefore actual ownership and surveillance of homes, blocks, neighborhoods plazas, businesses and other civic spaces." (2008: 3)

A growing number of studies have begun to challenge the perception that standing roadside trees pose only a threat to drivers, and to assert that trees can, in fact, improve driving safety in some circumstances. Whilst roadside trees do pose a significant risk to drivers (Wolf and Bratton 2006), the main positive effect here appears to be a reduction in speed resulting from improved landscaping using trees (Burden 2008; Dumbaugh 2005; Naderi 2003). This leads Wolf and Bratton to state;

"Although outright removal may lead to a reduction in injurious roadside accidents, the broader benefits that trees provide or their value to communities is not attained. Research about trees as roadside technology should address both deterrence and mitigation approaches. Knowledge about the physical properties of various trees and configurations of tree placement would enable roadside design that integrates plant life as a safety feature." (2006: 176)

Further to this Wolf links better driving to driver psychology, noting that “Drivers seeing natural roadside views show lower levels of stress and frustration compared to those viewing built settings.” (2006: 56).

Areas with street trees (and treed spaces in general) appear to have potentially stronger and more stable communities. As with safety value above, this phenomenon is linked to increased use of community spaces when treed and the resultant increased interaction between community members. This relationship is now well established (see Kuo et al. 1998b; Kuo 2003). Schroeder and Ruffalo (1996) (data also analysed in Schroeder et al. 2006) highlighted that residents in a Chicago suburb included increased ‘sense of community’ amongst the most important benefits of street trees, echoing an earlier finding by Sommer and Sommer (1989). Treed areas have also been correlated to higher property occupancy rates and reduced household ‘turnover’, suggesting a more stable community (Miller 2007).

The wider literature on the social and cultural values of trees identifies their historical value – that is, their capacity to connect human generations. Mynors, for example, notes that;

“the very fact of a tree’s longevity, its normal life greatly exceeding that of a human being, means that it is a direct and tangible contact with both past and future. ... very many trees are older than any people now living, or even their parents; and their age provides a link to past ages that is itself of value “. (2002: 4-5)

This category of value was identified by Tim Rollinson, Director General of the Forestry Commission, in his keynote address to a street tree conference in London (Rollinson 2009), but has not been addressed in the published literature specifically relating to street trees.

One category of value at the interface of economic and social life is the added value that street trees can bring for businesses located in treed areas, and especially those able to utilise tree spaces (such as cafes and restaurants). Wolf (2004; 2005a; 2005b) identifies significant benefits for urban business accrued from being located in treed areas. It appears, for example, that customers travel further to, and pay higher prices for goods in, (that is, behave differently in relation to) shops in treed areas. Trees can, consequently, strengthen local economies. This category of value can interact closely with street trees community value, as illustrated by Mehta (2007) who identifies a number of physical streetscape features which promote social interaction (and thus, according to Kuo, stronger community).

“Seating provided by businesses, seating provided by the public authorities, businesses that are community places, personalized street fronts, and sidewalk width particularly contribute to stationary and social activities on neighborhood commercial streets.” (Mehta 2007: 165)

The literature identifies a number of other social and cultural values attributed to street trees, but which have received only a little directed research effort. For example Schroeder et al. (2006) and Somer and Sommer (1989) both illustrate that street trees are valued by some residents as they can afford increased privacy, and Schroeder et al. (2006) further suggest that street trees can hold ‘spiritual value’. Burden (2008) and Schroeder et al. (2008) both suggest that street trees form a link to nature for local residents and others, and thus have some form of ‘naturalness’ value. Schroeder and Ruffalo (1996) and Schroeder et al. (2006) raise the notion of street trees adding to the ‘sense of home and family’ for local residents. In their analysis of Chicago residents’ preferences, this rates 6th of 16 benefits surveyed. There is, however, no discussion of the background or mechanisms associated with this, nor rationale for the inclusion of this as a variable in the research.

Research has highlighted variation in the importance of some of these categories of value and some has attempted to isolate the relevant socio-economic and demographic variables influencing this – although some of this relates broadly to urban forestry rather than street trees per se. Both Martin et al. (2004) and Bonnes et al. (2004) suggest that the values associated with street trees varies with socio-economic ‘status’. This echoed Hitchmough and Bonugli’s (1997) finding that support for planting street trees was ‘generally low’ amongst the residents of a Scottish town, and lowest amongst the least affluent residents. (This lack of support was based, to a large extent, upon the expectation of vandalism destroying the trees). Zhang et al. also make links between status / affluence and support for urban tree programmes.

“individuals who are aware of forestry-related programs, hold a full-time job, belong in the age group of younger than 56 years, and earn an annual income greater than U.S. \$75,000, have a positive relationship with willingness of donating money and voluntarily contributing time toward urban forestry programs and activities. Individual characteristics such as race, gender, and residence were not statistically significant factors in explaining attitudes toward urban forestry programs.” (2007: 797)

Bonnes et al. (2004) go on to posit levels of expertise / knowledge as a determinant of what is considered to constitute desirable vegetation planting in urban areas, although Kalmbach and Kielbaso found no relationship between tree size preferences and education; “...street tree size preference is largely independent of a person's age, degree of education and sex. (1979: 124). This latter point runs contrary to Hitchmough

and Bonugli who found that “Male respondents were significantly more likely to favour street tree planting than females.” (1997: 327). Fraser & Kenney (2000) suggest that ethnicity / cultural background also causes variation. Flannigan (2005) found that demographic factors had little affect upon attitudes towards street trees amongst residents in South West England, although he noted that “when physical ability is negatively affected by age overall opinion of nearby street trees reduces”.

3 The governance of street trees

3.1 What is governance?

Whilst the term is widely and variously interpreted, ‘governance’ fundamentally refers to processes and structures of decision making in the public social realm. It can perhaps usefully be thought of as referring to the rules, both formal (e.g. law; hierarchy) and informal (e.g. policy guidelines; social norms), which apply when making decisions about society and/or publicly occurring phenomena. The concept has evolved, across a number of academic disciplines, primarily in response to the realisation that models of decision-making focused solely upon ‘government’ provided inadequate explanations. Governance recognises the significant and multiple roles that non-state actors, institutions, ideas and norms play in contemporary decision-making. This is especially the case in the face of increasingly complex public policy – in short, as societal demands upon the state grow beyond its capacity, public policy delivery shifts increasingly to non-state actors. The result is a multifaceted, heavily inter-linked decision-making environment.

“The changes in processes of governing occurring have been both within the public sector itself, and in the relations between the public sector and private actors. Those private actors may be in the market sector, or they may be in civil society, but in all these cases any simple linear conception of governing has become lost in the wide array of interactions and the development of multiple veto points that any would-be governor now must confront.” (Peters 2008: 3)

“These trends in governance can be seen as reflecting a fundamental shift of focus from the role of government as ‘top-down director of all manner of human action’ to the task of building capacity for ‘societal self-organization’ through ‘interactive governance’ – facilitating ‘relational interaction’ in a multiplicity of state and non-state network structures. For Bob Jessop the key processes in ‘interactive governance’ are ‘reflexive monitoring and dynamic social learning’ and this clearly echoes Giddens’ argument that in a dynamic and rapidly changing world we rely increasingly on the ‘reflexive monitoring of action’ to guide us.” (Sanderson 2009: 707)

Thus, the ‘governance’ of street trees refers to the social and political processes and structures that influence decisions about the presence and use of street trees. These can include ownership, legislation, policy, management guidelines, standards, organisational structure, cultural norms, and social networks, amongst others. For logistical reasons this report focuses largely upon formal governance and public policy.

