5. Implications of research findings for size/distance criteria

5.1 General

The size and distance criteria suggested by Box & Harrison (1993) for identifying accessible natural greenspace in urban areas were an attempt to marry two traditional approaches to open space planning with approaches to nature conservation in urban areas. The spatial and size criteria used in these various planning approaches differ.

Open space standards emphasise the amount of greenspace per 1000 population and ignore distributional aspects of supply. The National Playing Fields Association 6 acre standard adopts this approach. Open space or Park hierarchies emphasise access to a variety of open spaces of differing sizes at the expense of defining a minimum overall amount of open space/head of population. Most open space hierarchies identify a minimum site size of 2 hectares for a Local Park although some park hierarchies recognise Small Local Parks of less than 2 hectares.

Neither approach to open space planning recognises provision of natural greenspace as a requirement and both approaches ignore the question of site quality and its relationship with the sense of well-being people experience when seeing or visiting a natural site (Rohde & Kendle 1994).

Approaches to nature conservation in urban areas such as *Planning Policy Guidance Note No. 9: Nature Conservation* (Department of the Environment 1994) and Nature Conservation Strategies prepared by many local authorities acknowledge the need to protect natural greenspace which has special importance to local communities. The spatial context in which sites are seen as specially important is an administrative unit - normally the relevant local authority District or Borough. A variety of biological criteria, of which size is one, are use to evaluate the relative importance of sites within this spatial unit although the concept of units based on natural rather than administrative boundaries is now favoured. A minimum site size is not specified as a criterion for site selection.

The concept of Deficiency Areas is common to both Open Space Plans and Nature Conservation Strategies. For example, 'Areas Deficient in Open Space' and 'Areas Deficient in Wild Space' are defined respectively as neighbourhoods located more than a quarter of a mile from a Local Park or from a Site of Local Importance for Wildlife. Definitions of deficiency therefore emphasise distance rather than size criteria.

In seeking to provide size and distance criteria for identifying accessible natural wildspace in urban areas, our research confirms that there is general agreement about the distance criteria which can be used to identify accessible sites. There is much less agreement about criteria relating to site size - either the minimum size of sites or amount of natural greenspace worthy of protection.

5.2 Minimum distance

The minimum straight-line distance suggested for identifying natural spaces which can be accessed on foot by able-bodied adults and children and by children with carers, needs to be revised downwards from 0.5 kilometres to 280 metres in accord with the findings of both the LPAC study and the findings of children's home range studies.

The distances used to identify Areas Deficient in Natural Wildspace in many Nature Conservation Strategies and to identify Areas Deficient in Public Open Space also need to revised downwards from a quarter of a mile (402 metres) to 280 metres.

The minimum distance criterion suggested by Box & Harrison (1993) of 0.5 kilometres for identifying accessible natural areas in a neighbourhood needs to be replaced by a distance of 280 metres.

5.3 Minimum size

The smallest site-size recognised in most Public Open Space hierarchies is 2 hectares. Many natural greenspaces in urban areas are smaller than 2 hectares and in inner city neighbourhoods these small sites can make a significant contribution to the resource of natural green space.

The minimum site size of 2 hectares included in most Open Space Plans in Britain has no basis in theory but is based on practical considerations concerned with mapping and identifying sites on Local Plans. However, recently prepared Nature Conservation Strategies and the Unitary Development Plans of several London Authorities do not employ a minimum site size in their inventories and all land parcels however small have been mapped.

Although it is tempting to suggest a cut-off size below which sites are unlikely to make a significant contribution to the natural greenspace resource, empirical evidence to support such an approach is lacking.

5.3.1 Evidence from biological inventories

Several studies reviewed here suggest a positive relationship between site size and species richness for a range of urban habitat types. However, studies also reveal that site attributes other than size have an instrumental and often decisive influence on species richness, for example, disturbance history, vegetation structure and management regime.

Likewise, there is little empirical evidence for identifying a 'minimal area of the association' for urban assemblages. Even when minimal viable areas have been identified for 'relic assemblages typical of the pre-urban vegetation cover', see for example, Roberts (1994) and Duhme & Pauleit (1995) the approach is recognised to be pragmatic and arbitrary.

5.3.2 Evidence from social surveys

The 2 hectare site size recommended by Box and Harrison (1993) as the minimum target for neighbourhood provision of accessible natural greenspace, provides for sites which contain more than one habitat type. For example, sites of 2 ha may support grassland and some scrub, or open herbaceous assemblages with a small pond or stream. These are popular with adults and children alike. But it is often the sense of 'spaciousness' and not physical size which is important.

Sites smaller than 2 hectares are enjoyed especially by children and there seems little justification for ignoring children's needs when making recommendations about size criteria for identifying accessible natural greenspace in urban areas. They are major users of open spaces.

