3. Defining the accessibility of natural areas

PPG 9 (Department of the Environment 1994) advises that nature conservation issues should be included in the surveys of local authority areas to ensure that their plans are based on fully adequate information about local species, habitats, geology and landform. Phase 1 type surveys of wildlife sites undertaken on a city-wide scale, such as those prepared by the London Ecology Unit (LEU 1994) and the Urban Wildlife Group in Birmingham, identify all land parcels however small.

These habitat surveys provide a more comprehensive inventory of natural greenspace than that provided by either open space or open land inventories. Open space and open land surveys focus on the largest and more obvious sites (>2 ha) and omit the small, incidental open spaces associated with inner city areas and high density residential areas.

Without these detailed surveys, existing inventories of open space severely underestimate the extent of natural greenspace and the contribution such spaces have as accessible places people use and enjoy.

3.1 The extent of the natural greenspace in cities

The extent to which conventional open space surveys underestimate the natural greenspace resource in cities is revealed by a recent study completed for the London Planning Advisory Committee (LPAC, 1992). The survey examines all land parcels outside land formally designated as open space, and shows that the range of sites added to existing open space inventories is substantial.

Similar in scope and detail to the Phase 1 Habitat Surveys recommended by English Nature, this field survey by Llewelyn-Davies reveals an extensive but fragmented land resource. For example, in the outer London borough of Barnet, the amount of open space is doubled , and in the two inner boroughs of Lewisham and Camden it is increased by 80% and 18% respectively.

The size range of these additional sites is illustrated in Table 1. It shows an emphasis on spaces less than 2 hectares in Camden, where 98% of sites fall in this category, and on larger sites in the range 2-19.9 hectares category in Lewisham (62%) and Barnet (43%).

Although some sites identified by this comprehensive inventory do not have a natural character, for example, some play areas have hard surfaces, this is not an insurmountable problem. Ecological studies show that in time all urban plots are capable of supporting natural assemblages even derelict buildings and car-parks. Therefore, the inventory provides a useful basis for identifying accessible natural areas and sites which afford opportunities for designing and creating new natural areas.

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Table 1   Contribution of additional open space in Camden, Barnet and Lewisham

Borough	Public Open Space greater than 0.2 ha				All Public Open Spaces		Additional Non-Public Open Spaces		All Open Spaces Public and Additional		
	No.	Area (ha)	% of Bor'gh area	Pers. per ha	No.	Area (ha)	No.	Area (ha)	No.	% of Bor'gh area	Pers. per ha
Barnet	61	805	9%	352	84	871	228	897	1768	19.7%	160
Camden	55	377	17.5%	452	65	348	281	96	444	20.6%	383
Lewisham	40	300	8.6%	718	49	375	35	149	542	15.5%	397

Source: Llewelyn-Davies Planning. 1992. Open space planning in London. LPAC, London.

In practice not all additional sites will be accessible to local people: sites may be privately owned or may not be within walking distance of the home. However, many sites have general or *de facto* rights of access. In the case of the three London boroughs surveyed in the LPAC study, a detailed inventory of access arrangements shows that the overwhelming majority of sites afforded some right of public access. On average, the public were denied access to only 6.6% of these additional sites.

The precise nature of access varied from one site to the next and from borough to borough but, almost 50% of the additional sites in Camden have general or *de facto* public access and 24% of sites in Lewisham. Reflecting the high levels of private property in Barnet, only 6% of additional open space sites had *de facto* access. Access to the remaining sites is restricted to particular groups of residents, clients, employees or school and college pupils (Table 2).

Table 2   Size of additional open spaces

Boroughs	Size (ha)				
	0-1.9	2-19.9	20-59.9	60-399.9	Total
Barnet	121 (53.3%)	99 (43.6%)	5 (2.2%)	2 (0.9%)	227
Camden	275 (98.6%)	4 (1.4%)	-	-	279
Lewisham	11 (31.4%)	22 (62.9%)	2 (5.7%)	-	35
Total	407 (75.2%)	125 (23.1%)	7 (1.3%)	2 (0.4%)	541

Source: Llewelyn-Davies Planning. 1992. Open space planning in London. LPAC, London.

3.2 Recommendation: the need for comprehensive surveys of all land parcels.

The complex nature of land ownership in urban areas and the historical legacy of different phases of urban development and open space planning (Turner, 1992), means that the pattern of open spaces and natural areas and their access status varies considerably at a local level. Detailed site inventories conducted at a street by street scale can establish the extent and access status of all natural areas of whatever size. They provide the kind of comprehensive information local authorities need before decisions about releasing land for development are taken. They are also the basis upon which improved definitions of accessible natural greenspace can be derived.