It has not been possible to widely consider the role of all informal governance including cultural norms and social networks.

3.2 Governance affecting the removal of street trees from the urban environment

Various elements of formal governance promote the removal of trees from urban environments, although two legal liabilities are fundamental. Primary of these is the liability of tree owners for harm caused by a 'hazardous' tree. This is, clearly, the basis of the concerns relating to public health and safety outlined in Section 1.2 above. The general rule here is that "owners are liable to take 'reasonable' care for the safety of those who may be affected by the results of defects in their trees" (Mynors 2002: 15). There are, of course, many legal nuances here, some discussed below, but the key issue is that this creates a duty to maintain trees, rather than a blanket responsibility for any and all harm done by them. Second is the liability of a tree's owner to avoid, or remedy, the 'nuisance' caused by the encroachment of trees located near property boundaries. This is the legal basis of concerns such as subsidence caused by tree roots. Further to these liabilities a third, less explicit, aspect of governance profoundly affects the removal of trees – the simple lack of formal protection that most trees have. In fact, more properly stated (and considerably more revealing), the vast majority of individual trees require no consent from authorities to carry out work on them (including felling / removal).

There are two principal forms of consent controlling works to trees; the need to obtain a felling licence (under the Forestry Act 1967) or obtain permission under a tree preservation order (TPO) (under the Town and Country Planning Act 1990). As the next section will discuss, however, the need for these consents is subject to numerous exemptions making them very weak, especially in relation to individual trees such as street trees. Absolutely vital here, considering the two primary legal concerns underpinning street tree removal identified above, is that neither a felling licence nor consent under a TPO is required to remove trees that are deemed a 'hazard' or causing a 'nuisance' (see Mynors 2002: 334-5 & 456-62).

Along with the weakness of these items of legislation, several others contain powers to remove trees from the urban environment. Street trees are, of course, usually located on a footpath or in a similar such roadside position where they are very likely to come into contact, and conflict, with the physical services (in the form of pipes or cables above and below ground) installed by statutory undertakers – such as gas, electricity and telecommunications. A number of legislative acts relating to these services contain provision for tree removal when and where problems occur. These include the Electricity Act 1989 and the Telecommunications Act 1984. As Mynors notes, however, there are

“no explicit powers” for those responsible for installing underground pipes (e.g. sewers, water and gas mains) to require the removal of problematic trees (2002: 207). Instead, these issues are now covered by various Codes of Practice issued under the New Roads and Street Works Act 1991, or could possibly be dealt with via a claim of ‘nuisance’ against the tree owner.

Perhaps unsurprisingly, both the Regulation of Railways Act 1868 and the Civil Aviation Act 1982 contain provisions to facilitate the removal of trees - deemed hazardous in proximity to train lines and airfields respectively.

3.3 Governance affecting the retention of street trees in the urban environment

Other than some protection offered to trees in churchyards and hedgerows there are two key areas of UK law providing ‘protection’ for trees – forestry (current provisions in the Forestry Act 1976) and planning (Town and Country Planning Act 1990). Forestry law contains provisions relating to felling licences, which are theoretically applicable to any tree albeit with considerable exemptions. Planning law creates a number of obligations for planning authorities and others in relation to trees, including the creation of tree preservation orders (TPOs). Further to these, with the growing recognition of the value of individual trees for the conservation of biological diversity, the UK’s nature conservation legislation could begin to offer some protection.

The 1967 Forestry Act (FA 1967) requires that anyone wishing to fell (that is, “wilfully destroying by any means” FA 1967; Sec. 35) any quantity of trees must apply for a felling licence from the Forestry Commission to do so. Failure to obtain a licence (where necessary) is a criminal offence (FA 1967; Sec. 17). This control was first introduced during World War 2 and then continued by the 1951 Forestry Act with the objective of establishing and protecting the nation’s post-war “strategic reserve” of standing timber (Mynors 2002: 339). It is important to note that the protection of individual trees, especially those in towns, was not, and is still not, what this piece of legislation was aimed at. This becomes more obvious with consideration of the broad ranging exemptions from the need to obtain a felling licence. A licence is not required where a tree is;

- within Inner London (FA 1967, Sec. 36),
- small (<8cm diameter, or <15cm if coppice),
- in an “orchard, garden, churchyard, or public open space”,
- part of a felled volume of <5 cubic meters per calendar quarter,
- ‘has become dangerous’
- causing a ‘nuisance’,

- needing to be felled to comply with other legislation (all Sec. 9),
- impeding the work of statutory undertakers (Forestry Regulations 1979),
- a diseased elm, or,
- part of a Forestry Commission approved plan, grant scheme or subject to a forestry dedication covenant,

Several of these exemptions can immediately be seen to remove street trees from the felling licence regime – with the exemption of trees deemed ‘dangerous’ being perhaps the most significant given the reasons for street tree removal described above. Consequently it can be concluded that in its current form the felling licence is a very weak tool indeed for the protection of street trees.

The Town and Country Planning Act 1990 (TCPA 1990) and associated planning guidance create obligations to consider trees and woodlands of amenity value within the planning consent process, and the power to ‘protect’ trees through the creation and imposition of tree preservation orders (TPOs) on individual trees. Powers to ‘protect’ trees from development have existed within the planning control system since the 1930s. Planning authorities can require the retention of any trees (and woods) of high amenity value which are threatened by development. They can also further require that any work done complies with other related governance such as British Standards. It is useful to note here that planning controls are largely, and deliberately, reactive and apply to all trees. That is, planning authorities are not restricted to giving consideration to trees with an existing TPO in light of development, but rather they are expected to assess all trees likely to be affected by a development and then to respond by protecting those with amenity value through placing TPOs on them (if they do not already exist). It is clear how this can be, and very often is, interpreted as the authority ‘slapping a TPO on a tree’ to prevent development as this is, almost, precisely the intention. In fact the intention is to prevent the development from damaging the tree(s) and/or reducing its (their) amenity value, rather than preventing the development per se. This perception can, however, be substantially increased / worsened as it can be necessary for planning authorities to act prior to a planning application being submitted – as it can often be too late to act at the time of the application (Mynors 2002: 396-8). It is not common practice for a local authority to place a TPO on a tree which is within their ownership⁴. To do so would, in effect, be to create an obligation for a local authority to seek permission from itself to carry out work to that tree.

An important consideration here is the situation where a tree (without an existing TPO) is felled prior to any planning application. The position is currently that, unless the action contravened some other legislation such as the need for a felling licence, there is no recourse to action against the individual concerned (such as withholding permission

⁴ Derek Patch, Arboricultural Advisory and Information Service, pers comm.

for any subsequent planning application). This is because current court rulings state that planning applications must only deal with the “situation as it now exists” (Mynors 2002: 399). This creates a situation where developers or other interested individuals would be well served considering felling trees they wish to remove in advance of any application.

