Situating risk in the context of a woodland visit: A Case Study on Lyme Borreliosis

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Summary
Research shows that people value woodlands for relaxation and as a place to have contact with nature. Yet woodlands can also involve exposure to a variety of risks. In this study the way in which people consider issues of risk in environments generally associated with a range of positive values was explored with visitors to a woodland in South East England. A walk through the woods taking photographs, focus group discussions and questionnaires were the methods used in this research with four groups of people from a range of ages. We focused on the positive and negative aspects of woodlands and discussed risks that might be encountered in this environment before focusing specifically on Lyme borreliosis (Lyme disease) as an example of a specific risk. Those involved in the research understood that there are potential risks that may have an impact on their use of woodlands. However, they did not passively accept information on risks but generated their own understanding based on the development of what they considered to be ‘common sense’ approaches to dealing with risk. The way in which people value woodlands is something they take into consideration when discussing risks that might be encountered on a woodland visit. In relation to Lyme borreliosis, participants favour taking action after their woodland visit (e.g. looking for ticks or a rash), rather than beforehand, so as not to detract from their woodland experience. Communication about these risks should be simple and concise and take into account the values, behaviours and practices that people typically undertake in these environments.

Introduction
This study looks at the meanings constructed by people of a specific unfamiliar risk, Lyme borreliosis (henceforth, LB), and how this is positioned within the context of woodland use. Lyme borreliosis is better known as Lyme disease and is a bacterial infection spread to humans by infected ticks. We set this risk within the framework of a social constructivist approach (see Vygotsky, 1978; Yearley, 1992, Hannigan, 1995; Burningham and Cooper 1999) in which meanings are assigned within a social context and are part of how people construct values and risk. We focus on the ‘common sense’ shared meanings constructed by people in interaction with others (Scheff, 2006). This approach moves beyond a focus on how individuals process information about risk to include people’s interactions with others within a particular socio-cultural context. For example, the social and cultural values people construct for trees and woodlands will affect their contact with the

Methodology
Study site and participants
Alice Holt Woodland was chosen as a case study site and is located on the Surrey/Hampshire border. It is 850 hectares in size and is a typical ‘destination woodland’ (i.e. a large site with facilities such as paths, car park, children’s play area, managed as a multi-functional forest and is a popular recreation area for local people and visitors from further afield) managed by Forest Enterprise England.

The research took place in mid March 2010. Four groups of participants were recruited by an agency to meet certain criteria i.e. represent a range of ages, combine frequent and less frequent users of woodlands and include those who live within a reasonable distance of Alice Holt Woodland (e.g. approximately 20 minute drive time). Participants came to the site for approximately 3 hours. Forty-one people participated, 22 females and 19 males, age range = 21-79. They formed two groups of people aged 50 and over, one group aged 31-50, and another aged 21-30. Thirty four participants (83%) declared themselves to be of White-UK ethnic origin. Twenty seven participants were in employment, 11 were retired, 1 was a parent/carer, 1 was in full-time education, and 1 was unemployed. The majority of the participants (n = 30, 73%) had annual incomes of above £20,000. In terms of participant’s use of woodlands and the countryside, 26 of the participants (63%) were frequent users of the countryside (e.g. looking for ticks or a rash), rather than beforehand, so as not to detract from their woodland experience. Communication about these risks should be simple and concise and take into account the values, behaviours and practices that people typically undertake in these environments.
environment e.g. the greater they value woodlands the more likely they will be to seek them out to use and enjoy them. We take value to mean an enduring concept of worth (O’Brien, 2003). If people have contact with woodlands there is a range of opportunities for different types of engagement and activity including walking, cycling, relaxing or volunteering. There may also be potential risks that are linked to these activities. People make sense of and derive meaning from these potential risks through their interactions with others, the social influences of different media, existing values, attitudes and beliefs and the ‘common sense’ debates that arise from these (Irwin, 2001). The perspective on risk that we have taken is to situate risk against the broader backdrop of the values people hold for woodlands with a specific visit to a woodland in South East England.

The objective of this research, using the exemplar of LB, was to explore how people make sense of communicated risks, and how they draw on their tacit knowledge and experience to incorporate recommended precautionary measures into their woodland restorative practices. Specifically our aims were to explore:

a) what sort of risks people expect to encounter in woodlands and the countryside and how they think about and respond to these;

b) what awareness participants have of LB as a disease and how they respond to communication about the risks of LB and actions that might be taken, and by whom, to reduce risk; and

c) how these two questions are situated within the context of people’s values for woodlands.

This research formed part of a wider three year Rural Economy and Land Use (RELU) funded project entitled ‘Assessing and communicating animal disease risks for countryside users’ (for more details see RELU, 2011 and Quine et al. 2011). The main objective of the overall RELU project was to investigate the potential impact of one zoonotic disease (LB) on the development of recreation in rural areas, and propose appropriate responses to communicating the risk from this.