Where such surveys have not been completed it is recommended that priority be given to surveys conducted in:

- inner city neighbourhoods where formal open space provision is low;

- high density residential areas, including outer suburban estates, where provision of local public open space seldom meets existing recommended standards;

- neighbourhoods revealed to be deficient in local park provision when site catchment areas are redrawn to take account of severance factors (see section 4.1.2 below).

4.   Constraints on access to natural greenspaces

The popular appeal of natural greenspaces is shown in several public opinion surveys (Jowell et al 1992; Nature Conservancy Council 1987) and by the wide variety of studies reviewed by Rohde & Kendle (1994). In-depth studies also reveal the attraction natural places have for all age groups and ethnic groups (Burgess et al 1988 a,b,c) and ethnographic surveys such as those of Millward and Mostyn (1988) and Nolda (1990) detail the particular appeal natural areas have for children.

In urban areas, recent surveys conducted in 1992 with visitors to several parks and open spaces in Newham, London demonstrate the popularity of inner city spaces (Page et al 1994). Similar studies undertaken by Comedia/Demos (Greenhalgh & Worpole 1995) confirm this high level of use and the popularity of urban sites. A household survey undertaken in 1988 in an inner London borough reveals that 68% of residents visit a park or open space more than once a month (Burgess et al 1988c).

However, levels of use vary from one site to the next and visitor surveys also show that while some age-groups and social groups are well represented, others are not. In parks and open spaces teenagers and young adults predominate; children under five and elderly people are often under-represented; non-whites are also under-represented.

Several physical, social and cultural reasons serve to explain why people may not visit natural greenspace even though these places are highly valued.

4.1   Physical constraints

In theory, the most accessible natural places are those which are easily seen from the home and are within walking or cycling distance. In practice 'distance from the home' or a time equivalent have served as key criteria for identifying accessible sites in most public open-space and wildlife strategies. For example, the spatial hierarchy of open-space used by the London boroughs since 1976 uses a distance of a quarter of a mile to define the catchment area of small and local parks and three quarters of a mile to define the catchment of district parks. 'Areas of Open Space Deficiency' and 'Areas of Wildlife Deficiency' are often identified in local plans and wildlife strategies as being more than a quarter of a mile from a local park or site of wildlife importance.

Recommended guidelines for play-space provision advocated by the National Playing Fields Association (NPFA 1992) employ both distance and time criteria. Distances of 100 metres, 400metres and 1,000 metres and their equivalent walking times (1 minute, 5 and 15 minutes) are recommended for Local Areas for Play, Local Equipped Areas for Play and Neighbourhood Equipped Areas for Play respectively.

The recommended distances and walking times were originally derived from the findings of empirical studies. In the case of the London spatial hierarchy, distance criteria were derived from one of the most comprehensive surveys ever undertaken of park use throughout London, including use by children. Completed thirty years ago in 1964, these studies formed the basis upon which the quarter of a mile distance from a local park was derived to identify 'Areas of Open Space Deficiency'. This same distance was used to identify 'Areas

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Deficient in Wildspace' in several urban wildlife strategies which appeared in the 1980s.

In the case of the NPFA, time and distance ranges were derived from trials in the late 1980s with children of different ages ranging from four to 14 using a representative sample of pedestrian routes. No details of these trials have been published.

4.1.1 Problems with distance/time criteria

The most compelling evidence to date about the inappropriateness of relying on straight line distance measures for defining accessible urban open spaces, comes from the LPAC study. Through a detailed field and desk study of the distances and times taken to walk to local parks, this study demonstrates that critical distances relevant for defining accessible local open spaces are smaller than those assumed by earlier studies. Two groups of factors account for this reduction in range.

- **Severance factors** such as busy roads, private land, railway lines, poorly-lit underpasses and paths through institutions or residential estates all serve to impede walking and cycling and will deter adults and children alike.

  These severance factors are exacerbated in towns and cities by the substantial increase in traffic experienced in the last ten years.

- **Constraining factors** are differentially experienced by particular social groups, for example, people in wheelchairs or with walking difficulties have problems with gradients of more than 1:12 as do mothers with pushchairs. Even a gradient of 1:20 means that the majority of people confined to a wheel chair would find these routes too difficult to negotiate (Countryside Commission 19982; Leake, May & Parry 1991).