UK legislation dictates that planning controls, and TPOs, are firmly focused upon visual amenity. Assessment methods commonly take account of factors such as size, position in the landscape, relationship to the setting and form (Watson 2002). One consequence of this is that in general TPOs should generally only be made to protect publicly visible trees (Mynors 2002: 385). However, there has been recognition for some time that amenity value can be gained from trees not considered to be particularly pretty. Thus Mynors notes that “the ecological diversity of that land, its history, its value as a wildlife habitat, and its scientific and recreational interest” could, now, all contribute towards a tree’s amenity value (2002: 386). Whilst much of a street tree’s value is likely to relate to visual factors, Section 2 above, and other work, highlights their broad values (social, cultural and environmental). It is therefore possible that TPOs could be used to protect trees on account of these values, and indeed the Standard Tree Evaluation Method for assessing tree amenity value, originating in New Zealand, encompasses many such variables (Watson 2002).

It is widely acknowledged that trees can play a considerable role in defining the character of an urban area. Thus the TCPA 1990 (Secs. 211-214) also empowers local planning authorities to act in relation to trees in ‘Conservation Areas’⁵. In short, the requirement here is for those proposing to do any work to a tree within a designated conservation area to give six weeks’ notice to the local planning authority. On receipt of this notice that authority must consider the proposed works and can, if deemed necessary, make a TPO and consider the proposed works under that order. Other than making a TPO the planning authority “cannot exercise any control over the carrying out of works ... even where it disapproves of these works” (Mynors 2002: 585).

Trees can themselves be important elements of biological diversity - especially if they are of a rare species. However, it is becoming increasingly widely recognised that individual trees can form important habitats for a number of other plants, invertebrates, and fungi. UK natural conservation legislation (including the Wildlife and Countryside Act 1981, the Countryside and Rights of Way (CROW) Act 2000, the Nature Conservation (Scotland) Act 2004, and the Natural Environment and Rural Communities

⁵ Defined as “areas of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance” by the Planning (Listed Buildings and Conservation Areas) Act 1990, Section 69 (1).

Act 2006) creates stringent obligations to protect a wide range of listed⁶ plants and animals, including some tree species, for example juniper (*Juniperus communis*) and various whitebeams endemic to the UK (spp. *Sorbus*), and tree-dependent species of bryophytes and fungi. Whilst the application of this legislation to individual street trees may currently be limited, it could well increase with greater recognition and understanding of their value in this regard. It may be particularly relevant to ‘ancient’ and ‘veteran’ trees - a fact that is beginning to be recognised in formal planning guidance (see below). Furthermore, the identification of species in need of conservation could clearly inform the selection of individual trees for new planting.

Whilst the TPO is the only concrete protective mechanism within the existing planning legislation, a wide range of formal guidance exists, at both national and local levels, which promotes the retention, protection and maintenance of trees in the urban environment. At the national level Planning Policy Statement 9 (PPS9, Biodiversity and Geological Conservation, 2005) and Planning Policy Guidance 15 (PPG15, Planning and the Historic Environment, 1994) contain brief reference to trees, for example;

“Aged or ‘veteran’ trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. Planning authorities should encourage the conservation of such trees as part of development proposals.” (PPS 9: 6)

More recent documents relating to climate-change note the value of trees as carbon sinks and for urban cooling (see, for example, Planning and Climate Change: Supplement to Planning Policy Statement 1, 2007), and the current Consultation Planning Policy Statement Planning for a Natural and Healthy Environment (2010) offers clear statements of the broad value of urban trees and consequent action. For example,

“Planning can also make a significant contribution to both mitigating and adapting to climate change through its ability to influence the location, scale, mix and character of development and through the provision of well planned green spaces within and between developments. Strategic networks of green spaces, commonly referred to as green infrastructure, can provide a wide range of environmental benefits (ecosystem services) in both rural and urban areas including flood water storage, sustainable drainage, urban cooling and local access to shady outdoor space. Green infrastructure also provides habitats for wildlife, and through the creation and enhancement of ‘green corridors’, should aid the natural migration of more species responding to the changing climate. Because of their size and longevity, trees can play a particularly important role in delivering many

⁶ Either under the various Schedules of the 1981 Act, the provisions of Sections 41 and 42 of the 2006 Act, Section 2 of the 2004 Act, or other international treaties.

of the above benefits, as well as helping to create attractive, sustainable communities and providing an important link with the past and the history of an area.” (DCLG 2010: 7, emphasis added)

“Planning permission should be refused for development that would result in the loss or deterioration of species and habitats of principal importance, ancient woodland or aged or ‘veteran’ trees found outside ancient woodland, unless the need for, and benefits of, the development in that location outweigh their loss. Local planning authorities should consider the retention of veteran trees and other trees of amenity value as part of development proposals, and where appropriate, use tree preservation orders to protect them in the longer term.” (DCLG 2010: 20, emphasis added)

The planning policies of the devolved national governments contain similar messages;

‘... individual trees, especially veteran trees, may also have significant biodiversity value and make a significant contribution to landscape character and quality so should be protected from adverse impacts resulting from development.’ (Scottish Government 2010: 30) (Scottish Planning Policy)

National planning policy is commonly supplemented by local planning policy through, for example, Supplementary Planning Documents (SPDs). There are now many such documents and whilst they frequently simply mirror national policy and re-state the purpose and use of TPOs, these documents do reveal considerable appreciation of the values of trees. For example, in their SPD on Biodiversity and Trees, North Somerset Council state;

“Trees are important visual features in urban and rural settings and contribute towards the amenity of a locality. ... Veteran trees in particular can contribute significantly to the biodiversity of a locality. ... Trees also provide significant direct and indirect benefits for the community. For instance, they can have a positive impact on health by filtering airborne particles, increase the sense of well being and provide shade from solar radiation. ... In addition trees provide a sense of maturity to new developments, can encourage local community involvement and are an important educational resource.” (North Somerset Council 2005: 3)

These extracts illustrate that value of trees in urban areas is clearly recognised at a variety of levels within the planning control system.

Planning authorities can also require that development work is conducted in line with a range of standards. Some of these relate specifically to trees and usually have the objective of ensuring that where construction work is done it is carried out in such a

manner as to protect those trees to be retained (whether subject to a TPO or not). Chief amongst these is British Standard BS5837: 2005 Trees in relation to construction which sets out a process incorporating a tree survey and tree protection plan, along with describing best practice to avoid tree damage during and after works. This process requires the developers to obtain professional arboricultural advice. A further resource here is the National House Building Council Standard, Chapter 4.2 Building near trees. Similar best practice guidelines are published for utilities works by the National Joint Utilities Group in their 2007 document NJUG Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees. This document notes;

Trees (including shrubs and hedges) play an essential role in the environment and visual amenity of both rural and urban landscapes. They may take decades to grow, but can be destroyed in minutes. Wherever they are growing, whether in public footpaths, private gardens, rural verges or elsewhere, they require space for the adequate development of their root systems and to allow the branches to develop an attractive and natural shape. ... The space available for both trees and apparatus [electricity, gas, water, sewage, telecommunications and cable television] is often very restricted, and they are frequently forced to share the available space, both above and below ground. Where they are in close proximity, there is the potential for either the tree or the apparatus to be subject to damage. To successfully co-exist precautions should be taken to minimise the risk of damage to both trees and apparatus ..." (p. 5)

Some voluntary standards, such as the Code for Sustainable Homes, also encourage the inclusion of trees within new development.

