# Children and the natural environment: experiences, influences and interventions

**NATURAL ENGLAND**

# Foreword

## Background

Natural England commissioned this literature review in 2009 to inform its then developing programme of work to encourage more children to engage with the natural environment. It supported Natural England's Strategic Outcome to inspire people to value and conserve the natural environment and specifically the development of Natural Connections and the One Million Children Outdoors initiatives. We hope that the experience from these initiatives along with the evidence provided in the review will be helpful to civil society and local community partnerships wishing to improve the opportunities for children to engage with the natural environment.

The review was designed to support, or challenge, a series of working assumptions about the relationship of children with the natural environment. It did this by reviewing existing literature to find empirical and anecdotal evidence; and by collecting information on a range of existing initiatives which encourage children to engage with the natural environment.

In particular the review explored the evidence relating to:

- The health, well-being and developmental benefits which derive from outdoor activities in a natural environment.
- Factors that influence decisions about children spending time outdoors in a natural environment.
- The quality of the places available for children to enjoy the outdoors.
- Opportunities for children to appreciate nature.

As well as supporting the design of delivery interventions, the review has identified research required to strengthen the evidence base under-pinning this area of work.

The University Of Sheffield.

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# Summary

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## Relationships between children and the natural environment

A series of theories have been developed to try to explain the complexities of the relationships children can have with the natural environment.  These theories can be identified as those which purport that children have a natural affinity with the natural environment; those which propose ways in which children use the natural environment and those who argue that such relationships are a result of *romantic notions*.

Children's relationship with the natural environment changes with age from the age of wonder in early childhood, through physical engagement in middle childhood, to a detachment from it with the increasing socialisation of adolescence and re-engagement in early adulthood.

Experience of the natural environment provides for a range of developmental and both physical and mental health benefits.  In some of this research there is clear evidence that the greener the space the greater the benefits.

There is some evidence which indicates that childhood experiences can influence adult values and behaviours with respect to the natural environment.

## Factors influencing children's engagement with the natural environment

The evidence reveals that children use a wide range of open spaces, often not specifically dedicated to them, which allow them to engage with the natural environment.  Within these spaces children can, and do, undertake a wide range of activities which include play, walking, cycling, nature conservation and gardening, all of which enable them to engage with the natural environment.  Over the years it appears that there has been a decrease in children playing outdoors, in spaces close to home, and an increase in play in designated spaces.  All of these can result in a decrease in opportunities for children to engage in the natural environment.

There is a culture of fear, fuelled by the media, which is underlain with fear about danger and safety, traffic, other physical hazards, litigation and negative images.  This culture of fear affects adults, but to some extent children as well, and it is not clear to what extent this is influenced by the adult fears.  The culture of fear is expressed by factors such as children not being allowed to go far from home and not being allowed to go outdoors unaccompanied.

There are also a set of social concerns for children, about being in the natural environment. These include the attitudes and behaviours of adults, both family and non family members, and other children, sometimes older and in gangs. Indoor activities, including watching television, competes with children's time with respect to spending time outdoors in the natural environment.

For many decades the quality of outdoor spaces, dedicated specifically for children, have been criticised for not being designed well and thus providing for only limited opportunities. A range of pieces of research provide evidence to the elements in the landscape which are beneficial in supporting a wide range of children's activities.

## Organisations and interventions

There is no available data to establish whether more, or fewer, children belong to youth organisations now than in previous generations, nor whether more or less children are engaged in environmental education than in the past. Some of the youth organisations have a waiting list and a shortage of leaders. Other barriers which exist to increasing activities include funding, volunteers and finding enthusiastic teachers.

There is evidence of a range of environmental, educational, youth and play organisations which are providing and facilitating events which allow children to engage in the natural environment. Most of these organisations do not keep data on numbers of children involved in their activities because they see this as less important than undertaking the activities themselves or bidding for funding for future projects. Some of the interventions identified, most notably the education and play ones, are underpinned by a range of government policy initiatives.

## The Evidence Base

Although there is evidence providing information about theories, experiences, influences and interventions about children and the natural environment there is a lack of both longitudinal studies and repeat studies which can verify changes over time within a specific population or location. In addition there are some areas where the empirical data is rather thin, such as the benefits of physical health and the natural environment. There is some literature from the medical and other fields which it has not been possible to fully address in the constraints of this review and which could be reviewed in a more in depth manner in the future.

No data sets have been identified giving comprehensive information about how many children and young people engage with the natural environment through environmental, educational, youth or play organisations although it is evident that there is an array of activities in this area, sometimes constrained by lack of volunteer leaders, inspired teachers or funding opportunities.

# 1 Introduction

## Context

This chapter will describe the scope and methodology of this review, and summarises Natural England research, policies and initiatives related to the subject of children and the natural environment. Thus it sets the context for this piece of work in light of recent research undertaken for Natural England and its precursor organisations.

### Natural England

'Natural England is the government's advisor on the natural environment, providing practical advice, grounded in science, on how best to safeguard England's natural wealth for the benefit of everyone' (www.naturalengland.org.uk). The Strategic Direction for 2008 – 2013 states that, 'Natural England is here to conserve and enhance the natural environment, for its intrinsic value, the wellbeing and enjoyment of people and the economic prosperity that it brings.' Strategic outcome 2 states that 'People are inspired to value and conserve the natural environment' and this outcome underpins this current piece of work. The work of Natural England in this area of its strategic plan has been, and continues to be, informed by evidence from a series of pieces of research which have been undertaken in recent years. Some of these are briefly outlined below, while others are referred to in the main body of the report.

### Diversity Review

A Diversity Review undertaken for the Countryside Agency, one of the precursor organisations of Natural England, was published in spring 2003. This review identified that the countryside has the potential to be socially inclusive, that there is strong anecdotal evidence of under participation in countryside activities by a range of social groups and that there is a lack of baseline data about these under-represented groups and their use of the countryside. The review also identified that there was a lack of quantitative and qualitative evaluation of the benefits of countryside experiences and that there is no central database of projects addressing countryside participation. In addition the review states that countryside recreational activity can promote social inclusion and offer many benefits and that a more integrated approach is needed to increase the use of the countryside by the identified under-represented user groups (Ward Thompson et al, 2003).

### Outdoor recreation: development of a strategy for Natural England

The initial strategy for Natural England was informed by work undertaken by the Henley Centre Headlight Vision (2005) which, in a series of papers, discussed; the demand for outdoor recreation; health and outdoor recreation; supply of places for outdoor recreation; planning for outdoor recreation and the impact of outdoor recreation. This work conceptualised outdoor recreation on a matrix of being close to home or far from home on a horizontal axis, and being planned or incidental on a vertical axis.

It identified a series of 'drivers of change' influencing the demand for outdoor recreation:

- an increasingly affluent society;
- wellbeing; reconfiguring age – that is changes to the age structure of the population;

- increased availability of information – that is the need for information in order to enjoy outdoor recreation;
- social inclusion;
- a risk averse society; and
- the convenience culture which is underpinned by people's perception that they have insufficient energy levels and time in their lives.

Barriers to outdoor recreation were identified as being:

- time pressures;
- lack of appeal of what outdoor recreation can offer;
- logistics because outdoor recreation is perceived as a hassle rather than a benefit;
- the perceived cost of outdoor recreation – especially for young families; and
- the image of outdoor recreation not being cool for children and young people while for older people there are sometimes memories of having visited with a loved one who is no longer alive.

Embedded within this work is an acknowledgement that children and young people have changing lifestyles and that there is a perception that a 'rise of household IT and communications has detracted from young people's interest in nature' (Paper 2, p 26). Indeed the changing lifestyles of children is identified in Appendix B as a significant driver of change in outdoor recreation (Appendix B, p1).

## Wild Adventure Space

An investigation into the role that the 'wild environment' can play in meeting the developmental needs of young people across England was published in the autumn of 2006 (Travlou, 2006). This explored not only research about the role that wild adventure space plays in the life of children but also gave an overview of some schemes throughout England. The projects reviewed included: urban nature (allotments, playgrounds, scrublands and derelict sites); agricultural and rural areas; forests; water bodies (rivers, lakes and ponds) and wild nature (moors, mountains and national parks). The aim was to identify non-curriculum led projects which offered freedom of choice for young people. Information was received from over 70 case studies allowing for a selection of projects, 'identifying the benefits of wild adventure space to teenagers, the benefits to the community and the barriers of accessing outdoor adventure, particularly in relation to risk, type of risk and how it is dealt with.' (Roe, 2006, p2).

## Changes in relationships between childhood and natural environments across generations

A survey about children and nature and the changing nature of such relationships across generations (England Marketing, 2009) was published for Natural England in March 2009. This involved 1150 adults and 502 children who were representative of the population of the United Kingdom and is described in more detail in section 3.2 of this report, Trends in experiencing the natural environment.

## Young people and Natural England

Natural England acknowledges that 'natural green space provides both informal and formal opportunities for young people' (Natural England, 2008). One expression of this is their campaign 'One Million Children Outdoors', launched in April 2009, which wants 'One million children to have the opportunity to enjoy nature and the natural environment'

([www.naturalengland.org.uk](www.naturalengland.org.uk)).  Suggestions as to how children can do this include conservation volunteering in the Mucking4Life campaign, going on a farm visit, visiting one of Natural England's Natural Nature Reserves, joining the Undersea Landscape Campaign or taking a healthy walk.

# Aims

## Core interests of Natural England

Nested within Strategic Outcome 2 that 'people are inspired to value and conserve the natural environment' is an objective that 'people increasingly take action to protect and enhance the natural environment'.  As part of this objective Natural England understands that as potential users and carers of the natural environment children and young people are an important part of society, both now and in the future.  This research focuses on a series of core issues, relating to how children and young people engage with the natural environment.  These issues have been identified by Natural England as:

- the quality of the places available for children to enjoy the outdoors;
- opportunities for children to appreciate nature;
- the health, well-being and developmental benefits which derive from outdoor activities in a natural environment; and
- factors that influence decisions about children spending time outdoors in a natural environment.

## Working assumptions

Natural England identified a set of working assumptions relating to these core issues and the aim of this literature review was to support, or challenge, these assumptions as themed by the research team:

- experience, familiarity and awareness of nature and the local environment is reduced compared to parents and grandparents;
- school and out of school time spent learning about and experiencing the outdoor environment is less than for previous generations;
- there are a range of benefits gained from outdoor play and experiences for children – and therefore society as well;
- there are issues relating to availability, access and physical and social constraints with respect to children and young people's use of outdoor environments; and
- habits relating to outdoor environments in childhood influence adult behaviour.

The aim of this review is to support Natural England's work in setting up a new delivery programme aimed to inspire children, young people and their families to engage with the natural environment.  In order to help shape the implementation of this programme, to support advocacy and influencing work and to inform the development of activities and interventions, the literature review will identify key facts, collate information and identify gaps in research and knowledge.

# Definitions

## Children and young people

The United Nations uses a definition that children are aged from birth to 18. (UN,1990).  For the purposes of this study children aged 5 – 18 have been considered, because these ages reflect the aims and assumptions under consideration by Natural England for this piece of work.

## The natural environment

The terms 'natural' or 'natural environment' can mean many things to different people, often depending upon factors such as their own experiences, culture and knowledge.  For the purpose of this work, the definition of the natural environment published by Natural England in their Strategic Direction Document (2008) will be used:

'*The natural environment which includes all land, flora and fauna, freshwater and marine environments, geology and soils.  It ranges from inner city gardens to farmland, remote wilderness and the high seas.*'

# Methodology

A dual approach was taken for this piece of work:

- an assessment of academic literature to find evidence to support or challenge the issues and assumptions; and
- a review of policy and practice in order to explore the core issues and working assumptions.

In the main, the core issues were addressed by looking at academic literature, with a focus on literature from research in England where this was possible.  The search focused on identifying 'hard' evidence which was based upon empirical research.  However much of the evidence found was in fact anecdotal, rather than empirical.  A variety of key pieces of literature and known literature reviews already exist which are of relevance to this work and identifying and using these was one method of accessing academic literature.  Such documents include those produced by, or on behalf of, organisations such as Natural England, CABE Space, RSPB, Play England, Playwork Partnerships and the OPENspace Research Centre at Heriott Watt University.

To support the academic literature a series of organisations were identified as being appropriate to contact because of the expectation that they might hold information relevant to either the core issues or the working assumptions.

## Keywords and Search Tools

A series of key words for searching academic databases were agreed.  These included individual words, word combinations and key phrases around the words and meanings of the words children, young people, nature and natural environment.

## Databases

Academic literature was sourced using the University of Sheffield abstracting databases including SCOPUS and Web of Knowledge.  These revealed a large quantity of literature, not all

of which was able to be followed up because of the timescale and resources available for the project.

**Organisations**

A variety of organisations were identified as possibly holding information about the working assumptions about children, young people and the natural environment. A series of outline questions was developed in order to facilitate a semi-structured approach to telephone interviews. In some instances the questions were then emailed to an organisation so that the appropriate person could respond to the questions. In a few cases a response was not received and information was used about an organisation from its internet site.

# Limitations

As with any research or literature review there are limitations to this work as a result of the limited resources and timescale available. There is a wide range of literature available about the complex relationships children and young people have with the natural environment and this review has not been fully comprehensive or exhaustive. Thus the following issues in particular are acknowledged as not being covered by this piece of work:

- contact with animals - this specific subject has a vast quantity of publications;
- issues of rural versus urban and urban versus suburban, although this is touched upon briefly in the text;
- differences between girls and boys: recent studies argue that the gap between genders seems to be narrowing ( see ref. in Lester and Maudsley, chapter 2.4, 2006);
- differences related to ethnic minorities, social background and children's physical and mental abilities: little hard evidence exists in these subject areas and there is a need for further investigations see Playing Naturally (Lester and Maudsley, 2006, chapter 2.4);
- Wilderness/Adventure Therapy for Youth-at-Risk: see Wild Adventure Space for Young People, (Travlou, 2006, pp15-19); and
- access to the beach or seaside – this has not been addressed in previous literature reviews and the resources did not allow for an exploration of this subject area.

# Report structure

Most of the academic literature which has been accessed for this report is not new and has been reviewed for other pieces of work, although with a different focus. This report is structured to respond to the core issues and working assumptions identified by Natural England to support their future work.

Thus sections 2 of the report first of all draws upon the academic literature exploring relationships between children, young people and the natural environment. It explores theories and then issues relating to social variations in engagement with the natural environment before moving on to discuss some of the developmental and health benefits of the natural environment for children.

Section 3 starts by discussing the types of open spaces children use and the activities they undertake in those spaces, which support engagement with the natural environment. It then moves on to discuss issues which influence children and young people's engagement with the natural environment, including the culture of fear. Finally this section explores what a good

quality external environment, providing opportunity for engaging with the natural environment might include.

The report moves on, in section 4, to discuss some of the interventions which support children and young people's experience with the natural environment. The investigations have revealed a series of environmental, educational, youth and play organisations and a range of activities which facilitate children's experience with the natural environment. Some of these are underpinned by government policy and some are supported by funding from commercial and business sectors.

Section 5 brings together conclusions and possible future research before references in section 6. Section 7 provides two appendices. The first includes a summary of aspects of the key evidence from England while the second acknowledges individuals and their organisations who responded to the research team's request for information.

# 2  Relationships between children and the natural environment

Section 2 looks at the evidence about children and the natural environment.  It begins with an explanation of some of the main theoretical concepts before moving on to explore how social issues, specifically age, is affected by engagement with the natural environment.  The section then discusses some of the developmental, and health benefits of the natural environment before exploring how childhood experiences of the natural environment influence values and behaviours in adult life.

## Theoretical approaches

Much of the literature reveals that relationships between children and the natural environment do not consist of a single entity or experience, but are the result of a complex inter-relationship of factors.  Over the years numerous researchers have sought to understand these complex relationships between children and the natural environment.  Some have argued that children have a natural affinity with nature (Moore and Wong 1997, Kellert 1996), while others have sought to understand these complex relationships by developing theories, a summary of which is shown in table 1.

**Table 1: Theories about relationships of children and the natural environment**

| Theories | Brief description | Reference |
|---|---|---|
| The Ecological imagination of childhood | Children have a sense of continuity with nature: they enjoy, learn, experiment, create and find their own identity. | Cobb (1977) |
| Biophilia hypothesis | Contact with nature is an innate, genetically based humane need. | Wilson, (1984), Kellert, S. R. (1997), Kellert and Wilson(1993), Ulrich (1993), Verbeek and de Waal (2002) |
| Ecopsychological approach | Children are born with an innate sense of having a relationship with their environment. | Phenice and Griffore (2003) Thomas and Thompson(2004) Thompson (2005) |
| Theory of affordances | Children see opportunities to use the landscape in a way that it may not have been specifically designed or managed for. | Gibson (1979) Clark and Uzzell (2006) |
| Phenomenal landscape | How the landscape is used and experienced. | Hart (1977); Hart (1979)Moore and Young (1978); Moore (1986) |
| Prospect and refuge theory | People like the opportunity to look out in the landscape and also to have a space they can be in. | Appleton (1975) |

There are others who argue that some of the assumptions about children and natural environments are a result of *romantic notions*, which are not always related to children's real perceptions and experiences (Aitken, 2001; Matson, 2001; Ward, 1990). Such romantic or nostalgic perceptions of nature are considered by some to be the result of a biased recollection of idealised experiences (Aitken and Herman, 1997; Clark and Uzzell, 2006).