Together these severance and constraining factors define the effective range people are able or prepared to walk from their home. The LPAC study suggests that 'a direct line radius of approximately 280 metres rather than the present 400 metres should be employed to redefine accessible open spaces (LPAC, 1992 p.89).

Severance factors are built into service allocation models used in urban planning as a matter of routine and can be applied equally easily to refine the extent of the catchments of particular open spaces. When catchments of local open spaces are redefined in this way they show a significant reduction in the effective catchments served by sites. For example, in the 14 case study parks covered by the LPAC study there is typically a reduction of more than 50%. Catchment comparisons revealed little difference between inner and outer London sites and suggest that severance and constraining factors are experienced throughout urban areas.

One consequence of redefining site catchments using this reduced straight line distance is an increase in the extent of Areas Deficient in Open Space and Areas Deficient in Wildlife Sites.

Likewise, a straight line radius of 280 metres drawn from unofficial greenspaces can be used to identify accessible natural spaces requiring protection and enhancement.

4.1.2   Recommendation: redefinition of distance criterion/site catchments

- site catchments should be redrawn for all local and district parks and local wildlife sites using a straight line radius of 280 metres taken from known access points on the site boundary;

- The extended Areas of Deficiency revealed by these new catchment dimensions should be identified;

- Detailed site inventories of all greenspaces should be made in these newly defined Areas of Deficiency with a view to identifying accessible greenspace capable of reducing local deficiencies;

- Traffic calming measures should be undertaken and facilities such as pedestrian crossings, median road reservations, and new access points designed to mitigate severance factors provided to improve the accessibility of existing sites.

- Accessible natural places identified above should be given at least the level of protection afforded to formal small and local parks.

In conclusion, contemporary constraints on mobility and behaviour need to be examined before physical distance on its own can be used as an effective criterion for identifying accessible natural spaces.

4.2   Social and cultural constraints on access.

A number of studies show that anxiety and fears for personal safety are inhibiting actual and potential use of greenspaces. Countering the popular appeal natural areas have, these social constraints mean that people adjust their behaviour to minimise the risks natural areas pose for them. The groups most severely constrained in this way are women and girls, younger children, and people of colour - especially women and the elderly.

A number of studies suggest that the distance criteria used to identify children's use of natural places are especially sensitive to the kind of physical barriers defined above in section 4.1. and to social constraints imposed by parental anxieties about children's safety (Hart 1979; Hillman 1993; Matthews 1987).

4.2.1 Children's range behaviour

Range behaviour is the term used to describe the distances from the home that boys and girls of different ages are allowed to wander when playing and socialising.

Several researchers agree that the relative diversity of environments within a neighbourhood and ready access to them are important for children's health and well being(Bjorkild-Chu 1977; Parkinson 1985; van Andel 1990). Two aspects of range have particular significance - range development and range extension.

- **Range development** tends to be ongoing as the child explores, manipulates and transforms newly acquired territory over time (Moore & Young 1978; Matthews 1992). Places that change such as natural open spaces offer the child additional opportunities for range development when compared with static territories which do not change such as play grounds surrounded by tarmac. Indeed certain natural places such as woodlands, streams and ponds seem to exert a 'pull' on children to extend their normal or permitted range considerably (Coates and Bussard 1974; Hart 1979; Moore & Young 1978).

- **Range extension** happens at significant moments in the child's development such as starting school, crossing a street alone, learning to ride a bicycle or using the bus alone. Range extension is also subject to parental restriction, accessibility, available modes of travel and the 'pull' of particular places.

One of the most important findings of research on range behaviour concerns the different ranges experienced by boys and girls. Up to the age of 7, there is very little difference in the free or home range of children, of whatever sex. After that age there can be major changes with boys experiencing much greater ranges than girls (Matthews 1987). Using a typology of range developed by Hart (1979) which identifies free range, range with permission and range with permission and accompanied by older children, Matthews shows how the home range (in metres) of boys interviewed in a suburban school in Coventry begins to extend significantly beyond that of girls from about the age of 8, until it reaches a peak difference of 40% at age 11 (Table 3).