Planning guidance frequently makes reference to non-legislative designations – particularly ‘ancient woodlands’ and ‘veteran trees’. Whilst impacts upon ancient woodlands are a relatively frequent ‘material consideration’ for planning authorities, the designation is of little relevance to street trees. However, individual veteran trees are significant.

A ‘veteran’ tree can be defined variously but, in general, these definitions focus upon age and life stage. The Veteran Trees Initiative (VTI) define them simple as “a tree that is of interest biologically, culturally or aesthetically because of its age, size or condition.” (English Nature 2000a: 13). A more precise definition of a tree’s veteran life stage is found in the VTI’s Guide to Risk and Responsibility;

“Up to full-maturity and under favourable conditions, the cross-sectional area of individual [tree] rings tends to increase year by year; when this area begins to decrease consistently, the tree is at its veteran stage.” (English Nature 2000b: 2)

And a more characterful description is cited in Mynors, and juxtaposes ancients and veterans;

‘Veteran trees are taken to be those trees beyond their normal economic life. They are characterised by branches which are beginning to die-back from the tips, and by colonisation of the heartwood with fungi and other primary saproxylic organisms, that is – organisms that depend for part or all of their life cycle on dead and decaying wood. Ancient trees are those of greater antiquity . They are frequently hollow or their heartwood is colonised by a greater range of saproxylic organisms. They contain a high proportion of dead wood including large dead limbs. There is no single point at which a tree becomes veteran or ancient. Some, like birch, may become veteran or ancient at a relatively young age compared with longer living trees such as oak.’ (Sanderson 1998, cited in Mynors 2002: 381)

Simply labelling a tree as a ‘veteran’ in fact brings no formal protection to it (Mynors 2002: 381). It is very likely however that a properly assessed veteran tree would swiftly attract a TPO if threatened by development or other works. Having said this, the above definitions indicate that by their very nature veteran trees are considerably more likely than average to be perceived as dangerous, and/or dying, making them vulnerable to removal even with a TPO. As the National Urban Forestry Unit have previously noted;

‘Wherever ancient hollow trees occur, they are in danger of being misunderstood and mis-managed, but this is particularly a problem for the few specimens that still survive in towns. They are often seen as dangerous and dying and are felled in the interest of "health and safety". In fact these trees are among the most precious fragments of our national heritage and need to be celebrated and protected.’ (NUFU 2003: 1)

Thus is it clear that when veteran trees are encountered very careful consideration must be given to the balance between their high amenity value and any potential risk to public safety. There are, unsurprisingly, proportionally fewer veteran trees in urban areas than rural areas – with many being found in the grounds and gardens of private houses, although they can often be located on or adjacent to public highways.

Other forms of informal designation of trees, as important in some way or another, promote their retention in the urban environment. For example, Trees for Cities’ “Great Trees of London” initiative serves to publicise the significant value of some flagship individuals. Whilst such designations again have no formal protective power, they serve to raise awareness of trees and their value both within the local community and beyond, with a likely consequent increase in vigilance towards them and community opposition to their removal.

3.4 Governance affecting the planting of street trees in the urban environment

There is little formal governance of new tree planting. There exist very few constraints on planting, although on the other hand there exist no general powers for public authorities to require others to plant trees on their land. New planting is more commonly formally required when associated with new development of the built environment or forestry crop rotation. A number of formal powers relate, however, to planting new trees in or adjacent to highways – i.e. street trees.

The 1949 National Parks and Access to the Countryside Act (Sec. 89.1) does contain provisions empowering local planning authorities to plant trees on land within their jurisdiction – both public and private. This power does not, however, override the requirement to obtain the consent of that land's owner. Having noted this the 1949 Act does contain provision for the compulsory purchase of land for tree planting (Sec. 89.5). Some tree planting powers accrue to local authorities under the 1906 Open Spaces Act. New planting is more frequently achieved in relation (response) to new development of the built environment. Section 197 of the 1990 Town and Country Planning Act contains provisions to require the planting of new trees as a condition of a planning decision – these powers were created by the 1967 Civic Amenities Act. Mynors asserts that this power is 'regularly used' (2002: 263) and notes that failure to comply with these conditions is a criminal offence. In order to ensure regular maintenance of these trees it is possible to establish a tree preservation order (TPO) for individual trees from the time of planting.

Various public authorities have powers to plant new street trees – that is, trees on 'highways' – under Section 96 of the 1980 Highways Act. Such powers have been in place since at least the 1890 Public Health Acts Amendments Act, although given the contemporary general lack of legal constraint upon landowners to plant trees and the 'ownership' of highways by highway authorities, it is not clear that such powers are necessary today. The private owners of land adjacent to a highway (including house owners) may plant trees within that highway upon receipt of a licence from the highway authority (under Sec. 142, 1980 Highways Act). Obtaining such a licence is a relatively simple, if sometimes costly process. Whilst generally only an administration fee may be charged by the relevant highway authority, it is very common for the grant of a licence to be contingent upon the licensee holding public indemnity insurance (to a value of between £5-10 million) and having conducted a survey of (or having permission from) the local statutory undertakers (i.e. utility and telecommunications companies). In general the 1980 Highways Act dictates that trees must not be planted less than 15ft from the centre of a highway, although a licence can be given overriding this. For those

wishing to plant street trees a good practice guide is available from Trees for Cities⁷, although this makes not reference to the legal requirement for a licence.

Both forestry and planning law contain provisions requiring the replacement of trees lost through felling – including, under planning law, those protected by a TPO but removed on account of being ‘dead, dying or dangerous’. A strong feature of the felling licence regime is its ability to attach conditions to the grant of a licence. One common condition is a requirement to ‘restock’ (re-plant) a felled area of woodland. restocking is also often a key response to unauthorised felling. Having said this Section 3.2 notes the very limited connection between the felling licence regime and individual trees.

Planning law generally requires the replacement of removed trees protected by a TPO, or within a Conservation Area. Section 206 of the 1990 Town and Country Planning Act requires that removed trees are replaced with specimens of ‘appropriate’ size and species. A significant weakness in this system, perhaps, is that the decision to insist upon replacement planting and what constitutes ‘appropriate’ size and species is left to the interpretation of local tree officers. Failure to comply with this requirement, when requested, is not a criminal offence, but a ‘Replacement Notice’ can be served (under Sec. 207), and appealed against. If this appeal fails, and the landowner continues to refuse to comply with the Notice, the local authority can enter the land, carry out the planting work and recover the expenses from the landowner. (Mynors 2002: 574-5). It is currently unclear as to whether there exists a duty upon landowners to replace protected trees which are blown over. Mynors asserts that none appears to exist, despite claims to the contrary within the DETR’s 2000 guide to Tree Preservation Orders (Sec. 11.8). One further weakness of this legislation is that it creates no obligation for continued care and maintenance of trees once planted⁸.