## Social variations: a focus on age

O'Brien et al. (2002) have suggested there are both local and global issues influencing children's relationships with the natural environment. Local issues are described as a complex web of connections including gender, ethnicity and family culture, while global issues are identified as including the nature of urban living and relationships between generations. However there are limited publications with empirical evidence which address differences of children's engagement with the natural environment across these social variations of gender, ethnicity and family culture. These limited studies include discourses about children from ethnic minority backgrounds (Morris, 2003), children from different social backgrounds (Kuo and Sullivan, 2001) and children with different abilities (Dunn and Moore, 2005). Societal changes and technical progress also have an effect on the relationship of children and nature and there is need to take into account the increasing use of virtual environments (Heeragen and Orians, 2002)

However one social variation which does seem to reflect itself repeatedly in the literature is that of children's different experiences of the natural environment with age. Any work about children's ages cannot be fully prescriptive, due to the fact that children's abilities and development vary between each other. However there is little research about how children experience the natural environment according to ability. Therefore the following discussion will focus on ways in which children experience the natural environment at different ages. This section of the literature reflects that at different ages children have different types of relationships with the natural environment.

Piaget 's theory of intellectual development (1963) is one of the work's referred to in Hart and Moore's studies of children's experience of the environment (Hart, 1979; Moore,1986). Three age ranges described in Hart (1979, pp. 380-384) are:

- the 'intuitive or preoperational' period (2-7 years old);
- the 'concrete operational period' (7-12 years old); and
- the 'formal operational  period' (12 upwards).

Bateson and Martin (1999) also identified three stages in their 'Evolutionary process of the perception and experience of nature throughout childhood'. These correspond closely to the same age groups above and are described as:

- 'Natural attraction or connection' with the natural environment;
- 'Physical engagement' with the natural environment;
- 'Detachment' from the natural environment with the development of socialisation.

Others have stated that 'children's environmental behaviours show evidence of specific adaptations to enduring challenges and opportunities, from birth through reproductive age', (Heeragen and Orians, 2002 p.31) and that children experience a 'sense of wonder' in early childhood which is transformed into a 'sense of exploration' in middle childhood (Sobel, 1990).

The importance of 'secret or special places' in the natural environment has also been identified for younger children (Thomas and Thompson, 2004).  The distinction in relationships with the natural environment between childhood and adolescence has been described thus:

> '*There is a special period, the little understood, prepubertal, halcyon, middle age of childhood, approximately from five or six to eleven or twelve – between the strivings of animal infancy and the storms of adolescence – when the natural world experienced in some highly evocative way, producing in the child a sense of some profound continuity with natural processes and presenting overt evidence of a biological basis of intuition.*'(Edith Cobb,1969, pp. 123-124 quoted in Altman and Wohlwill, 1978, p.9)

There is increasing evidence that the adolescent stage of development results in a completely different relationship with the natural environment, than for children of a younger age.   Over a period of years an increased need for social interaction and retreat, more related to social opportunities, has been confirmed as part of the adolescent stage of development (Gibson, 1978; Clark and Uzzell, 2006).  Another study exploring preferences of different age groups identifying that teenagers have a different experience of nature than younger children and adults, concluded that '*there is a 'time out' in preference for natural environments during the adolescent years.  This does not mean that adolescents dislike nature but rather that nature settings do not hold the powerful pull for teens that they do for those younger or older*' (Kaplan and Kaplan, 2002 p. 252). The Kaplans conclude that there does not seem to be a natural attraction to nature for teenagers but their prime interests include socialisation with their peers, action and excitement (Kaplan and Kaplan 2002).

There is also some evidence that after the age of 19 young people begin to re-engage with the natural environment.  Thus the teenage years can be understood as a break with nature (Kaplan and Kaplan, 2002) with the engagement then continuing in to adult life.  This leads to a discussion about the influence that childhood experiences of the natural environment have on adult values and behaviours is addressed in section 3.3 of this report.

## Developmental benefits: Is regular outdoor play good for the development of cognitive and social skills?

Froebel stressed the importance of the environment for the development of children and proposed a system of education, 'which centred on learning though experience, or learning from the environment' (1826, in Holme and Massie, 1970).  Since Froebel many scholars have argued that children's engagement with the natural environment is essential to children's physical, emotional and educational needs.  Lady Allen of Hurtwood, a Landscape Architect and campaigner for children's rights (Lady Allen of Hurtwood, 1968) asserted that direct and indirect contact with nature is an important part of human physical, emotional, intellectual and even moral development.

> '*It is too often forgotten that small children, like older children of school age, need a place where they can develop self-reliance, where they can test their limbs, their senses and their brain, so that brain, limbs and senses gradually become obedient to their will. If, during these early years, a child is deprived of the opportunity to educate himself by trial and error, by taking risks and by making friends, he may, in the end, lose confidence in himself and lose their desire to become self reliant. Instead of learning security, he becomes fearful and withdrawn'.*(Lady Allen of Hurtwood, 1968, p.14)

Edith Cobb's (1977) complex study of the relationship between children and nature, argues that 'the ecology of imagination in childhood' explains how the child, in symbiosis with nature, engages in the process of adapting, giving and taking.  Roger Hart's 'Summary of the literature on Children's experience of place' is a good introduction to key texts (Hart, 1979) and is complemented by more recent publications related to children and the natural environment (including Moore, 1986; Kahn and Kellert, 2002; and Spencer and Blades, 2006).

**Table 2: Relationships between the natural environment and children's cognitive and social development**

| Development benefit | Description | References |
|---|---|---|
| Motor co-ordination and concentration | Better co-ordination and concentration abilities for children in a more natural day care setting than those in a less natural setting | Grahn, Martensson, Linblad , Nilsson and Ekman (1997) |
| Cognitive: reduce the decline of the abilities in terms of Piagetian model of development | 'Ability to experience how the world works in practice and to make informed judgement about abstract concepts' (Travlou, 2006,p. 7) | Faber Taylor and Kuo (2006) |
| Social | Increase self-esteem and sense of self, sense of personal autonomy, interpersonal skills | Faber Taylor and Kuo (2006, pp.126-131) Kellert and Derr (1998) Kaplan and Kaplan (1989) |
| Behaviour | Improved behaviour in the form of self-discipline index was higher for girls living in apartment with a greener view; no positive effect on boys. | Faber Taylor and Kuo (2006, pp.130-1) Faber Taylor et al (2001) |

More recently a series of literature reviews undertaken for the Government, the Children's Play Council and then Play England have confirmed that play, in the outdoors or natural environment, has many benefits for development of cognitive and social (Cole Hamilton et al., 2002; DCMS, 2003; Lester and Maudsley, 2006).  In addition some of this literature has been included in the RSPB literature review *Natural Thinking* (Bird, 2007) which links some aspects of child development with children's mental health.  Some of this evidence about the developmental benefits for children of experience of the natural environment is brought together in table 2.

## Health and well-being benefits: Is regular outdoor play good for health?

The United Nations defines health as consisting of three aspects: physical, mental and social.  A variety of research has explored the benefits of play and being outdoors for children's physical and mental health in particular.  However it is not clear how much of these benefits are from the play or activity, or the play or activity being undertaken in the outdoors, or natural environment.  Much of the research has not identified the location of the activity as a separate variable.  Some of this research is brought together in *Health, Well-Being and Open Space* (Morris, 2003).  In addition there is a constructive and very informative review of research about children and the natural environment and health issues in the two documents *Natural Fit* (Bird, 2004) and *Natural*

*Thinking* (Bird, 2007) both produced and published for the RSPB. More recently a review was published on behalf of the Sustainable Development Research Centre, supported by the Forestry Commission, entitled *Children in the Outdoors: a literature review* (Munoz, 2009).

Some of the issues from *Natural Fit* and *Natural Thinking* relate specifically to the health of children and young people and the benefits available from engaging with the natural environment. There is concern about children's health in England as levels of obesity rise with the potential for the associated risks of coronary heart disease and diabetes. Natural Fit reminds the reader that the Government has an aim that all children should undertake 30 minutes of moderate activity five times a week. Moderate activity is identified as including brisk walking, cycling, swimming, undertaking nature conservation or gardening, although previous definitions of moderate exercise have included sports and activities such as swimming, football, tennis and gymnastics; active play, that is playing active games, running about, riding a bike and kicking a ball; walking and housework or gardening (Department of Health, 1998). The aim of increased levels of activity for children is contrasted with the evidence that girls become increasingly inactive, compared with boys, between the ages of about 9 and 16 (Department of Health, 1998). Natural Fit also comments on the fact that '*there is very strong evidence that being outdoors is the most powerful correlate of physical activity, particularly in pre-school children*' (Baranowski et al., 1992). If physical activity is one of the drivers to increasing the health of children in England then logic suggests from the evidence available that children should be spending more time outside in order to have opportunities for undertaking moderate activity.

*Natural Thinking* reminds the reader that an earlier study revealed that the United Kingdom was 21$^{st}$ out of 25 European countries with respect to children's wellbeing (Singleton, 2000). Natural Thinking also confirms that 1 in 10 boys and 1 in 18 girls aged 5-10 years old together with 1 in 8 boys and 1 in 10 girls aged 11-17 years old have a diagnosed mental health condition. The report continues with a range of evidence about the benefits that experience with the natural environment offers to children and young people.

Drawing upon some of the above, and other literature, table 3 provides a summary of the physical health benefits provided for children and young people by engagement with the natural environment.

**Table 3: Physical health benefits of engagement of children with the natural environment**

| Evidence: Physical health benefits | References (*hard evidence from England) |
|---|---|
| Development of gross and fine motor skills developed | *Moore, (1986), Moore and Wong, (1997); Ebberling et al, (2002); Mackett and Paskins, (2004). |
| Improved motor fitness, especially balance and co-ordination | Fjortoft, (2004) |
| Improved physical skills | O'Brien and Murray (2007) |
| Obesity reduced with increased physical activities | Bar-Or, O. and Baranowski, T. (1994) |
| Reduce blood pressure | Craig et al (1996) |

The evidence about the benefits of contact with the natural environment and improvement in mental health of children has been repeatedly identified across a range of literature, much of it from America or Scandanavia, with little of it being from England or the United Kingdom.

Underpinning much of this work is one of the most acknowledged theories about the mental health benefits of the natural environment, the 'Attention Restoration Theory'. This was first developed by the Kaplans (Kaplan and Kaplan, 1989, 2002) but has now been supported by over 100 studies (Bird, 2007). Four qualities of *being away* from a day to day routine, *fascination*, a feeling of *extent* allowing exploration and a *compatibility* with expectations. This theory has been developed further to specific medical conditions such as Attention Deficit Disorder in children (Faber Taylor et al, 2001) and the benefits of natural environment to limit the effect of stress on children (Wells, 2000; Wells and Evans, 2003).

Of these pieces of research the evidence about children, ADD and the natural environment is perhaps most worthy of comment, in light of the fact that 5-10% of school children in the United Kingdom are affected by it (ONS, 2000). The research about this has revealed that children undertaking activities in outdoor natural environments present with symptoms improved by 30% lower levels compared with urban outdoor activities and three fold compared with activities in the indoor environments (Faber Taylor, Kuo and Sullivan, 2001). Subsequent to this an investigation was undertaken as to whether Attention Deficit and Hyperactivity Disorder symptoms were influenced by the greenness of a child's play in the previous week. Greenness was assessed by the amount of grass and tree cover in which a child played and the research revealed a significant decrease in symptoms when a child was exposed to greener areas (Kuo and Faber Taylor, 2004).

A summary of the mental health benefits children and young people can experience as a result of engagement with the natural environment is shown in table 4.

These health benefits may not only be evident in childhood. Positive links between outdoor play in natural settings during childhood and mental health and well being in young adulthood have been identified by Bingley and Milligan, (2004).

**Table 4: Mental health benefits of engagement of children with the natural environment**

| Evidence: mental health benefits | References |
|---|---|
| Improve capacity to concentrate or pay attention | Kaplan and Kaplan (1989, 2002)<br>Grahn et al. (1997)<br>Hartig (1991)<br>Wells (2000)<br>Faber Taylor et al (2001)<br>Kuo, Faber Taylor (2004)<br>Faber Taylor and Kuo (2006) |
| Parents report reduction in Attention Deficit Disorder symptoms | Faber Taylor, Kuo and Sullivan, (2001) |
| Increased greenness has reduced Attention Deficit Hyperactivity Disorder symptoms | Kuo and Faber Taylor, (2004) |
| Reduce stress and anxiety | Faber Taylor and Kuo (2006)<br>Wells and Evans (2000) |
| Self regulation when social pressures become too much | Kaplan and Kaplan (1989)<br>Clark and Uzzell (2006) |
| Environments for retreat, enable the individual to be alone, recover from stress and escape from the daily constraints | Kaplan and Kaplan (1982, 1989) Ulrich 1983, Korpela (1992) |

# How childhood experiences of the natural environment influence adult values and behaviours

There seems to be a consensus that childhood experience of nature has a major impact on adults' values and behaviour towards the natural environment and various pieces of evidence confirms this.

Some academics have attempted to theorise the development of adult values and behaviours with respect to people's childhood relationships with the natural environment. Kahn (in Kahn and Kellert, 2002) refers to the 'structural-developmental theory' (Kohlberg, 1969) to explain children's affiliation with nature. This theory, also referred to as 'constructivist, social cognitive, or structural interactional', suggests that: 'through interaction with a physical and social environment children construct conceptual understandings and values' (p.94). Kahn concludes that:

> '*Children construct rich and varied conceptions and values of the natural world, and they do so even in economically harsh urban settings. But as we degrade the environment, often for material gains, we are destroying the wellspring of our children's psychological constructions'*.

Kahn (in Kahn and Kellert, 2002) also suggests a theory of 'environmental generational amnesia' whereby people measure environmental degradation in relation to the environment they knew from their childhood. Thus Kahn argues that environmental education is essential to 'maximise their exploration of and interaction with the nature that still exists' (p.113) to avoid 'environmental generational amnesia' and preserve the natural environment. Issues relating to environmental education and other interventions will be discussed in section 4.

Values about the natural environment can be seen to underpin behaviours in adult life. One expression of valuing the natural environment can be considered to be the attribution of a green space as being a 'magical place' by adults, in research undertaken in a study of communities in the East Midlands (Bell et al., 2004). In this research those who had visited green spaces frequently, that is daily or weekly as a child, valued these spaces as magical places in their adult life. Others have identified that adolescents who had played in wild environments earlier in life 'had more positive perceptions of natural environments, outdoor recreation activities, and future indoor/outdoor occupational environments' (Bixler et al., 2002).

Behaviours can be understood as activities which an individual undertakes. A study in Scotland identified that those who visited woodlands frequently as a child were more likely to visit woodlands as an adult (Bell et al., 2003). Perhaps one of the most significant behaviours an adult can take is their choice of job, career or profession. An exploration of whether childhood experiences of the natural environment influence adult work choices was undertaken by Pyle who asked an audience of 300 managers, scientists, rangers, engineers, teachers and activists:

> '*whether they can remember a particular place where they made early contact with the land as boys and girls'; all hands flew up and 'the participants showed pleasure, excitement, and even reveri to be invited back into their childhood haunts – the very places that lured them into their current professions and involvement with watersheds*'. Pyle (2002, pp 306-307).

Table 5 summarises some of the evidence which has revealed how childhood experiences of the natural environment can influence adult values and behaviours.

**Table 5. Childhood experiences of the natural environment influence adult values and behaviour**

| Evidence: childhood experience of natural environment influences adult values and behaviour | References |
|---|---|
| Frequent visits to green spaces as a child resulted in valuing these spaces as a magical space in later life | Bell et al., (2004) |
| Playful, experiential and interactive contact with nature is directly correlated with positive environmental sensibility and behaviour late in life | Lester and Maudsley, (2006) |
| Childhood experiences of nature play are crucial in an individual's sense of connectedness with nature later in life | Sobel, (1990); Hansen, (1998); Bixler et al (2002) |
| Contact with natural environments enables a better understanding of life and its meaning | Hart, (1997) |
| Frequent visits to woodland as a child meant individuals were more likely to visit woodlands in adult life | Bell et al., (2003) |

One piece of work in particular identified differences in drivers between attitudes, or values, and behaviour. Thus Wells and Lekies concluded that:

> '… *childhood participation with nature may set an individual on a trajectory toward adult environmentalism. Specifically, childhood participation in ''wild'' nature such as hiking or playing in the woods, camping, and hunting or fishing, as well as participation with ''domesticated'' nature such as picking flowers or produce, planting trees or seeds, and caring for plants in childhood have a positive relationship to adult environmental attitudes. '''Wild nature'' participation is also positively associated with environmental behaviours while ''domesticated nature'' experiences are marginally related to environmental behaviours.* '
> Wells and Lekies (2005, p.1)

# Summary of evidence about children's relationships with the natural environment

## Theories

Many academics have identified that the relationship between children and the natural environment is a complex one. A series of theories have been developed by academics in order to try to explain these complexities. These theories can be identified as three types:

- those which propose that children have a natural affinity, or innate relationship, with the natural environment;
- those which propose ways in which children see opportunities in the natural environment and use them; and
- those which argue that assumptions about children and the natural environment are a result of *romantic notions*, not always related to the reality of an experience.