Table 3   **Home range (metres) for different age groups of suburban children**

Age	6		7		8		9		10		11	
	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl
Free range	<100	<100	189	190	305	199	795	283	967	600	1083	649
Range with permission	210	228	345	320	389	257	915	360	900	597	1136	662
Range when accompanied	290	285	391	364	461	391	963	664	1021	691	1132	745

After Matthews, 1987 Gender, home range and environmental cognition.
Trans. Inst. Br. Geog (NS) 12: 43-56.

Parental control appears to be the main influence on the range restriction of girls. Girls are expected to undertake mothering duties of younger siblings and parental fear of their daughters becoming victims of abduction and abuse, restricts range even further.

There has been a striking and measurable decline in ranges of both boys and girls recorded in surveys repeated 15 years apart by Hillman (1993). Using interviews with both children and parents living in a variety of urban and suburban settings he demonstrates how in a single generation, ranges have contracted for both boys and girls. In comparing the findings of surveys undertaken in 1971 and 1990 Hillman reports that the median age at which licences are granted had increased by 2.5 years. In other words, the personal freedom of choice permitted a typical 7 year old in 1971 was not permitted until children reach the age of about nine and a half in 1990.

Pointing the finger of blame at the increase in traffic flows experienced in urban areas over this same time period and to the heightened sense of risk parents believed their children face, Hillman shows how social attitudes have a formative influence on the accessibility of play spaces.

While there is evidence that children have to wait until they are older to play away from home by themselves, it is difficult to know to what extent children's ranges have actually been reduced. There are few studies of children at play or socialising and none that specifically examine these ranges in relation to the size of sites children use.

A number of visitor surveys and observational studies show that children and adolescents are the major users of natural greenspace in urban areas making up between 30% and 60% of all users. These figures equate to two-five times their incidence in the population as a whole (Bradley & Millward 1986; Millward 1987 and Millward & Mostyn 1988). In support of the findings of an extended range for boys, these studies report that three times as many boys as girls are observed to be outdoors at any one time.

The level of use encountered in particular spaces depends on several factors. Studies by Bussard (1974), Cooper Marcus (1974) and Millward, (1989) show that use depends upon the relative availability of other places for play within a range that may be affected by parental constraints, severance factors such as those already discussed in section 4.1, whether children live in low-rise or high rise housing areas and the availability of friends of similar ages.

A few studies suggest that 'spaciousness' rather than physical size is important to children seeking out favourite play places (Millward 1989; Moore 1986; Nolda 1990). Natural features such as grass, bushes, bumpy ground and water figure prominently amongst reasons why children liked the places they were forbidden to go. Together these few studies suggest that distance rather than size is likely to have more relevance to identifying sites of importance to children.

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Matthews' and Hillman's studies provide sufficient evidence to suggest that the standard distances employed in the NPFA recommendations for children's play areas overestimate the distances over which young girls in particular are likely to range. They also suggest that the recommended 1000 metres distance to a neighbourhood play area designed for 8-14 year olds is well beyond the permitted range of 11 year old girls and beyond the permitted range of many boys of that age too. Even the recommended distance of 400 metres to a Locally Equipped Play Areas is not within the permitted and accompanied ranges of some 8 year old girls.

There are several implications of these studies for ensuring that natural places are accessible to children.

- Children's independent mobility in urban areas is constrained both by the diversity of sites in the immediate neighbourhood and by constraints exercised by parents and carers. Distance from the home is an insufficient criterion for assessing how accessible natural areas are to children.

- The range constraints on younger children - toddlers and pre-school children - within the neighbourhood depend on the distance their carers are prepared to wheel and carry them. As section 4.1 has shown, a straight line distance of 280 metres from a local park describes the realistic catchment such sites are likely to cater for.

- Girls between the ages of 8 and 11, have smaller permitted ranges than boys. As a result, girls are likely to be less physically and mentally competent to deal with their city environment than boys unless local sites perceived to be 'safe' are provided. Safe natural areas such as Local Nature Reserves that are supervised by staff have a particular role to play for these children as do popular sites where high use provides an element of self-policing.

- The distances from the home recommended for local parks and wildlife sites in many open space and wildlife strategies are not an accurate measure of a site's real accessibility to many children of primary school age.

In conclusion, studies of children's range behaviour show that ranges are now more restricted than a generation ago. Under these circumstances small, accessible natural places on the doorstep can provide children with the familiar but challenging places they need for their health and well being. Sites which are supervised by staff, such as Local Nature Reserves, have a prominent role to play for young girls and their acquisition of life skills.