A range of informal governance seeks to promote tree planting, and more broadly woodland creation. Chief amongst these is Forestry Commission (FC) policy and practice guidance. It is the FC’s “mission” is ‘to protect and expand Britain’s forests and woodlands and increase their value to society and the environment’⁹ and this is reflected in policy at national, country and regional levels. The majority (c. 60%) of its grant aid is targeted at woodland creation (HM Government 2009: 160) and this is a very high contemporary policy issue.

“The Government wants to see a major increase in the level of woodland creation...” (DEFRA 2010: 101)

⁷ http://www.treesforcities.org/files_reports/tfc_bestPractice_streetTrees.pdf

⁸ I am grateful to Derek Patch, Arboricultural Advisory and Information Service, for this observation.

⁹ <http://www.forestry.gov.uk/forestry/INFD-6VAL65>

Some specific, although largely aspirational ‘targets’ for woodland creation are contained within national policy documents, such as the aim of creating 23,200ha of new woods per year across the UK within the Read Report (Read et al. 2009). However, the FC delivers its grants and other efforts at a regional level and thus concrete woodland creation objectives are often found within Regional Forestry Frameworks (or ‘Strategies’). Creating woodlands in urban and peri-urban areas has become a key dimension of regional forestry delivery, with particular attention focused upon particularly socio-economically ‘deprived’ areas. This focus is most frequently upon establishing woodlands per se – that is groups of trees – with few attempts to establish or manage individual street trees. Having said that initiatives in London and the North-west offer two exceptions to this rule. The Tree and Woodlands Framework for London (GLA 2005) strongly features street trees. Also the Mayor of London’s street tree programme (with the explicit target of planting 10,000 trees in priority areas¹⁰) is further evidence of the importance of street trees as part of London’s forestry policy and delivery. In the North-west, the Newlands Green Streets project, which exceeded its target of 600 new street trees by planting 681 (Pathways Consultancy 2009), is further evidence of the impact that informal governance, in the form of policy initiatives, can have on street tree planting.

Several non-state organisation and bodies also influence decisions to plant street trees. The Woodland Trust, for example, produced a Manifesto for London’s Trees and Woods¹¹ aimed at influencing the 2008 London Mayoral election. This organisation also provides grants for tree planting. Another example, the Trees and Design Action Group¹² is a broad coalition of government, private and ‘third’ sector organisations formed in 2007 working together to protect and promote trees (especially large trees) via an integrated approach to decision-making about planning and development (Kelly 2009). It should be noted that many of these initiatives are relatively new and relate to London where street trees are a particularly important resource. Consequently their impact, especially beyond London, is still limited.

3.5 Governance affecting the use of street trees in the urban environment

People ‘use’ street trees by viewing them and by entering their ‘tree space’. A moment’s consideration is enough to recognise that by their very nature, being located in or

¹⁰ <http://www.london.gov.uk/streettrees/about.jsp>

¹¹ <http://www.woodlandtrust.org.uk/SiteCollectionDocuments/pdf/policy-and-campaigns/woods-for-people/londonmanifesto.pdf>

¹² <http://www.forestry.gov.uk/tdag>

adjacent to public highways, street trees are very accessible to these uses. It is, in essence, the formal governance of land as 'highways' that enables the existence and use of street trees. Few other formal elements of governance have the potential to affect street tree use, however, both property rights and the potential for obstructing a highway could theoretically do so.

Not all street trees are 'owned' by public authorities. Many are situated upon private land adjacent to highways, and in many cases this land will be closed off from public access. This means, of course, that at least part of the 'tree space' will be inaccessible to, and thus not useable by, the public. This will also commonly be the case even where no enclosure exists, but the tree sits, for example, in the centre of a private garden adjacent to the highway. The relevance of this may vary considerably with the type of value to be captured from the tree. For example, a tree located on private land on the North side of a road (in the UK) will provide only very limited summer shade to the public (although its broader cooling effect will remain unchanged).

A second element of formal governance which may, in theory at least, affect an individual's use of a street tree's 'space' is the legislation relating to 'obstruction of a highway'. If an individual were to rest within a tree space which was part of the designated highway it may be that authorities, such as the police, may consider them to be obstructing the highway and ask the individual to move. Given the current state of the law it is unlikely, in fact, that the individual would actually be committing an offence, so long as they did not 'rest' for an unreasonable length of time, however it is even more unlikely that the individual would have the capacity to 'argue' with said authority. Common law permits those using a highway to remain at rest for a 'reasonable' time, but any longer than this and they may cause a 'nuisance'. Whether an obstruction amounts to a legal nuisance is a matter of circumstance, including consideration of the reason for the obstruction, how much care had been taken to avoid nuisance to other highway users, and location. Of particular note here may be that highway users are permitted to rest and consume lunch (this was settled comprehensively in *Rodgers v Ministry of Transport* 1952). It should be noted, however, that obstructing a highway is a criminal offence, and the offence is obstructing the highway, not other highway users. Thus it is not necessary to show that another highway user is actually being obstructed.

This somewhat esoteric formal governance is perhaps far less likely to influence an individual's decision to make use of a tree space than the much less formal social norms dictating one's public behaviour. The fact that other 'highway users' - that is, social actors - might consider it odd and unusual for someone (in the absence of a seat or bench) to sit and eat lunch on a pavement under a street tree, is likely to deter such behaviour.

3.6 Key legal concepts

This section draws heavily upon Charles Mynors' *The Law of Trees, Forests and Hedgerows* (2002), which provides a comprehensive account of the formal legislative governance of trees.

'Hazardous' trees

The perception of a tree as 'hazardous' is probably the most important influence upon decisions to remove trees from the urban environment. This section describes the key legal parameters of this concept.

In short, a tree's owner is responsible for assessing and managing the 'hazard', and consequent 'risk', that it poses to certain other individuals. 'Hazard' is defined as the potential of something to cause harm, whereas 'risk' is the likelihood of that harm occurring in certain circumstances. Thus two similar trees may form a similar hazard whilst posing a considerably different risk due to, for example, their locations. UK common law places a 'duty of care' upon all landowners not to harm individuals visiting or neighbouring their land. This is often taken very seriously, not least of which because the implications of someone being harmed can be very costly – in social, financial and personal terms. It is, however, not a duty to ensure the complete safety of those visitors and neighbours but rather to ensure that they are 'reasonably safe' (Mynors 2002: 132), and much is lost in this translation / balance.

To ensure 'reasonable' safety it is necessary, in law, for tree owners simply to exercise 'reasonable care' of their tree(s). This consists in practice of regular competent inspection and maintenance to avoid any 'reasonably' foreseeable harm occurring. Liability for any harm caused by trees only arises where this 'reasonable care' is shown not to have been taken, and thus a case can be made under the law of negligence. Even where harm is foreseen, and action not taken, liability does not always rest with the tree owner. As Mynors notes, there have in fact been relatively few cases brought to court where trees have caused harm by falling directly upon people or buildings (2002: 125).