## Social variations: age as a consideration

It is widely acknowledged in a range of academic research that children's experience with the natural environment changes with age. These changes can be identified as happening across four main age groups which can be summarised as:

- early childhood: age of wonder;
- middle childhood: age of physical engagement;
- adolescent/teenage years: age of detachment as a result of increasing socialisation; and
- post 19 years old: age of re-engagement, leading to adult values, attitudes and actions.

## Cognitive and social development

A range of literature has identified that cognitive and social skills are developed, increased or enhanced by experiences with the natural environment. The skills developed include interpersonal skills, self esteem, sense of personal autonomy, and, especially for girls, self-discipline. These pieces of research relate to children of a range of ages: pre-school children, children of middle years and children of adolescent age.

## Physical and mental health benefits

The evidence about the physical health benefits of engagement with the natural environment for children is to some extent limited. However, being outdoors is widely acknowledged as providing opportunities for moderate exercise and this is turn aids the physical health of children.

The evidence about the benefits of experiencing the natural environment for mental health is, if anything, stronger. The benefits have been shown to include:

- a reduction in, and recovery from, stress and anxiety;
- improved capacity to concentrate or pay attention;
- self regulation when pressures become too much; and
- reduction in ADD symptoms.

In some of this research there is clear evidence that the greener the space the greater the benefits, although none of the research identifies an optimum level of 'green-ness'.

## Childhood experiences influence adult values, behaviours and actions

In recent years there has been some research which provides evidence that children engaging with the natural environment can influence values and behaviour in adult life. In particular the evidence reveals that:

- children who visit green spaces frequently attach value to these spaces as an adult;
- children who visit woodland frequently are more likely to visit woodland in adult life;
- childhood experiences of the natural environment can influence adult decisions about jobs/careers/professions.

# 3   Factors influencing engagement between children and the natural environment

This section explores some of the factors which can influence children's access to and engagement with the natural environment.  Initially the section explores the types of places children use in the outdoors and some of the activities they can or do undertake which facilitate engagement with the natural environment.  Then the section addresses assumptions such as whether children are allowed outside less than previous generations, whether they are allowed outside alone and how far they can go.  There is a discussion about the factors which influence such decisions.

## Outdoor spaces for engaging with the natural environment

For more than forty years various researchers have studied children's use of the outdoor environment.  These studies have repeatedly revealed that there is a wide range of outdoor spaces in urban, semi urban and rural locations, in which children can and do experience the natural environment.  Although these pieces of research repeatedly reveal that children use a variety of outdoor spaces, no trends across the years or with respect to urban, semi urban or rural locations, or by age or gender can be identified because of the variety of contexts within which the different pieces of research have been undertaken.  None of the research has had a longitudinal methodology, neither have any of the studies been repeated.  However, despite this it is very clear that children will use outdoor spaces they want to use and that very often these are not spaces which have been designated for them to use.  They see the opportunity – or affordance – for what they want to do and do it.

The research identified includes work from the 1960s in 12 housing estates in England (Hole, 1966); a study in Stevenage and Southwark in the 1970s (Holme and Massie, 1970); a study involving 50,000 observations on 15 housing estates across England in the 1970s (Department of the Environment, 1973) and a study of children on a housing estate in the 1990s (Wheway and Millward, 1997).

A summary of some of the outdoor spaces, identified as used by children in these English studies is shown in table 6.  Many of these spaces provide children opportunities for experience of the natural environment, to some extent or another.

**Table 6: Outdoor spaces children use which provide opportunities for experience of the natural environment**

| Reference (* hard evidence from England)<br><br>Type of space | *Hole (1966) | *Holme and Massie (1970) | *DoE (1973) | *Valentine and Mc Kendrick (1997) | *Wheway and Millward (1997) | *Matthews et al.(2000) | Gleave (2008) |
|---|---|---|---|---|---|---|---|
| Street/road or pavement | no% | no% | 28% | 25% | no% | 42% | 28% |
| Designated play area | no% | no% | 8% | 7% | | 34% | no% |
| Garden | no% | | 7.5% | 45% | | | |
| Parks | | no% | | | | | |
| Balcony/stairways | | | 33% | | | | |
| Grassed area | no% | | 8.5% | 15% | | | |
| Paved area | no% | | 24% | | | | |
| Housing areas | | no% | | | | | |
| Paths around estate | | | | 10% | no% | | |
| Car parks | no% | | | | | | |
| Wild area and waste land | | | 8% | | | | |
| Unorthodox areas (garage/roofs) | | | 3% | | | | |
| Planted and other areas | | | 4% | | | | |
| Near lakes and ponds | | | | | | 4% | |
| Woods and fields | | | | | | 3% | |

In addition Robin Moore, in his seminal book *Childhood Domain* (1986), contributed to the understanding that children will use a variety of outdoor space for their outdoor activities, which included the 'flowing terrain', 'habitats around the home', 'parks and playgrounds',' greens' and 'rough ground and abandoned places'.

There is some research which has focused on specific types of spaces such as gardens and courtyards or woodlands.   Thus research undertaken in California and Norway revealed that private gardens provide opportunities for experiencing the natural environment with these spaces developing special meanings for the children as they grew up (Francis, 1995).  Other research has revealed that children's experiences in communal gardens and courtyards, which might include vegetation, are important for relationships with adults, as well as the natural environment (Rasmussen, K. 2004).  Several pieces of research have studied children and their relationship with woodlands.  A study in Sheffield revealed that children perceived woodland as fun, with potential for different types of activities (Crowe and Bowen, 1997).  Others have identified that such spaces offer greater freedom and flexibility with the children involved preferring wood and trees for 'their capacity to facilitate imaginative play' and as places to avoid parental supervision (Bell et al. 2003; Ward Thompson et al. 2004).  It is also considered that

natural woodlands and urban forests provide high quality opportunities where children and young people can engage more independently in challenging outdoor activities enabling a greater engagement with and appreciation of the natural environment (Harrop, 2002, 2006).

There have been suggestions that because many children grow up in cities opportunities for contact with the natural environment are mainly achieved through urban green spaces and school playgrounds (Katz and Kirby 1991; Lucas 1995).  However these pieces of work are not based upon empirical evidence in the way that the evidence provided in table 6 is.  One type of space which evidence says is used is what can be called incidental spaces.  The importance of these 'unkempt' spaces, such as derelict land and marginal spaces, was stressed in a study of children's preferences in Fife Scotland (Ross, 2004).  Often such spaces are under threat because their benefits are not understood and taken into consideration by decision makers and developers (Kellert and Kahn, 2002).

From this raft of research it can be seen that children use a wide range of different types of outdoor spaces for engaging with the natural environment.  One way of understanding these spaces is in a typology from a user's point of view which identifies domestic, neighbourhood and civic spaces (Woolley, 2003).  Domestic open spaces are deemed to include private gardens, community gardens, housing areas and allotments.  Neighbourhood open space include parks, playgrounds, playing fields and sports pitches, school playgrounds, streets and city farms and incidental spaces.  Civic spaces are deemed to include commercial, health and educational, transport and recreational spaces.  Some have made a distinction between 'formal public space', which is expected to be well managed and 'community space', which might be less contrived (Worpole, 2003) or identified that children like to use 'slack space' (Neuberger, 2003).  The need to provide a wide range of spaces for children to engage with the natural environment is also stressed by others (Moss and Petrie, 2002; Gill, 2005; Children's Play Council, 2006).

Current policy in England supports the use of the typology proposed in Planning Policy Guidance 17.  This identifies different types of open spaces as: parks and gardens; natural and semi-natural green space, including urban woodland; green corridors; outdoor sports facilities; amenity green space; provision for children and young people; allotments, community gardens and urban farms; cemeteries, disused churchyards and other burial grounds and civic spaces.  This typology is a mixture of types of spaces with 'spaces for children and young people' as a specific category.  Considering the available evidence it is clear that a planning typology which identifies only one type of space for children and young people does not reflect the reality of what happens on the ground.

## Types of activities for engaging with the natural environment

Having identified that there are many different types of outdoor spaces in which children can experience the natural environment some consideration will be given to the types of activities which children can take part in to engage with the natural environment.

A range of understandings exist with respect to how children can and do use the natural environment.  Moore and Young identified a contradiction 'between the overwhelming affective presence of the outdoors in children's minds and emotions, compared to its more modest actual use' (Moore and Young, 1978).  Some have claimed that 'unstructured play is the principle way through which children and young people engage with nature, appropriate the outdoors and enjoy the different benefits from the outdoors experience (Travlou, 2006).  Such outdoor activities might include 'play' in different physical settings or with different relationships with adults.  A contemporary expression of this, developed for Play England, is shown in table 7.

**Table 7: The play place grid** (Local Play Indicators, Play England, 6 August 2008)

| | Supervised and semi-supervised e.g. | No formal supervision e.g. |
|---|---|---|
| **Designated places for play and informal recreation** | Adventure playgrounds<br>Open access play centres<br>Play ranger and outreach play projects<br>School playgrounds (out of hours) | Playgrounds/play areas<br>Bike, skate and skateboard facilities<br>Multi-use games areas<br>Hangout/youth shelters |
| **Non-designated places for play and informal recreation** | Park rangers and gardeners<br>Streets with wardens | Streets<br>Neighbourhood open spaces<br>Parks and green spaces<br>Beaches, rivers, lakes<br>Routes to school and play areas<br>Playing fields and recreation grounds |

However, such definitions of play do not fully explain the complexity of the experiences and explorations which children have in the natural environment: a good example of which can be found in Moore's (1986) study. This revealed the wealth and complexity of the activities that children undertook in different physical settings allowing for engagement with the natural environment. He identified that the 'flowing terrain', or 'pathways' facilitated physical activities such as skipping, jumping and hiding with opportunities for 'playing along the way', 'harvesting found objects' and for children in more natural environments 'to catch butterflies, fishes, frogs and water rats'. Parks and playgrounds were identified as having the possibility of extending and diversifying children's behaviour (p 114), while 'adventure playgrounds encourage environmental participation by concentrating the interactive qualities in one place' (p 137). Moore also identified that some of the opportunities of 'greens' related to the elements at their edges such as blackberry bushes for picking berries, overgrown banks for playing hide and seek and trees to climb in. Rough ground and abandoned places were identified as accommodating a range of activities not usually found in parks and greens, such as fire making, excavating, manipulating water courses, climbing trees, sliding down banks, observing and collecting small animals, making 'camps', 'dens', 'hideouts' and 'clubhouses' and 'messing around' (p 160).

In addition to the information provided by the play place grid and the explanation of the complexities of children's experiences provided by Robin Moore it must also be remembered that many of the health driven 'moderate exercise' activities of mentioned in section 2.4, take place in the outdoors and provide opportunities for children to engage with the natural environment.

# Trends in experiencing the natural environment

Some have postulated that there is a popular impression that children's relationship with the outdoors displays a 'declining opportunity for unmediated outdoor play and access to natural spaces' (Valentine and McKendrick, 1997). There is an issue in verifying this because there have been no longitudinal studies which have replicated research in one location. If such a study did exist there might be so many variables outside the control of the researcher that a true scientific comparison might be difficult to undertake. However, what is clear is that there have been changes to the culture of childhood and to the cultures, opportunities and controls that

children and young people live and play in which have had an impact on their use of the natural environment.

Research, undertaken in Amsterdam and using oral histories, statistical, archive research, and observations, compared children's use of outdoor urban space during the 1950s and early 1960s with the early 21st century. This research concludes that a variety of issues have changed during these years, including that:

- the street space that used to be a space for children has been transformed into adult space;
- private home space, which used to be dominated by adults' activities, has become a child's space;
- there has been a decrease in playing outdoors and an increase of adult supervision;
- new children's activities have emerged outdoors and indoors; and
- inequality by class has become more manifest (Karsten, 2005).

Changes to childhood have been identified in other parts of the world and with respect to the United States such changes have been hypothesised as:

- direct contact with nature to an increasingly abstract and symbolic experience of nature;
- routine and daily contact with animals to contact with things;
- immersion in community to isolated individualism;
- less violence to more violence, much of it vicarious;
- direct exposure to reality to abstraction and virtual reality; and
- a relatively slow pace of life to a fast pace of life. (Orr, 2006. P 291).

Some insights into what childhood experiences with the natural environment were like in the past are provided by adults' personal reflections on their own childhoods. These reflections are sometimes accompanied by a desire that their own children might have similar relationships that they had with the natural environment. Thus some parents have commented that 'children's safety has deteriorated since they were young and that as a consequence their children are missing out on social and play opportunities', (Valentine, 1997, p70). One example of this is expressed thus:

> '*All parents emphasised what they saw as a direct relationship between good health and playing outdoors. Often they referred to their own childhood and recalled their own enjoyable memories of outdoor play, regardless of whether they grew up in a city or elsewhere. They want to give their children the same positive experience that they had themselves.*'
> Karsten and van Vliet (2006, p.154)

However, personal reflections and remembrances alone do not provide evidence of trends and so other research findings will now be discussed. Some individual pieces of research have identified specific issues which have changed over the years and some of these are mentioned below. One of these issues is whether children are actually allowed to go outside and some of the changes recalled in different pieces of research are indicated in table 8.

**Table 8: Changes in outdoor experiences over time**

| Evidence of change | Reference (* hard evidence from England) |
|---|---|
| 8% of parents allowed their children out to play more than they were allowed as children; 32% of parents allowed their children out the same amount as they were allowed as children; 60% of parents allowed their children out less than they were allowed as children. | *Valentine and McKendrick (1997) |
| 71% of adults played in the street or near home daily as children; 21% of children today play in the street or near home daily; | Lacey (2007) |
| 70% of adults experienced most adventure play in the natural environment; 29% of children today play in more designated spaces. | Gleave (2008) |
| Less than a quarter of children use their local 'patch of nature' once or twice a week compared to over half of the adults when they were children | *England Marketing (2009) |

Another aspect which has changed over the years is that of children's patterns of travel, and whether they are allowed to do certain activities on their own. A key piece of work in this field is that of Hillman and Adams (1992). Their examination of data revealed considerable changes in children's patterns of travel over a period of twenty years. As can be seen in table 9 some of these changes are dramatic and resulted in the authors concluding that ''The personal freedom and choice' permitted a typical 7-year-old in 1971 are now not permitted until children reach the age of about nine and half.'

**Table 9: Patterns of children's travel over a twenty year period** (from Hillman and Adams, 1992)

| Pattern of travel, Junior school children (Hillier and Adams, 1992) (hard evidence from England) | | 1971 % are approximate and based on the original diagrams | 1990 % are approximate and based on the original diagrams |
|---|---|---|---|
| Crossing the road on their own | Aged 7 | 45% | 20% |
| | Aged 8 | 62 % | 22% |
| | Aged 9 | 70% | 47% |
| | Aged 10 | 98% | 78% |
| | Aged 11 | 98% | 99% |
| Allowed to go to leisure places alone | Aged 7 | 43% | 20% |
| | Aged 8 | 45% | 25% |
| | Aged 9 | 63% | 39% |
| | Aged 10 | 80% | 42% |
| | Aged 11 | 80% | 65% |
| Allowed to use buses | Aged 7 | 18% | 1% |
| | Aged 8 | 27% | 1% |
| | Aged 9 | 48% | 4% |
| | Aged 10 | 80% | 27% |
| | Aged 11 | 80% | 41% |

The most recent piece of work which has looked at the changing relationships of children and the natural environment over the years was undertaken in the spring of 2009 for Natural England (England Marketing, 2009) and was mentioned in section 1 of this report.  This research involved 1150 adults and 502 children who were representative of the population of the United Kingdom.  Some of the key findings of this research are that:

- children are spending less time playing in natural places than adults did;
- less than a quarter of children use their local 'patch of nature' once or twice a week compared to over half of the adults when they were children;
- playing indoors was the favourite place for children, compared to playing in the streets near home for the adults when they were younger;
- parents would like their children to be able to play in natural spaces unsupervised but have fears about strangers and road safety;
- children would like to have more freedom to play outside; and
- traditional outdoor activities of building a camp or den or exploring rock pools are as popular now as they were in the past.

## How adult attitudes influence children's engagement with the natural environment

The trends which have been identified can be influenced by many things and various researchers have sought to explain something of the complexity of issues which influence children's engagement with the natural environment, much of which is underpinned by the changing nature of childhood.  Moore (1986) argued that the different patterns of use of children's surroundings 'was influenced by a complex set of interlocking factors: relationships with parents, family and friends; television; cultural attitudes in the community; the perception of social and physical hazards in the surrounding environment; the influences of school, youth organisations and other institutions; and of course, the aptitudes and genetic inherence of each individual' (p. 194).  Valentine reiterates some of Moore's assertions stating, 'the most significant influence on children's access to independent play is not the level of public provision of play facilities but parental anxieties about children's safety and the changing nature of childhood (Valentine 1997).  As already mentioned in section 2.1 O'Brien et al. (2002) has suggested there are both local and global issues influencing children's relationships with the natural environment.  The local issues are described as a complex web of connections including gender, ethnicity and family culture, while the global issues include the nature of urban living and relationships between generations.