However, the disturbance to wildlife which occurs when small sites of less than 2 hectares are used regularly as play spaces and kick about areas means that it will sometimes be difficult to maintain high biodiversity on these sites. Under these circumstances it seems sensible to accept that small natural greenspaces are 'special to local communities' because they are natural and not because of scientific reasons concerned with species richness. In the context of the city, natural spaces acquire particular significance precisely because they are not the hard surfaces and artificial props provided in official play areas and recreation grounds. These artificial areas are not substitutes for natural places - even very small ones.

5.3.3 **In conclusion:** In the absence of strong biological or social evidence to suggest a size class below which sites should be excluded from an inventory of natural greenspace, we recommend a comprehensive inventory of all land parcels dominated by natural surfaces. Detailed street-by-street surveys of all natural land parcels should be carried out in inner city neighbourhoods, in suburban neighbourhoods with high residential densities, and in other neighbourhoods already recognised to be deficient in Public Open Space and Wildspace.

At the same time we acknowledge that experience with a range of inner city natural areas confirms that with appropriate management and design, sites of 2 hectares make a significant contribution to local biodiversity and can also accommodate a variety of informal uses.

Box and Harrison's suggestion of a minimum target for neighbourhood provision of 2 hectares of accessible greenspace provides an operational goal for planners and designers to work towards. Such a target may not be readily reached in many inner city or high-density residential areas, but it provides a target to work towards when negotiating and deciding upon future development proposals. Such a target could also be used as an indicator of local sustainability.

5.4 Safe sites and site size

A minimum site size of 2 hectares provides children with an opportunity to experience and enjoy more than one habitat type in a site. The preliminary findings of research in progress (Holloway in press) also suggest that sites of 2 hectares appear to provide areas with definable 'safe' boundaries within which children can explore without the need for close supervision .

As one of the very few studies to consider site size and children's experiences of natural greenspace, Holloway tentatively suggests that in sites larger than 2 hectares, extra boundaries would need be created in order to produce a series of environments which can be enjoyed safely by child and adult alike.

Identifying 'safe' natural greenspaces is a particular concern in a number of urban neighbourhoods. Research suggests that well-used natural spaces are perceived as safe sites if they are sensitively designed and lie on routes which themselves generate free pedestrian movement.

Natural spaces in housing estates and city/town centres which are poorly designed and located in cul-de-sacs or on paths or roads that are infrequently used, are not regarded as safe sites. However, on going research by Bussey, (in preparation) suggests that even wooded natural spaces are looked upon as safe sites if they lie on well-used routes and are sensitively designed and managed.

We conclude that size and distance criteria on their own are not sufficient for identifying safe natural sites. However, Box and Harrison's suggestion that provision of Local Nature Reserves should be made at the minimum level of 1 hectare/1000 population (equivalent to 10 m^2/ resident) is based on the experience of small, inner-city reserves such as Camley Street in Camden, London which combine local biodiversity with high levels of use in a well-designed and managed natural setting.

Where Sites of Local Nature Conservation Importance or Local Nature Reserves can be staffed by sympathetic rangers, these site designations have a special role to play for people who lack the confidence to use and enjoy natural areas.

In such cases, site size and distance criteria are important but a site's position in the configuration of access routes and site management and design criteria are likely to be equally important.

If accessible natural spaces in urban areas are also to be perceived as safe places , Box and Harrison's size and distance criteria need to be supplemented by the locational, design and managerial criteria detailed in the report.

6. Conclusions

The central message of this report is that the opportunity to acknowledge, conserve and create accessible natural spaces in towns and cities is enormous. But to be accessible, natural spaces have to be in the right place - within five minutes walking distance of the home, and they have to be places where individuals feel they are in control rather than feeling vulnerable to unprovoked attack. When people feel in control there is a sense that sites are 'communally owned'.

People look to local authorities to ensure that natural areas are safe. Local Nature Reserves supported by local authorities, often in partnership with other landowners and English Nature, provide one very tangible means of demonstrating what can be achieved without banishing natural spaces from the urban scene.

Accessible natural places do not have to be large - the sense of spaciousness is more important than physical size. Neither do they have to be the 100 hectare site required to support the full range of wild organisms committed naturalists would hope to see. A sense of woodland is gained for many people in wooded blocks of no more than 2 hectares and a sense of wonder, awe and inspiration is gained from even incidental patches encountered on well-frequented routes.

Accessible natural places provide the qualities of adventure and restoration which contribute much to people's health and well-being and thereby contribute most to sustainable communities.

By employing together all the criteria mentioned in 5, policies for accessible natural greenspace are seen to embrace explicitly those concerns about social equity which sustainable development policies are attempting to address.

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