The amount of care required to protect an owner from liability varies on account of a number of criteria affecting the risk of harm – not least of which is location. Even if in identical condition (and thus forming the same hazard) clearly a tree located adjacent to a busy highway in a town centre is a greater risk to public safety than one located in the middle of a forest on a remote hillside. Thus the former demands greater care (inspection and maintenance). Risk is also contingent upon a number of other factors

including tree age¹³ and species, the type of person exposed to the hazard (for example, children are considered particularly at risk, and those with ‘specialist knowledge’ relating to trees are considered less so), and previous maintenance. It should be noted here that tree owners are not generally liable for harm caused by their tree due to poor arboricultural work, so long as they took ‘reasonable’ steps to check the worker was competent.

It is perhaps not surprising that, relatively, harm is most commonly caused by trees to those using highways – particularly when driving. However, once again tree owners are not necessarily liable for this harm. If, for example, a healthy, regularly inspected tree was blown down across a highway by unusually high winds – causing an accident – it is unlikely that the owner would be legally liable as ‘reasonable care’ was clearly being taken and this risk could not have ‘reasonably’ been foreseen.

Of course, whether likely to be found legally liable for injury in a court is just one aspect of an owner’s decision-making about ‘risky’ hazardous trees. There is also the potential personal psychological ‘cost’ of feeling at fault in such a case.

Ownership

One of the most fundamental concepts affecting how things are ‘governed’ is ownership, more broadly property rights, and the ownership of trees is no exception. This report does not review tree ownership in its entirety – either from a legal perspective concerned with the technical detail of statute and case law, or a political perspective taking in who actually owns trees and how they come to do so. However, this section describes some of the basic principles of particular importance to the presence, absence and use of street trees.

Mynors states the fundamental position in UK law regarding the ownership of trees, “any plant – whether a magnificent tree or a dying weed – is part of the land on which it stands ... the plant belongs to the owner of the soil surrounding the base of its stem” and notes that “A moment’s thought is sufficient to make it clear that it would be very difficult if the position were anything else” (2002: 25). Tree ownership is consequently a simple function of land ownership. However, land ownership is far from simple, especially when relating to highways and at boundaries – where street trees are, by their nature, located. Furthermore, it is of note that this basic principle sits uncomfortably with the way in which trees are valued. To conflate tree with soil cuts across the sense that trees are distinct, discrete, individual entities of value. Depending on the

¹³ The Court of Appeal established that ‘advanced age’ can be considered potential ‘evidence’ of a defective, and hence hazardous, tree.

circumstances, ownership can affect the capture of value from trees – where, for example, a landowner prevents others entering a ‘tree space’, although this is perhaps uncommon in relation to street trees given their essential proximity to public rights of way.

In the UK, tree (land) ownership generally brings with it the legal authority to make decisions about that tree - as and when the owner desires. There are, however, instances where the private or public interests of others also impact upon, and sometimes override, the private interests of the owner. There are also many situations where trees can be considered to have multiple owners (see Mynors 2002: 30-36). One common situation is where the authority to make decisions about trees is given to a tenant of the land upon which they are growing through a lease;

“since ‘land’ includes and trees, shrubs or other plants whose roots are in it, those will be included in the lease unless they are specifically excluded.” (Mynors 2002: 42)

A tenant is subsequently free to use and benefit from the trees, but also assumes responsibility for them as would a freeholder. A second common situation is where trees are on land subject to a trust, where trustees can, in general, act as freeholders. In both of these situations parties are required to act in accordance with any conditions laid out in the trust or lease.

When located within a ‘highway’ the linkage between the ownership of trees (land) and the authority to make decisions about them becomes much weaker. This is primarily because a ‘highway’ is “not a strip of land, but essentially a right of way for the public at large to pass and re-pass along a defined route” (Mynors 2002: 170). This right does not, necessarily, affect the ownership of the land beneath the highway, although the rights of the landowner are thereafter subject to the rights of the public (highway users). In such a situation it is obvious that who has the authority to make decisions about, and responsibility for, trees could be unclear. This question has received considerable attention in the courts (see Mynors 2002: 170-180) and has only been settled comprehensively within the last 15 years by the Court of Appeal in the case of *Hurst v Hampshire County Council*. Mynors summarises this position as;

“for all practical purposes, the property in all highway trees, regardless of when or by whom they were planted, or whether they were in fact self-seeded, vests in the highway authority.” (2002: 178)

'Nuisance'

The legal concept of 'nuisance' holds a much more specific meaning than the colloquial meaning of the same term. Mynors defines it "a nuisance is where A does something on his land which interferes with the enjoyment by B of her land" (2002: 59), and notes its contrast to 'trespass' which arises when A actually goes onto B's land with the same effect. Thus it can be seen that encroachment by the branches and roots of trees located on one individual's land, onto another's land, can be considered a legal 'nuisance'. A 'nuisance' can occur without any associated damage;

'the encroachment of a root into the neighbour's soil is a nuisance not just because it harms the foundations of his house, but because it limits the use of the land that is affected' (Mynors 2002: 62)

Where damage does occur, a tree's owner may be liable for it, but 'liability only arises if there has been negligence, and the duty to abate the nuisance arises from the defendant's knowledge of the hazard that would affect his neighbour.' (Mynors 2002: 63-4). Where a dispute arises, the owner of the affected building can seek remediation, in the form of an injunction and/or damages, through the courts. Mynors states the key questions to be considered in these cases;

- Did the roots of A's tree actually cause harm to B's structure?
- Was the harm reasonably foreseeable?
- Were there any practicable measures that could have been taken to minimise or avoid the harm and its consequences?
- Was it reasonable to take the steps that were actually taken? (Mynors 2002: 74)

Answering the first of these questions is perhaps the most difficult, and must be done in each case (i.e. general statements that tree species x can cause damage to buildings from distance y away from a building are not acceptable). Any such investigative work must be paid for at the expense of the building's owner (or their insurer). Further to this, the court must give consideration to anything else which may have caused, or contributed to, the damage – and may award damages proportionally. The cost of any tree or building works (e.g. pruning, felling, under-pinning) must be borne by the tree owner.

Whether or not the damage could have been foreseen is a second key consideration in relation to the award of an injunction and/or damages by the courts. Mynors states that what is foreseeable should properly be understood as "what would be capable of being predicted by a tree owner, properly advised, once the matter had been drawn to his or

her attention.” (2002: 78). This is, to at least some degree, contingent upon the knowledge of the tree’s owner, i.e. their capacity to foresee damage. This becomes clearer when the trees in question belong to some public authority – such as street trees – whose knowledge can be expected to be substantial. Mynors, for example, notes that;

“Where the tree concerned is growing in a highway ... the owner is in practice presumed to be the highway authority; and it is very difficult for such authorities now to escape liability on the grounds of not knowing about the mechanics of tree root damage.” [after *Russell v Barnet LBC*] “Such awareness must now be universal amongst authorities whose area contains any clay soil.” (2002: 77-8)

Following his thorough review of the law in this area Mynors makes the following statement regarding the need for tree work.

“None of the above means that every tree near a property boundary should be felled, or drastically pruned. Still less does it mean that such action should be taken in relation to every street tree. After all, even where the soil type is known, the possibility of harm being caused by any particular tree to any particular building is still very unpredictable. And to fell every tree that just might be responsible for harm would lead to a severe loss of amenity.” (2002: 82)

4 Discussion

This report has identified the various categories of social and cultural value attributed to street trees within the existing literature, and explored some of the primary governance structures and processes influencing decisions about their presence and absence in the urban environment. Published data and research analysis relating specifically to street trees is very limited considering the wealth of literature on ‘urban forestry’, ‘urban greenspace’ and ‘green infrastructure’ of which street trees are a vital and distinct element, and with which people interact in distinct ways.