Underlying many of these issues is the influence or control which adults have on children's engagement with the natural environment.  Over twenty years ago Moore (1986) identified that parents held both 'social' and 'physical' fears about their children's use of the natural environment and more recent studies have re-asserted this underlying feature.  'Urban problems' is a term which has been used by some to refer to issues such as traffic and stranger danger, while in rural locations issues such as new age travellers and gypsies are a fear (Valentine, 1997).  Another piece of work in a rural setting revealed that 'parental fears limited access to the natural environment, especially for younger children' (Matthews et al., 2000).  Some parents have also identified a geography of danger 'claiming that children are more likely to be snatched from public parks, a shopping centre, playgrounds and outside school' (Valentine 1997, p70).

These different fears, underpinning attitudes which adults have to children's use and exploration of the natural environment, have been called a 'culture of fear' (Valentine and Hendricks, 1997; Furedi, 2002). Some consider that this culture of fear is fuelled by parents' anxiety or educators' and teachers' fear of litigations (Cooper, 2005; Gill, 2006). This is despite the fact that some parents understand that there is a direct relationship between good health and playing outdoors (Karsten and van Vliet, 2006).

However some of this research has also revealed that parents do understand that their fears are fuelled by the way the media reports specific incidents relating to children. Thus Valentine (1997, p.141-142) states 'Whilst most recognised that the media exaggerated their fears by raising their awareness of extreme and rare incidents, parents claimed that given their heightened knowledge of the possible risks to their children, they could not choose to ignore this information and take any chance with their youngsters' lives, however small they recognised these risks to be'. Comments from a rural study by Valentine (1997 in Mathews et al, 2000p.146) reveal that not only national, but sometimes even international cases of child murder are used by parents to justify restrictions imposed upon their own children. A variety of research has revealed the range of issues which, over a number of years, has resulted in this culture of fear and these issues are summarised in table 10.

**Table 10: Factors underlying the culture of fear**

| Factors underlying the culture of fear | REFERENCES (* indicates hard evidence from England) |
|---|---|
| Risks/danger/safety | *Mathews et al (2000)<br>Blakey (1994); *Valentine and McKendrick (1997); Cole-Hamilton et al. (2001); Kong (2000); Bell et al. (2003); Gill (2006); HenleyCentreHeadlightVision (2005); Louv (2005). |
| Fears of Traffic | *Holme and Massie (1970); *Moore (1986); *Wilford, Havercroft and Akerhurst (1988); *Hillman and Adams (1992); *Valentine (1997);<br>Moore and Young (1978); Hillman et al., (1990); Huttenmoser, (1995); Moore, (1997); Mattsson, (2001); Franklin and Conolly, (2003); Valentine (2004). |
| Physical hazards other than traffic | *Moore (1986);<br>Moore and Young (1978) |
| Child unreliable | *Hillman and Adams (1992) |
| Assault/Bogeyman syndrome/social apprehension | *Holme and Massie (1970);<br>*Moore (1986);<br>*Hillman and Adams (1992);<br>*Valentine (1997);<br>Moore and Young (1978);<br>McNeish and Roberts, (1995); Moore, (1997); Waiton, (2001); Valentine, (2004); Louv, (2005); Spilsbury, (2005). |
| Fear of litigation (mainly related to educators/teachers) | Knight and Anderson, 2004 |
| Media influence | *Valentine (1997) |
| Negative images; From Myth, stories, media, too dark, scary | *Moore (1986); Bingley and Milligan 2004 |

The result of this culture of fear is that a series of constraints are put on children's access to and use of the natural environment. The evidence for some of these constraints will be briefly referred to while a summary of the main evidence which can be seen as expressions of the culture of fear is shown in table 11.

**Table 11: Expressions of the culture of fear**

| Expressions of the culture of fear | REFERENCES (* indicates hard evidence from England) |
|---|---|
| Children in inner urban, edge of town and rural locations: a change in distance allowed to go at age 11 or 12 | *Matthews et al. (2000) |
| 7-8 year olds not allowed further than their street; 13-14 year olds allowed to village, town or district; 15-16 year olds allowed as far away from home as they liked | *Lacey (2007) |
| Distance too great/ accessibility | *Moore (1986); *Hillman and Adams (1992) Moore and Young (1978) |
| Parents limit children's ability to roam freely | Moore, (1986); Gaster, (1991); Tandy, (1999); *O'Brien et al. (2000). |
| Children allowed to go further from home when accompanied with a friend in inner urban, edge of town council estates and rural villages | *Matthews et al., (2000) |
| 10-14 year olds more likely to be allowed to play out without an adult in new towns than outer London and in outer London than in inner London | *O'Brien et al., (2000). |

Roger Hart (1979) was an early discussant of how far children were allowed to travel in the outdoor environment from home for which the term 'home range' has been adopted. In these early discussions it was clear that this range was something which was negotiated between a child and their parents. Yet it is not clear from later research whether the distance travelled from home is now negotiated, in fact most of the research appears to indicate that such a range is imposed by adults, rather than negotiated.

The evidence suggests that the home range of children does differ with factors such as age, gender and to some extent location. Moore and Young (1978, p 98) brought together data from American studies in urban, suburban and rural locations. The aggregation of this data reveals that older children have a greater home range than younger children, and that girls consistently had a smaller range than boys. There also appears to be a trend, in the main, for the home range to be greater in edge of town council estates than in the urban area or rural locations.

Another factor which can influence children's experience of the natural environment is whether they are allowed to go outdoors independently. This is considered important because the natural environment becomes a field of 'free action' in which children can follow their own desires and create situations of wonder and uncertainty' (Kytta, 2004). However being allowed to go outside unaccompanied is one of those issues in which children do not always have a choice.

# Other factors which influence children's engagement with the natural environment

Sometimes children express fear about being outside. Comments about this have included reference to the 'primary forces influencing children's spatial behaviour, which consist mainly of 'fears for certain kinds of place and fear of the unknown' (Hart, 1979, pp.336-340). However it can be difficult to establish if the fears which are expressed by children are genuine or fuelled by parental fears, as already discussed.

In addition to the culture of fear, and its expressions, influencing children's access to and engagement with the natural environment there are a range of other factors which have been identified. The evidence indicates that these factors include the attraction of indoor activities including television and computer games, together with a range of social concerns which include the attitudes and behaviours of both adults and other children or young people.

There appears to be a current assumption that children do not spend as much time outdoors as they used to and this appears to be confirmed by the recent research undertaken for Natural England (England Marketing, 2009). This assumption is often accompanied by a concern that children are watching a lot of television, or engaging in electronic games, rather than being outside. The evidence reveals that this is not a new concern but has been identified over a period of years. As long ago the 1950s Himmelweit et al. (1958) identified that a quarter of children were spending an hour a day watching television while over half watched for 1-2 hours a day and more than an eighth for more than two hours a day. In the 1970s Holme and Massie (1970) concluded that changes were happening in the way children were using their leisure time. They highlighted that television viewing was a major competitor for social interactions and 'manipulation of the environment' (p.58). Again the issue of the time spent watching television was identified by Moore (1986) as the 'most constant and largest competitor for their time, especially on weekends' (p.198).

However others have claimed that children still spend considerable amounts of time in the outdoors. A study of inner-city Chicago 'found that children still continue to spend much time outdoors' (Taylor et al, 1998), though of course the interpretation of this depends on what is understood by the term 'much time'. In a study in a suburban setting in Fife in Scotland children were identified as still enjoying informal play away from adult supervision (Ross, 2004).

There can be a dichotomy between adults' and children's behaviour and this can be expressed in the form of intolerance of children's activities by adults, with a subsequent impact on children's engagement with natural environments (Play Day, 2003). Some factors of the outdoor environments, which are viewed negatively by parents, are understood differently by children. Thus:

> '*Children like disorder and find some invisible order therein. Most adults hate it. Children do not in the least mind being dirty. Most adults abhor it.*'
> J. Barron Mays in Lady Allen of Hurtwood (1968, p.19)

Sometimes children like to be away from the 'adult gaze' (Matthews et al., 2000) and in locations where they can be seen by others of their own age. Matthews also reports that there are occasions where children do not like adults intervening 'in their social activities in order to (re)impose control and order'. In some instances adults exert their control over children by not allowing them to undertake specific activities. Evidence for this has been revealed when

children have been prevented doing specific activities such as climbing trees and playing conkers (Lacey, 2007; Gleave, 2008). Sometimes these constraints are imposed by parents and sometimes by other adults. One piece of research revealed that the most frequently mentioned barrier to children playing on their streets and in the areas near their homes was adult non family members, which included neighbours or adults in the local area and the police and community support officers. Some of these children perceived that the media was to blame for this attitude towards children in such open spaces:

> "*Because I think it's like, because on the news it's like they never talk about how good people are. The majority of us our age are good, it's just that everything that gets on the news is about teenagers vandalising and doing loads of bad stuff, and so we get, we get all that on us as well, so we've been labelled, like thugs, and we're not.*"
> (Secondary school aged girl, rural area)
> (Lacey, 2007)

For some children engaging with the natural environment there is a range of social concerns and constraints which are broader than adults, whether family or non family members. There is some evidence that other children, often older or in gangs, are an issue for some children. These social issues which can influence children's engagement with the natural environment are summarised in table 12.

**Table 12: Social concerns about going outside**

| Social concerns about going outside | REFERENCES (* indicates hard evidence from England) |
|---|---|
| Racism/bullying | *Hillman and Adams (1992) |
| Social barriers<br>Lower social class and ethnic minorities have less access to with nature | Walker and Kiecolt 1995; Thomas and Thompson 2004; Blakey 1994. |
| Social exclusion<br>young people being considered as 'threat', 'problems and being marginalised | *Holme and Massie (1970);<br>*Moore (1986); Valentine 1996;<br>Cole-Hamilton et al, 2001; Malone and Hasluck 1998; Bell et al. 2003, Worpole, 2003 |
| Children in a rural area felt unwelcome and under scrutiny | *Matthews et al., (2000 p.146). |
| 10-14 year olds:<br>females and males in an Inner London Borough, and Outer London Borough,and New town were scared of<br>Unknown Adults. | *O'Brien et al. (2000). |
| Fear of older children and gangs | *Matthews et al. (2000). |
| 10-14 year olds:<br>females and males in an Inner London Borough, an Outer London Borough and New town were scared of<br>Other Young People | *O'Brien et al. (2000). |
| Adults controlling children's activities | *Matthews et al. (2000),<br>*Lacey, (2007); *Gleave, (2008). |

There is evidence, then, that a range of factors influence children's decisions about and ability to engage with the natural environment. A summary of these is shown in table 13.

**Table 13: Factors influencing children and young people's decisions about using the natural environment**

| Factor influencing children's decisions about using the natural environment | REFERENCES |
|---|---|
| Attractiveness of indoors activities; Television, Video games, computers, internet<br>Indoors play area/entertainment | *Holme and Massie, (1970); Louv (2005); Malone and Hasluck (1998); *Valentine and McKendrick, (1997) |
| Risks/danger/safety | *O'Brien et al (2000); Simons (1994), *Crowe and Bowen (1997); Malone and Hasluck (1998); Thompson (2005); *Millward and Wheway( 2005), Harden, (2000). |
| Assault; Strangers/criminals | *O'Brien et al (2000); *Thomas and Thompson (2004) |
| Racism / Social fears/ Bullying; Including destructive behaviour towards physical spaces | *O'Brien et al (2000) *Mathews et al (2000) |
| Social barriers<br>Lower social class and ethnic minorities have less access to with nature | Walker and Kiecolt (1995); Blakey (1994). |
| Poor environmental quality; Vandalism, litter | Crowe and Bowen (1997); Malone and Hasluck (1998) |
| Negative images; From Myth, stories, media | Bingley and Milligan 2004 |

In addition to the research identified in table 13 the research undertaken by Demos and the Green Alliance (Thomas and Thompson, 2004) revealed that the following issues were mentioned by children as dangers which influenced their thinking about and preferences for different environments'. These were identified in the order of frequency and emphasis:

- traffic: informed by personal experience of fear;
- strangers/criminals: thought not well articulated;
- being lost: and thus becoming more vulnerable to strangers and criminals;
- bullying: though few children gave experience about personal experiences;
- trains: influenced by the terrorist attack which happened in Spain during the field work;
- terrorism: especially a concern in London; and
- inequality of space: children from a more affluent background in more rural areas had access to larger private gardens and more contact with nature through outings and holidays then children from deprived urban areas.

However there are times when children overcome these factors, in a determination to be in the natural environment. Hart (1979) reports that children's desire, to explore the natural environment, can overtake and reduce their fear. Others have identified that sometimes children have a different understanding of risk from their parents and choose to ignore parental controls. This was identified in a study of woodlands in central Scotland where 'older children and teenagers widely disregarded parental restrictions of movement and use prohibited part of the woodland without telling their parents' (Ward Thompson et al, 2004). The ability of children to adapt and negotiate to satisfy their own needs is also illustrated in other studies (Ward, 1978, Thompson and Philo, 2004). In addition the Forestry Commission in the United Kingdom

embraces the need for children's independence and their guidance paper on self built structures (Harrop, 2006) advises Forestry Commission staff to respect the 'no adult control' aspect of the young people's activities.

## Quality of the natural environment

The issue of the quality of the external environment that children and young people have access to has been a concern for many years.  In 1964 Lady Allen of Hurtwood, a Landscape Architect in England and champion of children's rights, stated:

> '*School playgrounds, for instance, are often harsh, treeless stretches of asphalt mostly closed outside school hours, at weekends and during holidays when they would be of the utmost value to children if properly designed for this dual purpose.  Municipal playgrounds of asphalt and mechanical equipment, too often devoid of all beauty, highlight our lack of understanding of the real play needs of the young.  School playing fields are intended for team games with little provision for imaginative play.  Public parks until very recently, have frowned on the boisterous activities of the young.  The 'open space' that is obligatory round blocks of flats is dominated by the fetish of obsessional tidiness.  At best everything is geared to ease of upkeep, fear of accidents, prevention of noise, grass that must not be walked upon.  At the worst, a sea of concrete submerges the whole area.  Both make an administrator's heaven and a child' hell.  Too many children are condemned to live in a desert of hard surfacing.  This antiseptic approach kills 'play' stone dead and affects most the vigorous and adventurous 8-15 year olds.  It is these healthy and turbulent children that present the real problem to the playground experts.*'
> Lady Allen of Hurtwood,1964, p. 4

Over the decades different researchers have commented on the fact that spaces designated for children's play have been of a poor quality by having little variety or that they 'do not satisfy the needs of children' (Hart, 2002).  Such researchers have included Holme and Massie (1970) describing playgrounds in England as 'consisting of heavy fixed equipment, tarmac surfacing and an occasional sandpit'.  In America such spaces were described as containing, 'vast expanses of hot, hard asphalt, (and) poorly maintained old metal equipment.' (Moore 1989).  During this decade children themselves expressed concern about play spaces when 71% of children in one survey stated that they spent some time in play areas but were dissatisfied with them (Wilford et al, 1988).  During the 1990's further comments about playgrounds included commentary that adults have provided 'standardized playscapes in similar settings' and that this had been without the involvement of children. (McKendrick, 1999).  This attitude towards children's use of public open spaces is considered to be, in part, enforced by planners and built environment designers who it is perceived believe that all of children's, 'environmental needs can be accommodated in the playground' (Cunningham and Jones, 1999).  Others have described playgrounds as being places that, 'offer standardized, controlled and uniform spaces, governed by regulations, monitored by adult eyes and cameras, where children can play and be safe' (Maxey, 1999).  In recent years Woolley (2007, 2008) has discussed that children's playgrounds can be described as consisting of a Kit of fixed equipment, enclosed by a Fence, originally to keep dogs out but increasingly to keep children in, with a Carpet of rubber surface – a KFC playground.

There has also been a discussion about the nature of some of these spaces, not from a design point of view, but from a societal viewpoint.  Thus McKendrick (1999) has questioned the fact that within society there is an attitude that children should play in playgrounds and not

elsewhere and states that the provision of such spaces without the involvement of children is one expression of the wider culture of childhood current in some countries (McKendrick, 1999).

One of the outcomes of this approach to the provision of spaces for children to play in the outdoor environment is that children have become separated from the natural environment. This is despite the many benefits which the natural environment provides for children. There has been an acknowledgement that many contemporary children do not engage with the natural environment and thus do not experience the many benefits the natural environment provides. The result of this lack of contact with the natural environment can be expressed in what Louv (2005) has called 'nature-deficit disorder'. He argues that direct contact with the natural environment has been replaced by media centred experiences. Thus, he states that the 'replacement of primary experience of nature by the secondary, vicarious, often distorted, dual sensory (vision and sound only), one-way experience of electronic media' is resulting in a 'cultural autism' with limited sensorial experiences and feelings of loneliness.

The quality of some open spaces in England is now assessed by the use of the Green Flag Award, supported by the criteria for Green Flag being used to raise standards in many locations across the country. But there is a valid argument that different groups of people within society might hold different perceptions of the same space. Taking this into account CABE Space developed the Space Shaper Toolkit which allows people to express different opinions about the same space.