4.2.2 Fear of crime as a constraint on adult use of natural areas

There is some empirical evidence to show that children's freedom to roam has been constrained by parental anxieties about safety. Research also shows that use of natural areas by adults is not immune

from the pervasive moral panic about crime currently gripping urban society.

Studies by Brecker (1992), Burgess (1994,1995), Burgess *et al* (1988), and Valentine (1989), report widespread fear of being the victim of random violence by a stranger; and that people, notably women, people of colour, and children are thought to be most vulnerable in natural spaces, especially parks, commons and woodlands.

Fear of crime is a reflection of people's perceptions of risk rather than any 'true' measure of actual risk. Both physical factors and social factors contribute to fear of crime.

Physical factors include environmental incivilities such as litter, graffiti, fly-tipping; discarded syringes, etc. They are interpreted by users as physical symptoms of a lack of social control, a sign that the space is uncared for and thus likely to be dangerous.

Evidence that people are responding to physical cues in the environment has led to extensive work on crime prevention/fear reduction programmes through design/landscaping solutions. These will often have a severe and detrimental effect on the vegetation/ planting regimes in urban areas, and must be challenged if possible.

4.2.3   Social and cultural factors

Fear of crime and victimisation is more prevalent among women than men, and among people of colour than whites. Five factors are important in understanding people's anxieties:

- **Not knowing whom to trust:** Strangers have become more threatening in public spaces for many reasons. Alcohol is now widely available and often consumed in public spaces. People - usually men - become threatening and abusive when drunk. Similar anxieties are expressed about individuals who may be drugged, or mentally ill. In both instances, people are 'out of control' and likely to behave unpredictably.

- **Verbal abuse and the invasion of personal space** is a routine and common experience for women and people of colour in open spaces (Merry 1981).

- **Men exposing themselves to women and children.** This is almost entirely a public space occurrence. It is not often reported to police and so it does not appear in the crime statistics. But it is a widespread and common experience which frightens women and deters them (or their children) from using natural areas.

- **The media** highlight and sensationalise the rare, violent crimes against women and children that occur in urban parks and other green spaces. Notorious cases shatter people's confidence and reduce their capacity to take risks. Research by Soothill and Walby (1991) suggests that sex crimes are in fact, no more

or less common than in previous decades but the nature of the reports creates a public understanding that things have got so much worse, and these fears are reflected in changing patterns of behaviour.

- **The power of local social networks.** Media coverage feeds into local communities, helping to stigmatise certain kinds of environmental settings and reinforcing the sense of fear and anxiety. Local gossip and knowledge of local events is of great importance in people's perceptions of risk in parks and green spaces. Access will be inhibited if certain spaces gain a 'reputation'.

4.2.4 Fear of crime and relationship with site size and distance from the home

Anxieties about personal safety lead individuals to control where they go and when they go to places, and/or to control the activities of others for whom they have responsibility. Research consistently shows a strong link between fear of crime and spatial behaviour. If individuals are frightened, they adjust their behaviour to reduce the level of risk.

Fear of crime studies show that physical distance does not provide an adequate means of accounting for people's range behaviour. More subtle aspects of physical form and configuration and its social use are involved. Two examples are reviewed: work on urban form, and work on perception of woodlands.

- **Space syntax and urban form:** Hiller and others (1989) point to the importance of street configuration as the primary definer of pedestrian flows in urban areas and provides one practical means of 'scoping' where safe ranges lie. Pedestrian flows monitored over several periods reveal some streets and the access routes into residential estates to be poor conduits of movement. Other streets are well connected and have clear sight-lines which let pedestrians move easily through them.

  Hillier's work suggests that in general 'attractors' such as shopping areas or parks serve either to equalise or multiply the basic flows of pedestrians generated in the first place by the configuration and connectivity of the street network.

  Put simply, a park or open space cannot of itself exert direct control on pedestrian flows because it has no means of influencing the street network giving access to it. Correspondingly, open spaces can serve as 'attractors' in places which encourage through movement of pedestrians. The kind of use made of these places will in part depend on wider social conditions but, open spaces on busy and well used pedestrian routes are likely to be some of the most accessible spaces to adults and children alike.

  Whether these accessible locations are regarded as safe or not will be influenced subtly by site size and its natural character

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but more fundamentally the presence of other people is the key determinant of whether or not individuals feel safe in an open space. These factors have recently been explored in a major study funded by the Community Forest Unit (Burgess 1995)

- **Perceptions of risk in woodlands:** Although woods are 'objectively' the settings with the least number of crime incidents, they are widely perceived as the most attractive and most risky of natural settings. In addition to the social and cultural reasons discussed above, the physical character of these habitats is important.