As with so many issues of land management, it is the owners of land who are the central key stakeholders and decision-makers relating to street trees. This is due to the existence of liability for harm and a general authority to make decisions regarding their trees without restriction. Very often this land owner is the local authority acting as highway authority, although owners of private land adjacent to highways are also of great significance. ‘Third sector’ owners appear less important in relation to street trees, largely because of their limited land ownership in urban areas. Local authorities are also significant actors in that they control the interpretation and implementation of planning law which is clearly the strongest formal governance promoting the retention and

planting of trees in urban areas. It seems clear however that the relevant legislation here could be more strongly implemented – particularly if greater resources (of knowledge and finance) were available to local authorities. The Forestry Commission is a relevant stakeholder in relation to street trees, largely because it is central government's lead body in relation to trees generally. Having said this, its policy and authority are restricted through their focus upon woods and forests – i.e. not individual trees. This contributes to an unnecessary dichotomy between forestry and arboriculture.

Overall, the governance structures and processes relating to street trees seem imbalanced – that is, they promote the removal of street trees over their retention. Faced with the expense and difficulty of ascertaining the 'true' risk posed by their tree(s), and a liability for harm caused by them, tree owners often opt for the (relatively) limited cost of removing the tree, and hence the risk, completely. There is little support for those who wish to retain their trees. The governance promoting new tree planting is primarily informal and focused upon woods and forests – again, not individual trees. Having said this, some good examples of initiatives to establish street trees exist and these need to be built upon.

The particular location and relative position of street trees (i.e. their spatial dimension) has considerable impact upon their use and value. Cleraly location can impact upon the environmental benefits provided by a tree – e.g. shade and rainfall interception. Furthermore, many spatial / situational factors can impact upon which social and cultural values are obtained from street trees, and how. Making comparisons between the value of trees can thus be very complex. There are obvious differences between, for example, a street tree located within a wide footway/pavement outside a cafe or restaurant and one on a narrow verge with little or no footpath. The first street tree has the potential to provide a 'tree space' within which significant social and economic interaction and exchange can take place (with consequent social benefits). The second has much less potential in this regard. This analysis holds regardless of the relative sizes of these trees. The second tree may, however, mask a particularly unsightly landscape feature on a road used by many thousands of motorists a day, whilst the first may in contrast be located in an area of high architectural value where no such masking is desirable. Thus the first street tree may be of significant 'community' and 'business-added value' value, the second may have substantial aesthetic value. It is clear, therefore, that some spatial / situational analysis is necessary if a reasonable understanding of the value of street trees is to be had.

Location can also have a profound effect upon governance due to changes in land (and thus tree) ownership. Different stakeholders have various capacities to act in relation to street trees – some having good knowledge and considerable resources, and others not. Further to this, small variations in location may potentially change stakeholder involvement, especially in relation to utilities and telecommunications services.

4.1 Research needs

Research focused specifically upon street trees is sparse. Much more research is needed to understand the social and cultural values associated with street trees in the UK. Only two published studies have been located providing primary data relating to this. Furthermore, current research is very unlikely to have revealed all the categories of value attributable to street trees. For example, no studies have reported upon street tree planting initiatives involving community members, which would likely reveal a value relating to participation in the process – a ‘participative’ value. Evidence is currently very weak.

Further to this, considerable primary research is needed to understand how the governance of street trees is interpreted and implemented in practice. This demands engagement with local authorities, arboriculturalists and private tree owners. Such research would identify the impact of, for example, cultural norms and social networks upon decision-making and street tree management practice.

Finally research is needed into how existing governance can be better used to implement current and near future policy priorities – such as climate change adaptation. This research needs to ask whether better application and/or reform of existing legislation (i.e. planning and forestry law) can adequately achieve this, or if new legislation is required to better protect existing trees and generate the greater (and better) planting that is needed by tomorrow’s urban communities.

4 References

Bonnes, M., G. Carrus, M. Bonaiuto, F. Fornara, and P. Passafaro. 2004. Inhabitant's environmental perceptions in the city of Rome within the framework for urban biosphere reserves of the UNESCO Programme on Man and Biosphere. *Annals of the New York Academy of Sciences* 1023:175–186.

Borst, H. C., Miedema, H. M. E., de Vries, S. I., Graham, J. M. A., & van Dongen, J. E. F. (2008). Relationships between street characteristics and perceived attractiveness for walking reported by elderly people. *Journal of Environmental Psychology*, 28, 353-361.

Borst, H. C., de Vries, S. I., Graham, J. M. A., van Dongen, J. E. F., Bakker, I., & Miedema, H. M. E. (2009). Influence of environmental street characteristics on walking route choice of elderly people. *Journal of Environmental Psychology*, 477-484, 1-8.

Britt, C. and M. Johnston (2008) *Trees in Town II: A new survey of urban trees in England and their condition and management*. Research for Amenity Trees Series No. 9 London: Department for Communities and Local Government.

Burden, D. (2008) *Benefits of Urban Street Trees*, Urban Forest Ecosystems Institute Discussion Paper, available at <http://www.ufe.org/files/pubs/22BenefitsofUrbanStreetTrees.pdf>

DCLG [Department for Communities & Local Government] (2010) *Consultation paper on a new Planning Policy Statement: Planning for a Natural and Healthy Environment*. London: DCLG.

DEFRA [Department for Environment, Food and Rural Affairs] (2010) *Climate Change Plan 2010*. London: DEFRA

DETR [Department for Environment, Transport and the Regions] (2000) *Tree Preservation Orders: A guide to the law and good practice*. (Now published by DCLG)

Dumbaugh, E. (2005) Safe streets, livable streets. *Journal of the American Planning Association* 71(3):283–300.

English Nature (2000a) *Veteran Trees: a guide to good management*. IN13. Peterborough: English Nature.

English Nature (2000b) *Veteran Trees: a guide to risk and responsibility*. Peterborough: English Nature.

Flannigan, J. 2005. An evaluation of residents' attitudes to street trees in southwest England. *Arboricultural Journal* 28:219–241.

Fraser, E.D.G., and W.A. Kenney (2000) Cultural Background and Landscape History As Factors Affecting Perceptions of the Urban Forest, *Journal of Arboriculture* 26(2), pp. 106-113.

Gill, S. (2009) 'The Essential Role of Trees: adapting cities to climate change by maintaining high temperatures and reducing pressure on drainage systems', paper presented at the Treework Environmental Practice Seminar XV: Trees and Urban Climate Adaptation: a social agenda for liveable cities. 19th November 2009, Royal Geographical Society, London.

Greater London Authority (2005) Connecting Londoners with Trees and Woodlands: A tree and woodland framework for London. London: Greater London Authority.

Heimlich, J. T. D. Sydnor, M. Bumgardner, and P. O'Brien (2008) Attitudes of Residents Toward Street Trees on Four Streets in Toledo, Ohio, U.S. Before Removal of Ash Trees (*Fraxinus* spp.) from Emerald Ash Borer (*Agrilus planipennis*) *Arboriculture & Urban Forestry* 34(1):47–53.