There have been times when children, their parents or adults have expressed that they aspire to have better quality of opportunities for children in the outdoor environments. Sometimes these aspirations can be clearly expressed and sometimes not. Thus the research undertaken by Holme and Massie (1970) revealed that in Southwark, where children were mainly playing in the streets, because there were no formal playgrounds, the mothers requested more open space for children. The same research revealed that in Stevenage, which was well provided with designated play areas, mothers wanted more equipment and someone to watch over their children. More recent research, undertaken for the Urban Green Spaces Taskforce, revealed that children wanted more exciting places to play (Dunnett. et al, 2002). Thus it can be seen that people's aspirations of what a good, or better, external environment is can be influenced or limited by their experiences and context.

So if quality is understood only by what people want or think they like in a space, this can be limiting and may be one of the reasons for the preponderance of KFC playgrounds over such a long period of time. However there are various pieces of research which have asked children what they like in the external environment and a summary of findings from three pieces of work are provided in Table 14.

**Table 14: What children like in outdoor environments**

| What children like in the outdoor environment | Reference |
|---|---|
| Home-made swing or tyre swing hanging from a tree (suggested more often than any piece of traditional play equipment);<br>Two thirds of the boys wanted an 'assault course' – ropes, swings, ladders, nets, pulley, slides, ropeways, walls and forts;<br>53% of girls and 76% of boys spontaneously mentioned trees: popular for standing, climbing, hiding, becoming forts or bases, making dens, providing shelter, landmarks and privacy and near them are birds, animals, conkers, fallen leaves;<br>Bushes and undergrowth;<br>Corn, long grass and bales, which were so popular 'that law abiding, compliant girls will break rules to play with them';<br>Water, 'which in the children's view, added an extra touch of magic to a play area' | Wilford et al 1988 |
| Variety;<br>Character buildings;<br>Order and tidiness;<br>Quiet and uncongested streets;<br>Local shops – but big stores too;<br>Easy and well signposted footpath access;<br>Green space;<br>Things to remain the same in the countryside<br>Access to leisure and play areas | Robertson and Walford (2000, p 249) |
| 'Secret spaces tended to be places that were perceived to be safe (and therefore not that far away from home) whilst also being flexible or ambiguous in their social role.<br>Examples included the bottom of the garden and local disused parkland.  The unofficial nature of these spaces enabled children to imbue them with their own distinct meaning.' | Thomas and Thompson (2004, p.10) |

A broader view was given by some of these children who expressed hopes and dreams of a cleaner and more varied landscape in the future, with more green space, greater provision for well planned low density housing and recreation facilities.  They also expressed concerns about management of the environment, housing development, green space provision, recreation and leisure activities in the future (Robertson and Walford, 2000).

Another way to define quality of external environments for children, is not to ask what children or adults think they want, but to examine the way children use the external environment or elements within it.  Various pieces of research have studied how children use the external environment and identified how specific elements of the external environment provide for children's activities and allow for engagement with the natural environment.  Three of these pieces of work are summarised in tables 15, 16 and 17.

The first of these is research undertaken by Robin Moore and reported in *Childhood's Domain* (1986).  A summary of his findings with respect to elements of the external environment and the activities and engagement with the natural environment they support are shown in Table 15.  Table 16 shows the results of Heft's (1988) study of detailed accounts of outdoor activities undertaken by children in the natural environment.  This work particularly notes that different elements provide opportunities for different types of activities.

**Table 15: Activities undertaken by children in the natural environment identified by Moore (1986)**

| Spaces in the outdoor environment | Activities observed by Moore (1986) |
|---|---|
| Flowing terrain/pathways | Physical activities such as skipping, jumping, hiding, harvesting found objects, playing along the way, catching butterflies, fishes, frogs and water rats |
| Habitats around home including private yards and gardens (often highly controlled by parents) and streets with traffic | When 'neat and tidy' offer little intrinsic attraction to children |
| Parks and playgrounds – often the farthest places visited | A richly endowed parkscape can enormously extend and diversify children's behaviour; Deliberate juxtaposition of natural and cultural forms, the careful taming and shaping of nature to make it a more intimate part of the human experience; Parks have traditionally been places to find certain kinds of scarce resources; Adventure playgrounds encourage environmental participation. |
| 'Greens' often consisting of mown grass, including some school grounds, fields, green ways, sports fields, and traditional town 'greens' | Blackberry bushes at the edges of such sites; Overgrown banks/mature shrubs to play hide and seek; Trees to climb on |
| The little park | Centrally positioned play equipment; Easy access from surrounding residential areas; Clear geographical identity; Strong sense of enclosure produced by a sunken site; Varied topography; Good microclimate provided by sunken site; Diversity of opportunities: equipment, stream, pipe, paddling pool, hedges, bushed, sand/earth/mud, long grass, wild vegetation and climbable trees Absence of 'parkies' |
| Rough ground and abandoned places | Fire making, excavating, observing and collecting small animals, making camps, dens, hideouts and clubhouses, messing around. |

**Table 16: Elements of the natural environment and the affordances these provide for children, identified by Heft.**

| Elements of the outdoor environment | Activities |
|---|---|
| Flat, relatively smooth surface | Walking, running, cycling, skating, skateboarding |
| Relatively smooth slope | Coasting down (e.g. bike, wagon), rolling objects down |
| Graspable/detached objects | Drawing, scratching, throwing, hammering, batting, Spearing, skewering, digging, cutting, Tearing, crumpling, squashing, building structures (e.g. raw materials for forts) |
| Attached objects | Sitting, jumping on/over/down-from |
| Non-rigid, attached objects | Swinging (e.g. tree branch) |
| Climbable feature | Climbing (exercise/mastery). Looking out from, passage from one place to another (e.g. stairs, ladders) |
| Aperture | Locomotion from one place to another, looking and listening into adjacent place |
| Shelter | Shelter (microclimate), Prospect/refuge, privacy |
| Moldable material (e.g. dirt,sand) | Construction of objects (e.g. pottery), modification of its surface features (e.g. sculpting) |
| Water | Splashing, pouring, floating objects, swimming, diving, boating, fishing, mixing with other materials to modify their consistency. |

Similarly the quality of an environment for adolescents can be informed by research which, taking into account the increasing importance of social relationships for adolescents, has been described as 'thirty four socio-environmental affordances' (Clark, C. and Uzzell, D.L, 2006). These affordances, or opportunities, are summarised in Table 17.

**Table 17: Thirty-four socio environmental affordances identified by Clark and Uzzell**

| | |
|---|---|
| Avoid people | Be peaceful |
| Be active | Be with close friends |
| Be alone | Be with similar people |
| Be entertained | Be yourself |
| Be free from the expectations of your family | Enjoy yourself |
| Be free from the expectations of your friends | Feel secure |
| Be free from the pressures of your friends | Get away from your friends |
| Be free from the pressure of your parents | Get away from your parents |
| Be free to enjoy yourself | Get away from your peers |
| Be happy | Hang around |
| Be in a place where I feel I belong | Have freedom of expression |
| Be in an area that belongs to the teenagers | Have privacy with best friend/s |
| Be in an area that is mainly used by teenagers | Have space to be upset in |
| Be in control of the environment | Meet up with friends |
| Be in your own space | Meet new people |
| Be noisy | Relax |
| Be on your own to think | try out new behaviours |

The pioneering work of Roger Hart and Robin Moore reveals many complexities about the qualities which are valued and provide opportunities for play, exploration, learning and being in the natural environment.  Specifically Hart (1979, p.349) emphasises that 'one particularly important quality of an environment for children is its suitability for modification by them' […] environments in which children may ''find'' or create their own setting to play'.  This was expressed by Moore (1986, p.230) as 'Childhood environments must provide both security and serendipity to stimulate both predictable and unpredictable consequences'.  More recently deduced from life experience and empirical evidence collected from audiences of classes and lectures Pyle (2002) suggested that, 'natural habitats of children are undedicated, undeveloped ground where unplanned, unsupervised and unexpected discovery can take place' (p 323).

## Summary of the factors influencing engagement between children and the natural environment

### Spaces used

The evidence reveals that children use a wide range of open spaces which allow them to engage with the natural environment.  More often than not these spaces are not specifically designated for use by children.

### Activities undertaken

Children can, and do, undertake a wide range of activities which enable them to engage with the natural environment.  These activities include play, walking, cycling and nature conservation.

### Trends over the years

The evidence points to the fact that there have been trends in some aspects of children's engagement with the natural environment over the years resulting in:

- a decrease in children playing outdoors;
- a decrease in children playing in spaces close to home, such as the street; and
- an increase in play in designated spaces.

All of these can result in a decrease in opportunities for children to engage with the natural environment.

### Culture of fear

There is a culture of fear, fuelled by the media, which is underlain with fear about danger and safety, traffic, other physical hazards, litigation and negative images.  This culture of fear affects adults, but to some extent children as well and it is not clear to what extent this is influenced by the adult fears.  The culture of fear expresses itself in children not being allowed to go far from home and not being allowed to go outdoors unaccompanied.

### Social concerns

There are also a set of social concerns for children, about being in the natural environment.  These include the attitudes and behaviours of adults, both family and non family members, and other children, sometimes older and in gangs.

## Indoor activities

Indoor activities, including watching television, competes with children's time with respect to spending time outdoors in the natural environment.

## Quality of the outdoor environment

For many decades the quality of outdoor spaces dedicated specifically for children have been criticised for not being designed well and thus providing for only limited opportunities. A range of pieces of research provide evidence to the elements in the landscape which are beneficial in supporting a wide range of children's activities.

# 4 Interventions supporting children and young people's experience with the natural environment

An underlying objective for this work was to understand whether children are more aware of environmental issues than previous generations were and whether more children are involved in interventions, such as the scouts, which facilitate engagement with the natural environment. It became clear that there is little academic evidence and when a range of organisations were contacted about the numbers of children or young people who engage in their activities few were able to provide numbers. This is because many of these organisations are focused on doing the work and then bidding for additional money to do further work. They do not consider it important to record numbers of children or young people engaged in their activities.

There is little academic evidence about organised interventions which involve children and the natural environment. Faber Taylor and Kuo (2006 p. 128) discuss the benefits of forest school and outdoor education programmes while Pyle (2002, in Kahn and Kellert) identifies that early and direct experiences with the natural environment can influence choices of jobs later in life. Simpson (2005), comments on the existence of The Real World Learning Campaign which is a partnership between leading British conservation bodies, encouraging children 'to get out of the classroom to discover the world around them'. Even less academic literature appears to exist with respect to interventions for teenagers. Thomashow (2002, in Kahn and Kellert) identifies some educational programmes which involve the management of public lands, protection of a wildlife sanctuary and the design of an exhibit at a metropolitan zoo.

For this review a variety of organisations which provide opportunities or support interventions enabling children's engagement with the natural environment investigations were contacted. It became clear that some of the interventions are in response to government policy, while others are due to the underlying philosophy of an organisation. These interventions are grouped into five categories of organisations:

- environmental organisations;
- educational organisations;
- youth organisations;
- play organisations; and
- commercial and business support.

The investigation undertaken does not give a complete picture of all the organisations in England which provide interventions but it opens up an understanding of such interventions in a new way.

# Environmental organisations

**Groundwork Trusts**
Web site: http://www.groundwork.org.uk/

Groundwork, founded in the 1980s, is a series of independent trusts across England which work with children of all ages.  Activities undertaken vary according to opportunities of the geographic location of each trust, open spaces which are available and funding, resources and the audience for a particular project.  Thus in some parts of the country growing things for school grounds enhancement is undertaken while elsewhere there is involvement in the forest school movement.  Projects are developed in partnership with teachers and some of the activities are part of the Eco Schools programme, an educational intervention.  Groundwork's remit is to work with deprived and disadvantaged communities.  Last year Groundwork worked with over 4,000 schools with many of these projects being community ones, rather than school ones.  It has been estimated that in 2001 Groundwork trusts worked with 12,500 teachers and more than 1 million children, directly, in projects.

One of the biggest challenges is often that of the confidence and willingness of a school to start a project, but once underway many things become possible, often with limited resources.  Usually more schools want to work with Groundwork Trusts than can be catered for, especially when there is a perception that they can offer something for free – although projects are not free and often Groundwork have already obtained funding for a project.  Fewer schools buy in services from Groundwork Trusts for sustainable development but this is increasing in number.  One of the benefits is that the experiences are fun, yet children are learning 'in disguise'.  Children enjoy their experiences, they remember their experiences and the teachers state that they see the value of the outdoors in terms of better outcomes, improved behaviour and happy faces.

Funding can come from a variety of sources including national, regional or local funding programmes, local authorities, corporate sponsorship, government funding, direct school funding and occasionally European funding.  Additional funding would mean more delivery because there are always places wanting to work with Groundwork Trusts.

**Wildlife Trusts**
Web site: http://www.wildlifetrusts.org

There are 47 Wildlife Trusts across the United Kingdom, with 765,000 volunteer members, who work for to conserve a range of habitats and environments rich in wildlife for everyone.  Across the country a range of activities are provided for different ages of children, although not all activities are provided by every trust.  Many of the trusts have staff and/or volunteers who work with schools on a daily basis in term time.  Other activities are focused towards school holidays.  Last year the trusts engaged with 4,900 schools but the underlying philosophy is that the quality of the experience in the natural environment is important, rather than the numbers having the experience.

Work with children aged 5 - 11 years old includes, school visits, play programmes, nature clubs which can include field study, play, creative work and looking after local places, holiday activities, bushcraft, forest school and activities that enable individuals to gain awards, wildlife surveys, environmental arts and celebration.  Activities for 11 – 13 year olds include the above but usually with a clearer focus on conservation activity, community outreach, youth councils

and less play.  This age group are also supported to work towards the Duke of Edinburgh and the John Muir awards.  For young people older than 13 additional opportunities include work experience, volunteering, leadership and team building programmes.  Across these different age groups the activities may appear similar but are underpinned by differences in the process of engagement with the natural environment and outcomes for change.

'Watch' is the junior branch of the Wildlife Trusts and has been encouraging children, and families, in activities such as environmental recording for more than thirty years.  Some individual Watch groups, which are run for children by volunteers in local communities, have been in existence for more than 20 years.

Between 2006 – 2009 the Wildlife Trusts have been undertaking a project to capacity build in local trusts to work with young people aged 13 – 19.  This has been funded by the DCFS (formerly DfES) and is facilitating the sharing of best practice.  Defra has also funded a project interviewing young people involved in a range of projects to record their opinions about wildlife, the environment and activities they are involved in.

### Federation of City Farms and Community Gardens
Web site: http://www.farmgarden.org.uk

The Federation City Farms and Community Gardens is a charity which supports, represents and promotes community managed farms, gardens, allotments and other green spaces, creating opportunities for local people.  The federation works with these local groups to help empower people of all ages, backgrounds and abilities to build communities, often in deprived areas.  It represents 120 city and school farms, nearly 1,000 community gardens, community managed allotments and about 200 city farms and community gardens currently being developed.  These organisations employ about 550 people, engage and empower thousands of volunteers and attract more than three million visitors each year.  The estimated annual turnover is £40 million.

The Federation of City Farms and Community Gardens helps to co-ordinate the School Farms Network with the Department for Children, Schools and Families.  This network offers support and assistance to school farms.  It also organises meetings and exchange of ideas and information and produces a regular e-newsletter.  Another organisation, Access To Farms, is a partnership of 12 organisations which promotes quality educational visits to farms for children.

### The Peak District National Park
Web site: http://www.peakdistrict.org

National Parks are intrinsically a place where the natural environment can be experienced by children.  The Peak District National Park is the most visited National Park in England.  For over thirty years a range of educational activities have taken place which now include family learning days and one off events for youth groups.  These happen on most days of the year although there are quieter periods such as Christmas and during the summer months.  Each year approximately 10,000 visitors use this education service.  Many features of the natural environment are used to support the activities and these include the limestone grasslands and dales, moorlands, gritstone edges, farms, reservoirs, woodlands, ponds, rivers and streams.

The park has a pool of casual leaders who are trained to deliver the programmes and they are looking at the possibility of using volunteers in these roles.  Because the park is a non profit making organisation schools are required to pay a fee per head for tuition costs.

**The National Trust**
Web site: http://www.nationaltrust.org.uk/main/w-countrysideinformation.pdf

The National Trust is a charity and was founded in 1895 to act as a guardian for the nation in the acquisition and protection of threatened coastline, countryside and buildings, as a response to uncontrolled development and industrialisation.  The Trust has more than 3.5 million visitors and it is estimated that 50 million people visited the National Trust's open air properties in 2007.

The National Trust is keen that the national curriculum for schools should include more direct reference to farming, food production, land use and the countryside in general and that time should be set aside for this within the national curriculum.  The National Trust believes that there is scope for some aspects of the national curriculum to be delivered at countryside properties across a wide range of subjects but also that there is a need for teachers to be trained in these areas.  The education staff of the National Trust currently provide in-service training for teachers at a number of sites but they are willing to be involved in both initial teacher training and CPD.

The Fun and Learning in the Countryside activity book is a compilation of many of the educational activities offered by the National Trust and is designed to be applicable to any site.  The document concentrates on interactive activities stimulating learning through experience and direct participation.

Trust in the Future is a programme which aims to introduce children and young people to the concept of sustainability through the work and properties of the National Trust.  There are a series of themed fact sheets providing information about the Trust's approach to the management of the natural environment on issues such as water, transport and waste.  These are supported by resource, activity and work sheets which encourage children to look at their own lifestyles and environment and consider ways in which they can implement positive change for the future.