  Empirical evidence of the connections between the characteristics of natural places and people's perceptions of risk is provided by a study of urban and urban-fringe woodlands (Burgess 1995). Several points are relevant:

  The fundamental physical property of woods which distinguishes them from all other landscape types is enclosure. Enclosure is a consequence of the density of tree growth/ planting schemes, the type and height of trees, the thickness of the tree canopy and the density of the understorey. These physical elements lead to different strengths of lightness and shade, and to the closure of views.

  These physical characteristics mean different things to different groups of people. Qualities of enclosure will be understood and used by professional foresters, nature conservationists or landscape designers in ways which differ from those of lay people.

  For example, the forester or nature conservationist may wish to achieve a particular set of goals - perhaps thinning trees to allow more vigorous growth of ground flora. A landscape architect will seek to create a particular aesthetic response manipulating different densities of planting. Equally, although dense coniferous blocks serve as a mechanism for noise attenuation, they are imbued with strongly negative meanings by the general public. Specifically, dense woodland and shrubs offer places where potential aggressors can hide, where unsuspecting individuals become entrapped and isolated from assistance.

  The strength of the sense of enclosure experienced by individuals provides the key to understanding the level and intensity of fears about woodland; the sense of adventure and desire to explore; and the extent to which woods and forests are experienced and appreciated for their 'naturalness' and their 'wildness'.

  These arguments apply equally to overgrown, dense shrubbery spaces embedded in the urban fabric, as well as larger parks with wooded settings. In other words they are vitally important in constraining access to certain kinds of natural

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areas and in explaining the hostility occasioned by new planting schemes.

The Community Forest Unit project recommends a number of design and management strategies to support the growth in public confidence in using urban fringe woodland (Burgess 1995). There is reason to believe that confidence, in terms of regular use and familiarity with woodland sites is sufficient to counteract some of the public anxieties discussed above.

- **The Redditch Study:** An ongoing study by Shelagh Bussey, Principal Planner Redditch Borough Council, is providing quantitative evidence of how familiarity with a wooded neighbourhood is reflected in residents' attitudes and behaviour.

This study will provide a unique record of how nearby woodland is regarded and used by local residents and how different management practices are perceived by woodland users.

Redditch is a free-standing, new town without the worst of the social and economic problems experienced by many older and established urban areas. The original town plan included several well-wooded neighbourhoods.

The town contains 224 woodland parcels comprising 403 hectares in total. Most residents live within 0.5 kilometres of a woodland of more than 0.25 hectares. Bussey's study demonstrates how familiarity with near and distant woods allows people to exercise choice in their use of natural places which other studies have revealed to be risky places.

A questionnaire survey undertaken in approximately 500 households in 1993 shows that both the size of a woodland and distance from the home impinge on people's use of woods. 62% of visits to the woods are made on foot and woods within 0.6 km or a 6-8 minute walk are visited most frequently. Above this distance threshold both the frequency and number of visits decline.

In practice, the nearest woods are not the ones visited most frequently. The average distance people walk to their most frequently visited wood is 625 metres and not the 275 metres average they might be expected to walk if they chose their nearest wood. In this environment where the number of woods and people's proximity to them provides a range of natural places to visit , people exercise choice and are prepared to walk further than their nearest wood. This distance is more than twice the distance recommended above for accessible natural areas in highly urbanised city neighbourhoods.

Size also has an important influence on use. Wooded parcels need to be about 2-2.5 hectares before adults look on them as a

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'wood worth visiting'. At this size, the wood is attractive to all age groups for recreation. For small woods below 5 hectares in area, the shape of the wood becomes increasingly important. Narrow wooded belts are less popular than woodland blocks of a similar area.

Differences are expressed by adults and children however in respect of those small, tree-covered areas which adults do not believe constitute a wood. These 'natural areas' are reportedly not used by adults but are well used by children for dens, hide and seek and adventure play. Ninety percent of children under 14 years of age spent only five minutes walking/running to their most frequently used wood.

The preliminary findings of the Redditch study reinforce those on children's range which suggest that small, natural sites within five minutes of the home are particularly attractive to children. Other findings are also consistent with the proposition that when people are familiar with wooded environments they have the confidence to exercise choice in their use of natural places. People living in highly urbanised neighbourhoods often neither have the confidence nor the opportunity to exercise choice.