HM Government (2009) The UK Low Carbon Transition Plan. London: The Stationery Office.

Hitchmough, J.D. and A.M. Bonugli (1997) Attitudes of Residents of a Medium Sized Town in South West Scotland to Street Trees, *Landscape Research*, Vol. 22 (3), pp. 327-337.

Kalmbach, K.L. and J.J. Kielbaso (1979) Resident Attitudes Towards Selected Characteristics of Street Tree Plantings, *Journal of Arboriculture* Vol. 5(6), pp. 124-129.

Kaplan S (1995) The restorative benefits of nature: Toward an integrative framework. *Journal of Environmental Psychology*, 15:169-182.

Kaplan, S. (2002) 'Some hidden benefits of the urban forest.' in: Konijnendijk, C.C. and Hoyer, K.K., eds. *Forestry Serving Urbanised Societies*, Abstract book. IUFRO European Regional Conference, in collaboration with EFI, Copenhagen, August 27-30, 2002.

Kaplan R & Kaplan S (1989) *Experience of nature: A psychological perspective*. New York: Cambridge University Press.

Kellert, S. and E. O. Wilson (1993) *The Biophilia Hypothesis*. Washington D.C.: Island Books.

Kelly, M. (2009) 'Trees in the 4-dimensional Urban Realm', paper presented at the Treework Environmental Practice Seminar XV: Trees and Urban Climate Adaptation: a social agenda for liveable cities. 19th November 2009, Royal Geographical Society, London.

Kuo, F.E. (2001) Coping with poverty: Impacts of environment and attention in the inner city. *Environment and Behavior* 33: 5–34.

Kuo, F.E. (2003) The Role of Arboriculture in a Healthy Social Ecology. *Journal of Arboriculture* 29(3), pp. 148-155.

Kuo, F.E., M. Bacaicoa, and W.C. Sullivan (1998a) Transforming inner-city landscapes: trees, sense of safety, and preference. *Environment and Behavior* 30: 28-59.

Kuo, F.E., W.C. Sullivan, R.L. Coley and L. Brunson (1998b) Fertile Ground for Community: Inner-City Neighborhood Common Spaces, *American Journal of Community Psychology*, Vol. 26, No. 6, pp. 823-851.

London Assembly (2007) *Chainsaw Massacre: a review of London's trees*. London: GLA.

Lovasi, G. S., Quinn, J. W., Neckerman, K. M., Perzanowski, M. S., & Rundle, A. (2008). Children living in areas with more street trees have lower prevalence of asthma. *Journal of Epidemiology and Community Health*, 62, 647-649.

Martin, C.A., P. Warren, and A. Kinzig. 2004. Neighborhood socioeconomic status is a useful predictor of perennial landscape vegetation in residential neighborhoods and embedded small parks in Phoenix, AZ. *Landscape and Urban Planning* 69: 355–368.

Mehta, V. (2007) Lively Streets: Determining Environmental Characteristics to Support Social Behavior, *Journal of Planning Education and Research*, 27: 165-187.

Miller, K. (2007) ANJEC in the City: The Benefits of City Trees, Association of New Jersey Environmental Commissions (ANJEC) available at <http://www.anjec.org/pdfs/city-treebenefits.pdf> (accessed 2nd September 2009)

Mynors, C. (2002) *The Law of Trees, Forests and Hedgerows*. London: Sweet & Maxwell.

Naderi, J.R. (2003) 'Landscape design in the clear zone: The effects of landscape variables on pedestrian health and driver safety'. In Transportation Research Board, 82nd Annual Conference Proceedings. Transportation Research Board, Washington DC.

NUFU (National Urban Forestry Unit) (2003) Urban Forestry in Practice: Conserving veteran and ancient trees. Case Study 41.

North Somerset Council (2005) Biodiversity and trees: Supplementary planning document for developments within North Somerset.

O'Brien, L., A. Stewart and K. Williams (2010) Urban health and health inequalities and the role of urban forestry in Britain: A review. Forest Research.

Pathways Consultancy (2009) Newlands Green Streets – pilot project: Evaluation report.

Peters, B. G. (2008) 'The Quality of Governance and the Quality of Democracy', paper presented at the New Public Management and the Quality of Government conference at The Quality of Government Institute, University of Gothenburg, November 13-15, 2008.

Read, D.J., Freer-Smith, P.H., Morison, J.I.L., Hanley, N., West, C.C. and Snowdon, P. (eds). 2009. Combating climate change – a role for UK forests. An assessment of the potential of the UK's trees and woodlands to mitigate and adapt to climate change. The Stationery Office, Edinburgh.

Rollinson, T. (2009) Keynote Address to the Treework Environmental Practice Seminar XV: Trees and Urban Climate Adaptation: a social agenda for liveable cities. 19th November 2009, Royal Geographical Society, London.

Sanderson, I. (2009) Intelligent Policy Making for a Complex World: Pragmatism, Evidence and Learning, Political Studies, Vol. 57, 699–719.

Schroeder, H and S. R. Ruffolo (1996) Householder Evaluations of Street Trees in a Chicago Suburb, Journal of Arboriculture 22(1), pp. 35-43.

Schroeder, H., J. Flannigan, and R. Coles (2006) Residents' Attitudes Toward Street Trees in the UK and U.S. Communities. Arboriculture & Urban Forestry 32(5):236–246.

Scottish Government (2010) Scottish Planning Policy. available at <http://openscotland.net/Resource/Doc/300760/0093908.pdf>

Sheets, V.L. and Manzer, C.D. (1991) Affect, Cognition, and Urban Vegetation: Some Effects of Adding Trees Along City Streets, *Environment and Behaviour*, Vol. 23 (3), pp. 285-304.

Watson, G (2002) Comparing formula methods of tree appraisal, *Journal of Arboriculture* Vol. 28, No. 1, pp. 11-18.

Williams, K. (2002) Exploring Resident Preferences for Street Trees in Melbourne, Australia. *Journal of Arboriculture* 28(4), pp. 161-170.

Wilson, E. O. (1984) *Biophilia: the human bond with other species*. London: Harvard University Press.

Wolf, K. (2004) Trees and Business District Preferences: A case study of Athens, Georgia, U.S. *Journal of Arboriculture* 30(6), pp. 336-346.

Wolf, K. (2005a) Trees in the Small City Retail Business District: Comparing Resident and Visitor Perceptions. *Journal of Forestry* Vol. 103, pp. 390-395.

Wolf, K. (2005b) Business District Streetscapes, Trees, and Consumer Response, *Journal of Forestry* Vol. 103, pp. 396-400.

Wolf, K. (2006) Roadside Urban Trees: Balancing safety and community values. *Arborist News*, Dec. 2006, pp. 56-7

Wolf, K. and N. Bratton (2006) Urban Trees and Traffic Safety: Considering U.S. Roadside Policy and Crash Data, *Arboriculture & Urban Forestry* 32(4), pp. 170-179.

Zhang, Y., A. Hussain, J. Deng and N. Letson (2007) Public Attitudes Toward Urban Trees and Supporting Urban Tree Programs. *Environment and Behavior*, Vol. 39, Number 6, pp. 797-814