Trusty the Hedgehog is the National Trust mascot and is there to help children learn about the natural environment, including wildlife.  The web site contains games, competitions and activity sheets.  Children can write to Trusty to tell him what they have done on their visit to a National Trust property and sometimes he appears at events.

The National Trust has a variety of 'natural' play spaces across its properties including adventure playgrounds, woodland adventure walks and trains, challenging children's play areas, family 'trim trails' in woodland settings.  Some of these include swings, slides, tyre tunnels, rope bridges and acres of open space and woodland where children are free to 'run wild'.

In summer 2009 the National Trust launched a 'Wild Child' campaign with over 1000 events and activity days with a challenge of 'exploring a world of flora, fauna, freedom and fun'.

**British Trust for Conservation Volunteers**
Web site: http://www2.btcv.org.uk/

BTCV is a charity which was established in 1959 which provides opportunities for volunteering, providing a bridge between global environmental ideals and local action in the United Kingdom, as well as overseas.  It works with 300,000 volunteers each year.  BTCV believes that many young people are passionate about the natural environment and that involving them in a variety of volunteering activities will 'induce positive social behaviour, with community and

environmental benefits'. The BTCV welcome young people in all of their activities but there are some programmes specifically focussed around young people. These include:

- *Millennium Volunteers* for ages 16-24 and offering opportunities for learning and citizenship through environmental action and community service;
- *Mpath Project* for ages 16-21is a mentoring project supporting young people who are in the looked after system and moving to independent living;
- *Young Roots* for ages 11-18 encourages young people to develop their own projects, focussing on exploring and conserving local heritage;
- *Get REAL* for ages 11-17 consists of a week-long residential projects introducing participants to rural landscapes and traditional skills;
- *Green Ground Zero* for ages 10-11 is a mix of day projects and residential projects using practical conservation tasks as a method of reducing obesity and improving health.

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**ENVIRONMENTAL ORGANISATION CASE STUDY**
**BTCV Skelton Grange in Leeds**
*Aims:*
- to promote an understanding of environmental issues to children and young people of all backgrounds and abilities;
- to demonstrate environmental good practice;
- to provide specialist help, information and resources on all aspects of environmental education;
- provide children and young people with basic knowledge and confidence with which to respond to the environment creatively and imaginatively, with enjoyment and enthusiasm.

*Facilities:*
- eco building with rainwater recycling, solar panels, wind turbine and photovoltaic cells, opened in1993;
- 2 hectares of wildlife area;

*Activities:*
- term-time activities for over 50,000 people;
- three days of structured activities each week;
- linked to National Curriculum: PHSE and Citizenship ;
- for local schools in Leeds and Wakefield area;
- support to schools working towards Healthy Schools and Sustainable Schools;
- structured play days in summer for children aged 5-11: including pond dipping, mini-beast hunting, den making, environmental art and games

*'Wild in the Woods' Project*
- in a small woodland;
- opportunities to learn new skills, have fun and realise abilities;
- boost self-confidence, self esteem, learn team work and problem solving;
- treasure trails, group trails, flora and fauna identification, making objects from natural resources found in the woods, shelter building, fire lighting and cooking.

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# Educational organisations

There does not appear to be any available historic evidence to be able to simply answer the questions of whether primary schools allocate less time to environmental matters and whether primary school aged children are less likely to go on school trips to explore nature than 10, 20 or 30 years ago.  However it is evident that there are a lot of educational interventions currently available to both primary and secondary schools to support children experiencing and exploring the natural environment.

These educational interventions are initiated and supported by a raft of government policy initiatives which include Growing Schools, Eco schools, Sustainable schools and the forest school approach.  An increasing number of schools are becoming involved in these schemes, however no official figures are available about the number of schools involved in each individual scheme.  One reason for a lack of such information is because these schemes are undertaken on a voluntary basis.  Involvement by each school appears to be driven by enthusiastic schools or individual staff members within the schools.  To support these programmes there is a large amount of help and resources available on the internet as well as practical help and advice including training for teachers and other staff.

**Sustainable schools**
Web site:
http://www.sdcommission.org.uk/publications/downloads/Strategic_priorities_for_sustainable_schools.pdf

The Sustainable Development Action Plan (SDAP) 'Brighter Futures – Greener Lives' seeks to embed, rather than 'bolt on', sustainable development within policy for children and young people.  The three aims are:

- to lead change in the system, working with partners;
- to lead by example, with respect to a school's own behaviour and actions; and
- to empower and educate young people for life in a sustainable world.

To aid this process the Department for Children, Schools and Families (DCSF) launched the Sustainable Schools Framework in 2006.  This sets out eight sustainability themes or 'doorways' for school to focus in the curriculum, on the campus and in the community.  Issues for the curriculum include learning about topics such as poverty, waste and climate change; for the campus topics include reducing the energy and water usage of the school and for the community topics include working with the community to improve well-being.

In 'Schools and Sustainability: A Climate for Change', Ofsted's review of progress with sustainable schools in 2008 revealed that there is a lack of consistency and awareness about both the operational impacts of schools themselves and opportunities to use sustainable development to drive school improvement.

**Eco schools**
Web site: http://www.eco-schools.org.uk/about/

The government wants every school to be an Eco School by the year 2020.  Once registered, schools follow a seven-step process which helps them to address a series of nine environmental themes: water; biodiversity; energy; global perspectives; healthy living; litter;

school grounds; transport and waste.  Children lead the eco-committee and help carry out an audit to assess the environmental performance of their school.  Through consultation with the rest of the school and the wider community pupils decide which environmental themes they want to address and how they are going to do it.  Measuring and monitoring is an integral part of the Eco-Schools programme.  Schools work towards gaining one of three awards.  The Bronze and Silver awards are self accredited through a website, while the top, Green Flag, award which symbolises excellence in the field of environmental activity is assessed by ENCAMS.  It has been reported that in 2009 11,000 schools are now eco schools.

**Learning Outside The Classroom**
Web site: http://www.lotc.org.uk/
Web site: http://www.dcsf.gov.uk/
Web site: http://www.teachernet.gov.uk/learningoutsidetheclassroom

Learning outside the classroom was launched in November 2006 with a manifesto, aimed at being a joint undertaking that many different stakeholders can be involved with.  There are now more than 1,500 education providers and local authorities supporting the manifesto and these include: the RSPB, The Eden project, The Natural History Museum, The National Trust, Outward Bound Trust, The Youth Hostel Association and the Arts Council.  These organisations support schools by providing a wide range of experiences from lessons in school grounds to visits to museums, city farms, parks, field study centres, nature reserves, residential activity centres and places of worship.

The programme established a new independent Council for Learning Outside the Classroom in order to provide a single voice for all organisations involved in out of classroom activities, to implement the manifesto.  Schools are encouraged to report about their out of classroom learning in the Ofsted self evaluation in order to encourage head teachers to evaluate and develop their provision.

In October 2008 the 'Out and About' package was launched, which includes a range of mechanisms to support schools in achieving learning out of the classroom.  This support includes: Employer Risk Management Guidance; training – as part of teacher training and CPD; quality badges for providers – to reassure users and provide clear information; and guidance – to help schools build learning outside into their ethos and teaching resources.

**Growing schools**
Web site: http://www.growingschools.org.uk/

The Growing Schools programme, launched in 2001 shortly after the foot and mouth crisis, supports the Outdoor Learning Manifesto.  Its aim is that all children should have the opportunity to experience the living environment, whether through an inner city window box, a country estate, school vegetable plot or a woodland.  Underlying this programme is the desire that every young person should experience the world beyond the classroom as part of their learning and personal development, whatever their age, ability or circumstances.  Within this programme there are three main areas which can be used as a context for learning: food and farming, including the managed countryside; gardens, gardening and green spaces and wildlife and the natural environment.

Early consultations about this programme revealed two major findings.  First, the experience the programme was providing for children was invaluable.  Second, despite the fact that many

schools wanted to use the outdoor classroom there were barriers which needed to be addressed to enable this to happen.

**Green Day**
Web site: http://www.cabe.org.uk/publications/green-day

In 2007 CABE launched a Green Day which is a one off annual event of an intensive day of environmental activities and workshops for both primary and secondary schools.  This allows the schools, pupils and the wider community to focus on global to local environmental issues using a range of activities integrated into the core curriculum.  The framework offered by CABE for a school's Green Day includes: a free training workshop; a menu of ideas to help teachers to plan activities; guidance in helping a school become more sustainable in the long term; CPD opportunities and INSET guidance for school event leaders and opportunities to fit with the new curriculum and sustainable schools targets.  In 2009 350 schools were officially involved in this event with others undertaking activities without being officially involved.

**Field Studies Council**
Web site: http://www.field-studies-council.org

The Field Studies Council is a trading charity, established in 1943, which provides outdoor learning, biology and geography field trips for schools at all key stages.  They also provide family holiday courses where families, rather than just children, can learn about the natural environment.  About 100,000 young people each year attend events each year at one of the 17 centres across the United Kingdom.  School and family groups pay to attend the course but there is some financial support for groups of disadvantaged young children through a bursary fund.  At certain times of the year they have more children wanting to participate in these activities than they can cater for.

In addition to the Field Studies Council there are about another 17 independent field studies centres in England, which offer courses focused on specific subjects such as biology, geography, geology and environmental studies and at different academic levels such as junior school, GCSE and AS/A level.  One example of this is the Cranefield Centre in North Yorkshire which provides 15,000 person days of experience with the natural environment each year when 4-5,000 students spend between 1 and 5 days at the centre.

The national association of field studies officers, nafso, is the only professional organisation in the British Isles which represents people employed in the area of field studies.  It provides a voice and support for its members by a series of activities including a termly e newsletter, an annual journal, a directory of environmental education centres and educational material directed at different subject and academic levels.

**Learning through Landscapes**
Web site:  http://www.ltl.org.uk/about-us.htm

Learning through Landscapes, established in 1990, is a national charity focused on school grounds and the opportunities they provide for children's learning and development.  The aim is to allow children to create and nurture their own environment.  In order to do this Learning through Landscapes works with government and other public sector agencies at national and regional levels, champions children's entitlement to stimulating outdoor spaces and investigates the role that schools grounds play in child development.  The organisation also works directly

with children to help them improve the use, design and management of their school grounds and empowers children and young people to become agents of positive change.

A survey, undertaken in 2003, of 700 schools and early years settings which have improved their outdoor spaces with support from Learning through Landscapes revealed the following benefits.

**Table 18 Benefits reported after improvements to school grounds**
http://www.ltl.org.uk/about-us.htm

| Benefit | Percentage change |
|---|---|
| Improved pupil behaviour | 73% |
| Reduction in bullying | 64% |
| Improved attitudes to learning | 65% |
| Better social interaction | 84% |
| Increased community/parental involvement | 66% |

**EDUCATIONAL CASE STUDY**
**Berkswich Church of England Primary School**

*Background*
- located in Stafford and has 231 pupils and 7 teachers;
- registered as an Eco School in October 2005;
- eco-committee representing the whole school

*Facilities*
- Environmental centre/Learning Zone in the school's quadrangle which can be used by every class in the school;

*Activities*
- rainwater harvesting system is expected to save 22,000 litres of tap water;
- low energy lighting and solar panels is expected to save 144,000 watts of electricity;
- study in this area covers the eco themes of waste, recycling, energy, school grounds and water;
- impact on how the core curriculum is delivered including geography, science, citizenship and art;
- other schools are interested in the project;
- inspires pupils to increase their knowledge of the environment and recycling;
- grow food which is eaten in school and surplus is sold to the local community;
- each class has a metre garden and there are competitions for who grows the most or the largest:

*Funding*
- £4,988.80 from Curry's 'Switched on Communities Programme';

*Barriers to further involvement*
- lack of funding in the region;
- lack of teachers time;
- crowded curriculum
- lack of support and connection to other schools or organisations with similar goals and intentions;
- lack of continuity in the transition to secondary school

# Young people's organisations

One of the underlying assumptions for this work was that membership of groups such as clubs/scouts and Brownies/Guides has declined and had an impact on confidence to play outdoors. In contacting these organisations they were not able to provide the research team with historic information to either confirm or deny the assumption. However they have been able to confirm the assumption that the demand for these organisations is growing but there are not enough volunteer leaders to meet the demand.

**The Youth Hostel Association**
Web site: http://www.yha.org.uk/

The Youth Hostel Association, founded in 1930, has more than 200,000 members and operates a network of more than 210 Youth Hostels across England and Wales, with 170 of these being in England.  Each year the YHA records 500,000 overnight stays by young people in youth hostels either with formal school, youth or uniformed groups or as part of a family holiday.  The YHA is a charity and primarily a facilitator of activities in the natural environment, by providing affordable accommodation, rather than by providing specific activities.  The exception to this is the 'Do it for Real' summer camps, funded originally by the DfES which are experienced by about 10,000 young people aged 10 - 19 each year.  The majority of the children who visit youth hostels each year are from urban communities where they often experience financial, social and physical barriers to experiencing the natural environment.  The YHA itself has enough leaders to undertake its work but as an organisation it believes that some schools struggle to find the required number of staff to go with groups on visits.

**The Scout Association**
Web site: http://scouts.org.uk/

The Scout Association was established in 1907 and provides adventurous activities and personal development opportunities for 400,000 young people aged 6- 25 in the United Kingdom.  The organisation believes that young people develop most when they are 'learning by doing'.  The organisation has five sections catering for different ages from 6-8, 8-10.5, 10.5-14, 14-18 and 18-25.  The Scout Association is an international organisation with 28 million participants across 216 countries.  There appears to be an understanding that there are trends in some families for children to join because parents did before them, but the extent of this influence is unclear.  In recent years one of the biggest changes has been the number of girls joining the movement.

Activities are arranged locally and often take place in the natural environment.  Thus camps, walks, climbing, water activities and even meetings are held in the outdoors.  Some of these activities are organised in partnership with the Woodland Trust.  The Scout Association has always had a range of badges relating to the natural environment which young people can work towards.  These include activities such as hiking, camping and navigating.  In recent years a range of 'daredevil' activities and badges have been introduced including snowboarding, parascending and street sports.  The result of this is that there has been the biggest rise in membership for 22 years.  Member ship is now considered to be 465,000 with waiting lists and a shortage of adult leaders to support this increase in activity.

**The Guide Association**
Web site: http://www.girlguiding.org.uk/

The Guide Association, with the operational name Girl-Guiding UK, is approaching it centenary and aims to enable girls and young women emotionally, mentally, physically and spiritually, so that they can make a positive contribution to their community and the wider world.  It is the largest youth organisation for girls in the United Kingdom today with approximately 575,000 members and 65,000 trained volunteers.  Nationally there is currently has a waiting list of about 50,000 girls who are not able to join the organisation due to a lack of leaders.

The organisation is divided into 7 geographic regions of the country.  As an example the London and South East Region has a membership of approximately 76,500 members with a waiting list.

This region uses all the available open spaces it can to support its activities and allow girls to experience the natural environment.  It also actively encourages girls from the many ethnic groups in this part of England to join the organisation

Across the country girls undertake activities and can work towards badges with the ones most related to the natural environment including camper and camper advanced, finding your way, outdoor cook, outdoor pursuits, sports and survival.

# Play Organisations

Website for Play England: http://www.playengland.org.uk

In recent years the importance of play for children and society as a whole has risen up the political and funding agendas.  In 2006 the BIG Lottery programme allocated £155 million for innovative play spaces, play rangers and activities and the establishment of national and regional offices for Play England.  In December 2007 the government launched its 10 year Children's Plan, committing expenditure of £225 million, later upgraded to £235 million for children's play spaces between 2008 and 2011.  This money is being distributed through local authorities who have been designated as Pathfinders or Play Builders.  As part of these funding programmes providers are being encouraged to develop play spaces which have greater elements of the natural environment than has previously happened in public playgrounds during the last forty years.

In addition to these major funding programmes there are various other funding streams, primarily directed at the green space sector, which are being used to provide opportunities for play in the built environment.  Some local authorities, partner organisations and voluntary organisations are also working with a variety of other funding sources, including health funding opportunities, in order to provide outdoor play opportunities.

Supplementing the Children's Play funding, but available to people involved in all the funding streams are a series of documents which advocate, amongst other approaches, that these developing play spaces in the built environment provide opportunities for contact with the natural environment (see Play England website).

Opportunities for play in the outdoors, thus providing children the possibility of engaging with the natural environment are facilitated in many different ways and it is not appropriate to dwell on these in this report.  Much information, including the literature reviews which have been undertaken for Play Days in recent years, and case studies of play practice in the outdoors, can be found on the Play England web site and the reader is directed to look at this for such information.  However one case study, which is on the Play England web site, and which the research team has contacted is provided here.

**PLAY CASE STUDY**
*Indigos free play in Devon*

*Background*
- a play environmental project set in a woodland;
- six staff: two retired people; two forest school leaders; one young person and one mother;
- six volunteers – mainly parents;
- free, open access for children of all ages;
- operates during school holidays, evenings and some weekends;
- up to 50 attendees.