4.3   Recommendations

Accessibility as defined in this report has physical and socio-cultural dimensions. Recommendations were made in section 3.2. for local authorities to get a clear picture of all existing natural areas; and to develop more accurate measures of how distance/severance factors might be impeding use.

Recommendations from studies of urban parks (Burgess,1994) and urban fringe woodland (Burgess 1995) have equal relevance for local authorities wishing to reduce fear of crime and thereby to increase the accessibility of local natural areas.

It is our contention that urban residents are 'reading' natural landscapes and places 'as if' they were features of the built setting which feel scary. As a result fear-inducing mechanisms in built settings may also be said to apply to naturalistic ones.

A majority of people spend most of their lives in cities and have developed a finely-tuned sensitivity to built environments. One strategy therefore for making natural areas more accessible is to make them feel safer by employing sensitively, the recommendations of the Safe Cities projects completed in Canada, USA, UK, Europe and Australia.

4.3.1   Design strategies

The success of the Safe City projects indicates that making spaces safer for women also makes them safer for everyone else at the same time. The elements of successful strategies are:

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- **Improve sightlines and permeability of natural areas.** This is an essential element in designing safer urban environments, where the need is often expressed as 'designing out' overgrown shrubbery and other thick barriers which could shield a potential attacker. Close attention to entrances and exits into safe 'busy' areas improves the permeability of an area. Facilities must not be hidden and a network of well signed official routes necessarily concentrates use and will therefore increase feelings of safety. Unofficial 'wild' paths are for those people wanting to use them.

- **Reduce hiding and entrapment spots.** These are defined as small, confined areas close to a well-travelled route without possibility of escape because they are enclosed on three sides. Clear sight lines for long distances with paths of 4 metres minimum width; graded vegetation at path edges and plantings including deciduous species improve feelings of safety.

- **Improve lighting.** This is the major problem in public open space and has a fundamental effect on the extent to which people can read cues about strangers, and maintain surveillance. In natural areas a dilemma arises about whether more paths on commons, in woodlands or across waste land should be lit. 'Lighting isolated spaces, such as wilderness paths may give a false impression that the path is well-used in evening hours and a false sense of security' (Safe Cities Report, 1992 p.12) which may lead women to use paths when they would not be best advised to do so. Any improvements to lighting therefore would have to be related to known levels of pedestrian use such as 'through-routing'.

These design and landscape features must be supported by good signs, and much higher levels of maintenance than currently exist in many small green spaces. People like to see 'natural' untidiness like fallen logs, tree stumps and brambles in woods and natural spaces. What both offends and disturbs them are the 'incivilities' which signify a lack of social control and 'ownership' of public space. The environmental incivilities most often associated with urban green spaces are vandalism, graffiti, litter, dumped rubbish, discarded drug syringes, and broken bottles, and broken trees. Much higher levels of maintenance are needed to remove them.

It is also clear from a number of studies that the most potent way of encouraging use is the presence of more people on the site. The potential conflict between this goal and the conservation of sensitive natural features can be minimised by careful routing and design of paths.

4.3.2 Management and out-reach programmes

Rangers and site wardens in distinctive uniforms, carrying out their management tasks, are by far the most effective way of signalling to people that they are welcome and safe in naturalistic settings. Local

Nature Reserves which often have site-based staff would provide bench-mark 'safe' natural sites.

Rangers, both male and female, symbolise authority and guarantee the rights of the public who look to them for personal protection, as well as for managing potential conflicts between different groups of users. For example, when there is local talk about 'a pervert' on commons, woods or on wasteland, then the behavioural sanctions on women and children in particular, will be tightened. Site managers and rangers have an important role in taking quick action to resolve the problem of flashers.

There is a clear need for more women rangers, and rangers from the ethnic minorities. They would provide good role models for others, perhaps anxious about using natural places. They are also better able to communicate with, and understand the concerns of their own 'constituencies'.

In the longer term, site staff also have an important role in community liaison through which the process of confidence building could take place. Many staff already engage in some community activities but much more could be done if it were properly resourced or this facet of work given priority by management.

Beyond resourcing new staff, the question is how to fill greenspaces with ordinary people. Here rangers and site managers probably have the strongest roles to play in facilitating and developing 'activity generators': programmes and events that will broaden the range of people using natural spaces. This is a question of building a popular base within local communities at the neighbourhood level.