*Ethos*
- respect yourself – no expectations and no need to prove anything;
- respect others;
- respect the land.;
- to provide challenging and exciting play opportunities in a natural environment;
- activities are led by the children – parents are actively encouraged to join the project;

*Facilities*
- Woodland, peace garden, fairy garden, community Indian area;
- Adjacent playing field;
- Craft hut, tree house, homemade tyre swing, hidden slide;

*Activities*
- play;
- football on the adjacent playing field;
- den building, making fires and cooking,
- maintenance of the land, making paths, craft making in craft hut, forest skills,

*Funding*
- BIG Lottery;
- Torbay Borough Council
- further funding being sought.

# Commercial and business support for interventions

A range of commercial and business organisations support some of the interventions enabling children to engage in the natural environment through environmental, educational, young people and play organisations. There has not been time to undertake a comprehensive review of such support but some have come to light during the current work. These commercial and business organisations add a further dimension to the network of interventions for children and young people to experience the natural environment. Indeed in some situations the opportunities would not be available without the support, whether in the form of finance, staff time or other resources, of these commercial and business organisations. Types of organisations involved in this way include:

- Curry's through their 'Switched On Communities' funding programme;

- the landfill tax credit scheme – Groundwork UK have been working with Biffaward who have funded a programme entitled 'Playing Naturally', linking play opportunities with contact with the natural environment; and
- The National Grid which has a network of environmental education centres across the UK, all of which are situated on land owned by the company adjacent to substations.

This is only a very small number of organisations and at the conclusion of this project the assumption now is that very many organisations have been and are involved in such programmes encouraging children to be more engaged with the natural environment.

## Summary of interventions supporting children and young people's experience with the natural environment

There is no available data to answer questions about whether more children belong to youth organisations now than in previous generations, nor whether more children are engaged in environmental education than in the past.

Some of the youth organisations have a waiting list and a shortage of leaders.

Other barriers exist to increasing activities – these include funding, volunteers and finding enthusiastic teachers.

There is evidence of a range of environmental, educational, youth and play organisations which are providing and facilitating events which allow children to engage in the natural environment.

Some of these organisations do not keep data on numbers of children involved in their activities because they see this as less important than undertaking the activities themselves or bidding for funding for future projects.

Some of the interventions identified, most notably the education and play ones, are underpinned by a range of government policy initiatives.

# 5 Conclusions and opportunities for further research

**The Evidence Base**

Although there is evidence providing information about theories, experiences, influences and interventions about children and the natural environment there is a lack of both longitudinal studies and repeat studies which can verify changes over time within a specific population or location. In addition there are some areas where the empirical data is rather thin, such as the benefits of physical health and the natural environment.

No data sets have been identified giving comprehensive information about how many children and young people engage with the natural environment through environmental, educational, youth or play organisations although it is evident that there is an array of activities in this area, sometimes constrained by lack of volunteer leaders, inspired teachers or funding opportunities.

**Suggestions for future research**

Some of the theories about children and the natural environment include personal arguments/speculations based on intuitive knowledge, common sense and in some cases a certain tendency to nostalgia. Hard evidence is more difficult to find especially in the English and United Kingdom context.

The evidence from the United States (Kaplan and Kaplan, 2002, Balling and Falk, 1982) has identified differences of natural environment preferences for different age groups. There is, however, a lack of evidence from Europe and particularly England, about the different experience of the natural environment for the different stages of development: stage of wonder/natural attraction, stage of exploration/physical engagement, stage of detachment/socialisation and then re-engagement (Sorel, 1990; Bateson and Martin, 1999). Research investigating development focused on these four age groups would therefore be valuable.

There is also a lack of evidence from England about the influence that childhood experiences of the natural environment have on adult values and behaviours. Thus further research in this area is required.

Contemporary research needs to complement the studies involving large numbers of children from the 1970s, 1980s and 1990s (DoE, 1973; Moore, 1986, Hillman and Adams, 1970 and 1992). Repeat studies of these key pieces of work is one possibility.

Risk and fear of risk is the main hindrance to children and young people benefitting from engaging with the natural environment. Research is needed to identify how real the risks are and the differences of perception of these risks between children and adults and between the perceptions and the reality of the risks. To further understand how children's access to the natural environment and freedom to play has changed over the years a study could track how different generations of one family have used the natural environment. This would build on the case study undertaken with the Thomas family in Sheffield for a Natural England conference on health on 2007.

Why don't children get out more?  The answer to this might be more complex than blaming the television or computer and the 'culture of fear'.  Further research exploring this could focus on children and their opinions and experiences.

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# Appendix 1: Key evidence from England

This document complements the literature which has been reviewed with a focus on children and the natural environment commissioned by Nature England.  In this appendix there is a summary of some of the key texts which report evidence from England, and they are presented in reverse chronological order.

1. **England Marketing (2009), Report to Natural England on Childhood and Nature: A survey on Changing Relationships with Nature Across Generations.**

**Date:** *March 2009 – online survey conducted in one week of March 2009*
**No of children and age:** 502 adults followed by 502 of their children, together with 648 adults without children.
**Location:** Respondents were representative of the United Kingdom population
**Methodology:** An online survey, conducted in one week of March 2009, on reported (not measured) use of the natural environment by adults and children.  Children were aged 7-11 years old.  Adults were identified as two groups, aged under 50 and over 51 years of age, in order to explore differences which might exist between parents and the generation who are more likely to be grandparents of the children aged 7-11.

**Some Findings:**
- 'Children spend less time playing in natural places, such as woodlands, countryside and heaths than they did in previous generations.  Less than 10% play in such places compared to 40% of adults when they were young'.
- 'Three quarters of adults claim to have had a patch of nature near their homes and over half were there at least once or twice a week.  64% of children reckon they have a patch of nature near their homes but less than a quarter go there once or twice a week'.
- 'The majority of children (over70%) say they are supervised wherever they play, except only 52% are supervised in the garden and 31% in the streets near their homes.  This rises to over 80% in natural places'.
- 'Parents would like their children to be able to play in natural spaces unsupervised (85%) but fears of strangers and road safety prevent them from giving much freedom to their children'.
- 'Children would like more freedom to play outside (81%).  Nearly half of the children say they are not allowed to play outside unsupervised and nearly a quarter are worried to be out alone'.
- 'Traditional outdoor activities are as possible now as they were in the past with all achieving a mean score of 3 out of 5.  Building a camp or den and exploring rock pools on the beach were and still are the most popular activities'.
- 'There is little difference in attitudes across the country and little difference in attitudes based on whether adults and children live in urban or rural communities'.

2. **Clark C. and Uzzell, D.L. (2006) The socio-environmental affordances of adolescents' environments, in Spencer and M. Blades (eds) Children and their Environments: Learning, Using and Designing Spaces. Cambridge: Cambridge University press, pp. 176-195.**

3. **Clark, C. and Uzzell, D.L. (2002) socio-environmental affordances of adolescents' environments.**
**No of children and age:** 411 adolescent, aged 11-15 (249 females, 162, males)
**Location:** Guildford, UK
**Methodology:** 'Quantify the affordances of different settings; the adolescents rated their neighbourhood and town centre environments on their use of these environments for 40 different socio-environmental affordances. The initial list […] was then reduced to 28 using Principal Components Analysis. Subsequently, six single gender focus groups were held with groups of adolescents […](13 to 16) who identified six additional affordances […].

4. **Thomas G. Thompson, G. A child's place: why environment matters to children (2004) . A Green Alliance/Demos report.** www.demos.co.uk
**No of children and age:** 10-11
**Location:** Three Schools in Hudersfield, South London and in a small rural village of Wick in South Gloucestershire, Foxpoint Play in Bath, a scheme where play workers work with local children to develop activities and events.
Method: The aim of the project was to establish the children attitudes towards their environment and how it affects them as well as to establish, via the children's perspective, what the lessons are for policy-makers.
**Methodology:**
- 20 paired interviews with children.
- three extended tours of children's spaces with children (two playgrounds, one nature reserve).
- informal talk and observation in the playground with year six pupils.
- a paper survey of parents in each school.
- filmed interviews with head teachers in two locations.
**Conclusions:**
- *Environmental education through exploration*: we need to provide for children's innate sense of exploration and self discovery through out-of-school learning and greening school design.
- *Participation in decision making:* children's voices should be heard early on in the design and maintenance of public space through regeneration strategies and land-use planning.
- *Protecting children's spaces:* the links between environmental policy and children's well-being must be embedded into national policy to ensure delivery at local level.
- *Spatial inequality:* public policy needs to address the problem that children from disadvantaged backgrounds have fewer opportunities to access safe, clean public space.
- *Health and well-being:* the links between children's health and environmental problems need to be recognised at the national policy level and through strategic partnerships, at a local level.

5. **O'Brien, M., Jones,D. and Rustin,M. (2000) Children's Independent Spatial Mobility in the Public Realm. In Childhood Vol.7(3), pp257-277.**
**No of children and age:** 1378 children: 37% aged 10-11 and 63% aged 13/14
**Location:** Inner London, Outer London, New Town
**Methodology:** Project funded by the ESRC programme 'children 5-16: growing in the 21st century).
- First stage: Children's questionnaire covering travel to school, use of local areas and facilities (streets and parks), home based activities and parental rules affecting home

range; and ideas on improvements to the local neighbourhood.  Parents questionnaire (65% return) and focus group discussions with children.

- Second stage: 20 in-depth, home based studies of primary school children (10/11 year olds).

**Some findings:**
(p.269) data collected about 'child plays out without an adult':

|  | Inner London | | Outer London | | New town | |
|---|---|---|---|---|---|---|
|  | Female 334 | Male 344 | Female 187 | Male 217 | Female 199 | Male 80 |
| Child plays out without an adult | 67% | 84% | 75% | 87% | 82% | 93% |

'children'activities and perception of risk by gender and area'

|  | Inner London | | Outer London | | New town | |
|---|---|---|---|---|---|---|
|  | Female 334 | Male 344 | Female 187 | Male 217 | Female 199 | Male 80 |
| Perception of risk Feel they are unsafe places | 42% | 31% | 44% | 32% | 42% | 21% |
| Scared of unknown adults | 61% | 35% | 63% | 36% | 58% | 34% |
| Scared of young people | 51% | 46% | 58% | 49% | 54% | 47% |

**6.  Matthews, H. Taylor, M., Sherwood, K. Tucker, F., and Limb, M. (2000) Growing up in the countryside: children and the rural idyll. Journal of Rural Studies, 16:141-153.**

**No of children and age:** 372 children and young people aged between 9-16 hanging around together in public places
**Location:** 28 villages across rural Northamptonshire (commercial farms, landed estate, commuter and estate villages)
**Methodology:** It consisted on a doorstep questionnaire survey and semi structured interviews with young people.
**Some findings:**
77% of the participants considered themselves as outdoor persons with more than 44% meeting their friends outside on two or more occasions per week.  The places where they meet were:

- 42% the local 'streets
- 34% local parks and recreation grounds
- 4% reported playing with friends near to rivers lakes or ponds
- 3% reported playing with friends in woods and fields

They chose locations where they could be seen by others of their age, away from the 'adult gaze'.  This study found 'little evidence of 'young people' running freely across fields and through woods and 'exploring distant forests and hills, largely because these spaces had been 'fenced off' by adults as private land.
'Children of all age reported how adults frequently intervened in their social activities in order to (re)impose control and order (p.146).

The range behaviour of urban and rural children furthest distance allowed to go (mean range in km) unaccompanied and accompanied by a friend, Table 2 (p.147). This is part of a large

project funded by the ESRC programme 'children 5-16: growing in the 21st century); considering young people's outdoor behaviour in three locations (400 in an inner urban area, 320 in three edge of town council estates;  372 in 28 rural villages in Northamptonshire)

| The range behaviour of urban and rural children furthest distance allowed to go (mean range in km) | | | | |
|---|---|---|---|---|
| | 9/10 years | 11/12 years | 13/14 years | 15/16 years |
| *Range without permission, when unaccompanied* | | | | |
| Inner urban | 0.4 | 0.5 | 1.7 | 1.2 |
| Edge of town council estate | 0.7 | 1.5 | 3.6 | 5.0 |
| Rural | 0.4 | 1.0 | 1.7 | 3.6 |
| | | | | |
| *Range without permission, when accompanied by a friend* | | | | |
| Inner urban | 0.5 | 0.7 | 2.2 | 1.4 |
| Edge of town council estate | 0.8 | 2.2 | 4.4 | 9.0 |
| Rural | 0.5 | 1.2 | 2.5 | 4.2 |
| | | | | |
| *Range with permission, when unaccompanied* | | | | |
| Inner urban | 0.7 | 1.2 | 2.5 | 1.9 |
| Edge of town council estate | 0.7 | 2.4 | 5.7 | 6.6 |
| Rural | 0.9 | 3.0 | 3.6 | 5.2 |
| | | | | |
| *Range with permission, when accompanied by a friend* | | | | |
| Inner urban | 0.9 | 1.8 | 3. | 2.6 |
| Edge of town council estate | 1.1 | 4.2 | 8.7 | 8.3 |
| Rural | 1.2 | 4.9 | 4.8 | 5.8 |

'when the result are disaggregated by gender[…]' (p.148) there is a disparity between boys and girls.   '[…] When no parental permission has been sought, Girls are bound closer to their homes than boys' but when permission is gained there is little difference (other reference Valentine, 1997)

'villages are likely to possess very little public land and what little there is can be fiercly defended by adults' (p.144)
''social' was more important for these young people than the 'natural'' (p.145) finding spaces where they can meet in groups without adults.
'children felt unwelcome and under scrutiny when out and about' (p.146).
'more than 50% of the children interviewed recalled a  range of social fears, principally fear of older children and gangs (30%) and of bullying (13%) (p.146).

7.  **Robertson, M. and Walford, R. (2000) 'Views and Visions of Land use in the United Kingdom'. In Geographical journal, Vol. 166, No3. pp.239-254.**
**Date:** 1996
**No of children and age:** 1037 reports from the observation of school children
**Location:**  413 urban key squares (365 in England), 424 rural key square (318 in England), 349 local urban squares and 101 local rural squares.

**Methodology:** National land use and landscape survey of the UK, a national project of the Geographical Association. '1287 surveyors recorded their views and visions of one-kilometre grid squares in which they conducted field work' (abstract, p. 239). The survey looked at 'key squares' definition based on the 'Fundamental to Land Use – UK project (Walford 1997) and their equivalent in the rural context and local squares where there were no accessible 'key squares' in the residential area of the volunteering group. The views of the school children relate to six key questions' including: What things did you find most interesting and/or surprising in the square? And what do you like and dislike most about the area which you surveyed?

**Some findings:**
(p.139) ' hope and dreams for a cleaner and varied landscape in the future with more green space, greater provision for well planned low density housing and recreation facilities. At the same time expressed concerns for the management of the environment, housing development, green space provision, recreation and leisure activities indicate a disquiet for the future.

(p.249) '[...] young people in the United kingdom have a common set of expectations about landscape that encompass a very traditional lifestyle imagery for both rural and urban environments. They like:

- Variety;
- Character buildings;
- Order and tidiness;
- Quiet and uncongested streets;
- Local shops – but big stores too;
- Easy and well signposted footpath access;
- Green space;
- Things to remain the same in the countryside; and
- Access to leisure and play areas.

They dislike:

- Monotony and sameness
- Noise, air and visual pollution
- Housing on green spaces;
- Crowded housing
- Congested travel routes;
- Lack of facilities such as near-by shops and play places; and
- Field loss.

**8. Valentine, G. (1997) 'A Safe Place to Grow Up? Parenting, Perceptions of Children's Safety and the Rural Idyll'. Journal of Rural Studies, Vol.13, No.2 pp. 137-148.**
**No of children and age:** 10 aged 8 -11
**Location:** Wheldale, a village in the Derbyshire Peak District
**Methodology:** part of ESRC project mentioned above; in depth interviews with parents

**9. Crowe, L. and Bowen, K. (1997)'if you go down the woods today' Landscape Design 261:26-29.**
**Date:** c. 1996
**No of children and age:** 100 children, aged seven to ten years old
**Location:** four primary schools within Sheffield itself

**Methodology:** 'Sheffield Hallam's research study'; three techniques were used to explore their perceptions and use of local woodlands: a questionnaire survey, discussion groups, and a creative artwork exercise.

**Some findings:**

The findings of this survey include:

- woods are 'fun places to visit, good for nature and for people […] scary but also special'
- 'the use or abuse of a wood is a factor which greatly affects children's perceptions of it, sometimes negatively.  It is clear that litter and burnt-out cars give out the strong message to children that an area is uncared for and potentially dangerous.  However, none of the children had personally had a negative experience in woods;'
- 'woods with plenty of different activities were somehow 'better' than woods with 'just' trees.  The presence of a diverse range of habitat types and structure, as well as a rich wildlife and a variety of loose, natural materials to use in creative play, increased the value of woods;'
- […] ''the best fit' wood according to the children participating include (the number indicates how often these elements were included in the children's drawings): trees (89), pond (57), stream/river(51), swings (35), grass area (29), fish (28), slide (26), cafe (24), house (19), swimming pool (18), ducks (18), people (18), tree house (15) […] 'city parks more closely match this picture than the more informally managed woodland sites.[…]

(p.28-29)
'it is also worth noting here that the arbitrary distinctions professionals make between different types of public open spaces are not reflected by their young users.  Just a few trees in a very urban area can turn a park into a wood in a child's mind.'

**10. Valentine, G. and McKendrick, J. (1997) 'Children's outdoor Play: Exploring Parental Concerns About Children's Safety and the Changing Nature of Childhood'. Geoforum, Vol. 28, No.2, pp. 219-235.**

**11. Valentine (1997) '' OH YES I CAN.'' OH NO YOU CAN'T'' Children and Parents' Understandings of Kids' Competence to Negotiate Public Space Safely'. Antipode Vol.29 (1), pp. 65-89.**
**Date:** c. 1995 - 1996
**No of children and age:** 8-11
**Location:** North-West England; the research was undertaken in nine areas selected on the basis of social class, child demography and type of location
 (5 urban metropolitan area, 1 urban non metropolitan, 1 commuter village, 1 rural town, 1 rural village) (details in figure 1, p.225)
**Methodology:** Two years ESRC funded project in exploring parental concerns about children use of public space.  First stage consisted of a questionnaire (75 questions) distributed to parents with a child aged between eight and 11 through the school (400 questionnaires were returned).  For the second stage on the basis of the responses to the questionnaire 70 Households were selected for semi-structure interviews.
**Some findings:**
(abstract, p.219) 'There appears to be no link between play patterns and play provision; children are no more likely to play outdoors, or play further away from home if there are adequate opportunities provided within the neighbourhood.  Rather, the evidence of this paper is that the most significant influence on children's access to independent play is not the level of public

provision of play facilities but parental anxieties about children's safety and the changing nature of childhood.'

## 12. Hillman, M. and Adams, J.G.U. (1992) 'Children's Freedom and Safety'. Children's Environments. Vol.9, No 2, pp. 12-31.

**Date:** 1971 and 1990
**No of children and age:** ages 7 to11
**Location:** five schools in very different areas' (p.21); Islington, London; Nottingham outer city suburb; Stevenage, a new town; Winchester a small county town and Hook Norton, a village in Oxforshire.
**Methodology:** The article is using traffic statistics (accident rates) to contradict the assumptions that roads are more dangerous now and comparing results from surveys undertaken in 1970 and 1991. The surveys are looking at travel and activities patterns of English children.
**Some findings:**
In their 1990 survey 'the reasons given by parents for imposing restrictions on coming home from school on their own' were traffic c. 42%, child unreliable 20%, Molestation 20%, distance too great c.14%, bullying c.1% (Figure 12)
(p.31) one of their general conclusion based on their surveys is that 'We have created a world for our children in which safety is promoted through fear'.

## 13. Wilford M., Havercroft, M. and Akerhurst, A. 'The Humbreside Survey in Ward C. (1988) The Child in the Country. London: Robert Hale, p.100-101.

**Date:** c.1987
**No of children and age:** 176 ten-and eleven year-olds
**Location:** nine village primary schools
**Methodology:** 'Marion Wilford, Marie Havercroft and Alice Akerhurst interviewed and asked them four questions:

a) when you play outside with your friends where do you like to play best?
b) I want you to use your imagination. If you could choose anything you liked, what would be a really nice place for children to play?
c) What places would you like to play in but aren't allowed
d) Do you have a park or playground near you to play in

**Some findings:**
'factors affecting the accessibility of places' (p.102) 910-11 year-olds in rural setting):

- not allowed to cross busy roads or play near them
- not allowed to get dirty, climb trees or play out of sight from home
- serious hazards
- risk of children being a nuisance'

**Children's preferences**
- '71% of the children spent some time in plays areas but most seem dissatisfied with them' (p.102).
- home made swing or tyre swing hanging from a tree was suggested more often than any item of traditional playground equipment.
- two thirds of the boys would like an 'assault course' (ropes, swings, ladders, nets, pulley, slides, ropeways walls and forts.

- trees were mentioned spontaneously by 53% of girls and 76% by boys. They are the most popular feature of all (standing: climb, hide, become forts or bases, dens, provide shelter, landmarks and privacy; fallen: obstacle course, material for den building); ' near them you find birds, little animals, conkers, fallenleaves, mud, fir cones and winged seeds.
- bushes and undergrowth are also popular.
- corn, long grass and bales are so popular 'that law-abiding, compliant girls will break the rules to play with them'.
- water, 'which in the children's view, added an extra touch of magic to a play area'.

**14. Moore, R.C. (1986) Childhood's domain. London: Croom Helm**
**Date:** c. 1984
**No of children and age:** 96 girls and boys (in equal number) aged 9 to 12
**Location:** three contrasting urban neighbourhood in West London, Stevenage and Stoke-on-Trent '(location map, p.25)
**Methodology:** The children were asked to make a map or drawing of all their favourite places'[…]. 'Follow up interviews were used to gather further information […]'(p.24). A quarter of these children, selected through the drawings and interviews as 'the experts', then led the author on field trips around their home.
**Some findings:**
Reasons why children were not allowed to go to certain places (p. 282).
Response to the question  Why? Following the question 'Are there places your parents won't allow you to go?'

| Reasons why | Mentions: No. | Mentions: % |
|---|---|---|
| Traffic | 25 | 33 |
| *Physical hazards (other than traffic)* | | |
| Water/heights/unsafe buildings | 18 | 24 |
| *Social threats* | | |
| Strangers/other kids/adolescents | 17 | 23 |
| Social disapproval | 1 | 1 |
| Get too dirty | 6 | 8 |
| Too far/get lost | 4 | 5 |
| Too dark/scary | 4 | 5 |
| **Total** | **75** | **100** |

What children especially liked about the outdoors (p. 283)
42 children answered Nothing/don't know (44%/31% total mentions)

| What children liked | Mentions: No. | Mentions: % |
| --- | --- | --- |
| Better than indoors/being out | 5 | 5 |
| Playing | 7 | 8 |
| Playing with friends/people | 13 | 14 |
| Playing with stuff/with things/more things to do/always something to do | 15 | 16 |
| More space to play/more room | 8 | 9 |
| Football | 3 | 3 |
| Riding bikes/horse/go-carts | 5 | 5 |
| Climbing trees/climbing fences | 4 | 4 |
| *Nature*<br>    Animals/birds/conker/trees/frogs/cats/dogs | 9 | 10 |
| *Specific places*<br>    Pictures/sweet shop/hut/yard/pen/swings/hide and seek fence/crates | | |
| *Sensory qualities*<br>    Microclimate/snow/sun/colours | 10 | 11 |
| It's good for you | 12 | 13 |
| | 2 | 2 |
| **Total** | **93** | **100** |

What children especially disliked about the outdoors (p.284)
61 children answered Nothing/don't know (63% / 54% total mentions)

| What children disliked | Mentions: No. | Mentions: % |
| --- | --- | --- |
| Rough kids/ruffians/big boys/violence | 14 | 27 |
| People who complain/who chase you away/who boss you around | 5 | 10 |
| Too many people/other children/too many bikes | 3 | 6 |
| Having to stay in/go out | 2 | 4 |
| Park too far away | 1 | 2 |
| Swings facing the wrong way | 1 | 2 |
| Too many rats | 1 | 2 |
| *Sensory aspects*<br>    Getting hurt/bumpy road/metal play equipment/too noisy/vertigo in flats/smelly/getting dirty/falling over/scary | 9 | 18 |
| *Microclimates/seasons*<br>    Winter/too hot/too cold/rain/sleet/snow/gets dark too early | 15 | 29 |
| **Total** | **51** | **100** |

What children wanted added or changed to the outdoors (This is an abridged version full table p.285 )
42 children answered don't know (44% / 34% total mentions)

| Changes or additions | Mentions: No. | Mentions: % |
|---|---|---|
| New fixed resources | 24 | 29 |
| New natural resources | 13 | 16 |
| Animals | 13 | 16 |
| Organisational changes | 12 | 14 |
| Adjustment to existing resources | 7 | 8 |
| Changes to people | 7 | 8 |
| Climatic changes | 4 | 5 |
| Personal freedom | 3 | 4 |
| **Total** | **93** | **100** |

Competition for use of time:
'television was the most constant and largest competitor for their time, especially on weekends' (15% one hour or less; 21% one to two hours; 28% two to three hours; 36% more than three hours) (p 198)

**15. Moore, R. and Young, D. (1978) Childhood Outdoors: Towards a Social Ecology of the Landscape. In Altman, I. and Wohlwill, J.F. Children and the Environment. London: Plenum Press, pp. 83-131.** (references and data from unpublished work Moore, R. C. Childhood Use of the Urbanised Landscape: BR).
**Date:** c. 1975
**No of children and age:** 8-12 year olds
**Locations:**
- US: San Fransisco Bay Area communities
- UK: London, Stevenage and Tunstall

**Methodology:** Neighbourhood study looking at environmental relationship of children
**Some Findings:**
p. 98-101,environmental fear based on Moore 's unpublished study CUULS:US
Factors in parental control:

- 27% traffic danger
- 25% social apprehension/fear of attack
- 17% too far/get lost/ not old enough
- 17% physical danger others than traffic (dogs, snakes, bodies of water, high places)

Table of range distance sex ratio by age group and site context in American context (in Moore and Young, 1978, p.98; based on study by Anderson and Tindall, 1972 for urban and suburban data and Hart, 1977 for rural data)

| Range distance (ft) | | | |
|---|---|---|---|
| | Younger (2nd grage-3rd grade) | Older (4th-6th grade) | Ratio difference |
| *Urban* | | | |
| Boys | 4131 | 5816 | |
| Girls | 2833 | 3518 | |
| Ratio | 1.46 | 1.65 | .19 |
| *Suburban* | | | |
| Boys | 5209 | 6165 | |
| Girls | 3962 | 3905 | |
| Ratio | 1.31 | 1.58 | .27 |
| *Rural* | | | |
| Boys | 1248 | 7356 | |
| Girls | 942 | 2877 | |
| *Ratio* | 1.32 | 2.56 | 1.24 |

## 16. Department of the Environment (1973) Children at Play. London: Her majesty's Stationery Office.

**Date:** c. 1971

**No of children and age:** 50,000 children mainly under 11

**Location:** 15 'modern' housing estates (completed in the 1960s), one older area scheduled for redevelopment, one adventure playground, an on a recreation ground before, during and after a supervised play scheme came into operation.' (p.1)

**Methodology:**
- The research collected 'evidence of where children played when they were out of doors, how many of them were outside, and what they were doing […] based on  50 000 observations of children's outdoor activities.
- Housewives' in the estate where the observations were carried out and on a further 50 local authority estates, were also questioned on problems related to play and on their opinions of existing facilities.
- In Oldham and Paddington children between 7and 11 were interviewed and asked where they played and their play preferences and what they did with their spare time.

**Some Findings:**

Tables included in Moore and Young (1978, p.116)

| Location of children' activity ( %) | | | | |
|---|---|---|---|---|
| | Four low rise estates | Six medium rise estates | Five mixed rise estates | Old housing area |
| **Locations** | **28, 102 observations** | | | **362 children** |
| **Access areas (balcomies/starways)** | | 23 | 40 | 7 |
| **Paved areas** | 24 | 41 | 23 | 7 |
| **Roads, pavements** | 39 | 11 | 9 | 54 |
| **Gardens** | 18 | 2 | 1 | 9 |
| **Play areas** | 4 | 11 | 13 | 3 |
| **Grassed areas** | 10 | 7 | 8 | |
| **Wild areas and waste land** | 5 | 1 | 12 | 14 |
| **Unorthodox areas `(garages, roofs)** | 4 | 4 | 2 | 3 |
| **Planted and other areas** | 1 | 5 | 6 | 3 |

**17. Holme, A. and Massie, P. (1970) Children's Play: A Study of Needs and Opportunities. London: Michael Joseph.**

**Date:** c. 1969

**No of children and age:** The numbers of children involved in the neighbourhood study are summarised in the table below. Junior refers to children 9-11 year old and senior to 11-14 year old.

|  | Stevenage | Southwark | Totals |
|---|---|---|---|
| **Junior boys** | 216 | 213 | 429 |
| **Junior girls** | 249 | 217 | 466 |
| **Senior boys** | 231 | 142 | 373 |
| **Senior girls** | 273 | 244 | 517 |
| **totals** | 969 | 816 | 1785 |

17,031 children were interviewed on the playgrounds the majority aged between 5-14

**Location:**
- Neighbourhood research: Stevenage and Southwark.
- Playgrounds study: London, Borough of Brent and Camden, Bristol, Leicester, Liverpool, Newcastle upon tyne, Southampton, Southwark, Swansea, Worcester.
- Survey of existing facilities in nineteen boroughs (36 review areas): Newcastle, Darlington, Liverpool, Kirkby, Bradford, Derby, Lincoln, Coventry, Worcester, Bristol, Swindon, Gloucester, Swansea, Southampton, Norwich, Stevenage, Brent, Camden, Southwark (map, p.208).

**Methodology:** Different study in England looking at how children in their play are responding to different environments.  The book contains three separate pieces of research:

*a neighbourhood study* in the boroughs of Southwark and Stevenage consisting of:

- a survey of mothers' views on local play amenities; 223 mothers were interviewed (115 in Stevenage, 107 in Southwark)
- and a comparison of school children 's activities;

*a study of playgrounds* and their use in ten boroughs. Three Broad types of playgrounds were identified (p.199):

- Equipped and situated in parks and recreation grounds (including 9 with play leaders)
- Equipped and situated in housing estates and 'off street'
- Unequipped play spaces and play streets.

17,031 children were interviewed on the playgrounds the majority aged between 5-14 with a greater proportion of boys especially in the older group age.

*a survey of existing facilities.* Two questionnaires, one for the local authority and the other related to individual playgrounds (467 in total) for the field workers.

**Some findings:**
*Mothers and children study* (summary pp.177-178)
The main difference between the two neighbourhoods in this study is that ' More stevenage children tend to engage in passive or more home-oriented activities. More Southwark children tend to engage in active and away from home activities'.   This is surprising considering the greater availability of open spaces in Stevenage.  Massie's conclusion is that Stevenage might be indicating 'changes in the way children use their leisure time' in a more individualistic way while Southwark children activities reflected more old traditional values of independent group activities.

*Children and Playground study* (summary and conclusion, pp.199-202)
'The majority of all the children walked (to the playgrounds), and over a quarter of these had to cross one or two major roads […].  The distance travelled was greater for the playgrounds in parks: 1,760 yards for type 1 (Parks); 660 yards for type 2 (housing , off street) and 220 yards for type 3 (unequipped, street).  The total average use of the unequipped play space was far lower than the other playgrounds.'

*467 playgrounds survey* (summary pp. 240-241)
'The majority of playgrounds are flat, uninteresting and unimaginative in design and too small for a wide range of activities.'

*Mothers and children study* (summary p.149) the main differences between the two neighbourhoods were related to physical aspects but also social backgrounds form the parents: Southwark had mainly semi- and unskilled workers while Stevenage fathers were more skilled workers.  2/5 of Southwark mothers go to work compared to 1/5 in Stevenage.

- In Southwark, where children were mainly playing in the streets for lack of formal playground the mother requested more open space for children.  In Stevenage well provided with designated play areas they wanted more equipment and someone to watch over their children.
- In Southwork mothers restricted their children's movement (Half of the younger ones were not allowed outside, half of the older ones range was limited to half a mile from home).  Mothers in Stevenage were not so restrictive but were still reluctant to let their children cross the road to the playground unaccompanied.
- Most mothers want to be able to see their children when they are out of doors playing.
- 'Twice as many mothers in Southwark wanted children to play more frequently out of doors'.
- Mothers identified traffic as the greatest danger; only a small proportion had fear of their children being molested.
- Other adults intolerance to noise made by children  (more in Southwark than Stevenage) led mothers to prevent children to play.

**18. Himmelweit, H.T., Oppenheim, A.N., and Vince, P. (1958) Television and the Child. London: Nuttfield Foundation. Data mentioned in Moore and Young (1978, p.88)**
**Date:** 1955
**No of children and age:** 77, 10 to 11
**Location:** London and four other English towns in 1955.
**Methodology:** Temporal data of week long diary records kept by the children

**Some Findings:**

| Average hours spent outside during survey week (7days) | % of 10-11 year olds (rounded) |
|---|---|
| Up to 8 hours, or 1 hour/day approximately | 28% |
| 6-14 hours, or 1-2 hours/day approximately | 58% |
| Over 14 hours, or more than 2 hours/day | 14% |

# Appendix 2: People from organisations who responded with information

**Acknowledgements**

The research team is grateful to the following people, from the individually named organisations, who responded to the request for information about the work their organisation undertakes with children and the natural environment.  Many of these organisations provided more information than we could accommodate in this report.  There were other organisations who were contacted but who did not reply; some were too busy.  In some instances the research team relied only upon information available on the organisation's web site.  These web sites are given in the main body of the report and so are not repeated here.

Groundwork UK, Head Office: Chris Southwood

The Wildlife Trusts: Helen Freestone

The Federation of City Farms and Community Gardens: Anna Nicholls

The Peak Park National Park: Sonja Davis

B.T.C.V (Skelton Grange, Leeds): Lucy Wheeler

Field Studies Council: Louise Pugh

The Y.H.A (Youth Hostel Association): Martin Trouse

The Scouts Association, Head Office: Jennifer Winn

Girl Guiding, UK, Head Office: Suggested that the team contact regional contacts

Girl Guiding London and the South East Regional Office: Maria Moyses