The value of having contact with woodlands

Research from a range of disciplines exploring the social and cultural values of woods highlights the importance people place on having contact with trees and woodlands (Henwood and Pidgeon, 2001; Bishop et al. 2002). For example, Edwards et al. (2008) identified the values of woodlands for people in Scotland as employment and volunteering; recreation and accessibility; learning and education; health and well-being; culture and landscape; and community capacity. Ward Thompson et al. (2008) outline the importance of childhood visits to woodlands as a key factor in adult use and enjoyment. O’Brien and Morris (2009) described values identified by focus group participants as contact with nature; achievement and learning; physical and mental health; and social networks. In Wales the evaluation of the Cydcoed (woodlands for community development) programme identified a range of values including health and well-being; social and human capital; education and learning; recreation; environmental benefits; and employment and the local economy (Forest Research, 2008). Pinder et al. (2009) in a study of Thames Chase Community Forest found participants identified sensory pleasures, such as views and sounds, as important. The widespread use, and repeat use, of woodlands (29% of those who visit woods in the UK do so several times per month (FC, 2011)) suggests that people value using and engaging with these spaces.

Risks that may be encountered in the woodland environment

There are a number of risks that people may face in woodlands. Risk has been defined as ‘the probability of a particular adverse event occurring during a stated period of time’ (Breakwell, 2007) and this incorporates
two key elements: probability and consequence. Information about woodland risks is usually communicated by the organisations managing the land and is aimed at the general public, operational staff, and volunteers. In relation to the specific risk of LB, Marzano et al. (in press) show that LB is considered to be a serious issue by land based organisations in Britain; however it is seen as only one of many health and safety risks that have to be dealt with. There is general agreement amongst land based organisations of the importance of raising awareness of LB to staff in particular and, for some organisations, to countryside visitors as well. The focus of such organisations tends to be on information provision. Thus the danger of implicitly subscribing to the ‘information deficit model’ arises. The deficit model implies that inappropriate responses to a risk are due to a shortfall in information and can be addressed by its subsequent provision (Wynne, 2001; Yearley, 2005). Joffe (2003) outlines the need to explore the meanings of risk identified by people in different social contexts, arguing that the ‘information deficit model’ obscures the symbolic and emotive realm of meaning and focuses too greatly on ideas of how people process and handle information concerning particular risks.

Similarly it is important to appreciate how people receive, filter or compare information from different sources (Petts et al. 2000).

The risks that might be encountered in woodlands can potentially be categorised in a variety of ways (see Quine et al., 2011) such as those associated with: activity based recreation; management operations or lack of management; anti social behaviour and abuse of spaces; large animals and domestic stock; climatic conditions; and biological conditions. The likelihood of encountering any of these will depend on the type of woodland, management of woodland, its location, the activities that take place, the characteristics and preoccupations of the people accessing the space and their understandings of risk and risky behaviour.

Using Lyme borreliosis as an example of a zoonotic disease risk

Our example risk is LB which is caused by the spirochete Borrelia burgdorferi. This is transmitted between reservoir hosts (a wide range of birds/mammals), and humans through the bite of an infected arthropod vector (ticks or Ixodes ricinus in the United Kingdom). While only a minority of ticks carry borrelia, early symptoms of infection in humans include a bulls-eye rash and flu-like symptoms that can be treated with antibiotics (Health Protection Agency, 2010). However, if removed promptly, infected ticks are unlikely to transmit borrelia to humans (Direct Gov, 2009). The incidence of LB is increasing in the UK (Health Protection Agency, 2011). A recent DEFRA report on zoonoses (2011) suggests that the majority of cases of LB are acquired while participating in outdoor recreational activities. People are most likely to come into contact with ticks in late spring, early summer and autumn (Defra, 2011).

There are certain aspects of LB which make it a particularly interesting risk to study. Firstly, it is relatively unusual with about 800 diagnosed cases a year in England and Wales (Quine et al. 2011). Secondly, many people are not familiar with the risk. Thirdly, it is an insidious risk as people often do not notice they have been bitten by ticks. Fourthly, the LB symptoms are not easily recognisable thus making LB difficult to spot even for the medical profession (the skin rash erythema migrans is specific to LB but can fade before it is noticed) (Health Protection Agency, 2011). Finally, although LB is easily treated with antibiotics in the first weeks after infection, if it goes undiagnosed it can develop into more debilitating conditions (e.g. neuroborreliosis and complications with musculoskeletal and cardiovascular systems (O’Connell, 1995 and 2005). Given these facets of LB and potential barriers to protection, it is valuable to explore how the public make sense of the risk and any recommended precautionary measures, and how they embed the risk of LB in the values and practices they attach to woodlands.
**Design and procedure**

We developed a three stage mixed methods approach for this research in order to explore in detail and situate value and risk in the context of woodland use. The three stages were as follows (Table 1):

**Stage 1:** a photo elicitation (Harper, 2002) task during a one hour walk through the forest to establish the broad context of woodland value (Photo 1). The participants were requested to take photographs of specific elements that they valued (e.g. an individual tree) or that represented something of wider value (e.g. woodland space for socialising with others). They were also asked to take photographs of any negative aspects of the woodland that might affect their experiences of value. Participants were asked to write short notes explaining why they had taken each photograph.

**Stage 2:** a semi-structured schedule was developed for group discussion indoors after the walk, comprising questions about:

(i) the potential risks found in woodlands
(ii) the participants’ experience of any woodland risks encountered;
(iii) the participants’ views and understanding of LB.

**Stage 3:** two posters (Figure 1) communicating the risk of LB were displayed and participants were requested to read these and then complete an evaluation questionnaire for each poster; the questionnaire was the same for both posters. The first poster was a leaflet called ‘What is Lyme disease?’, produced and used by the Royal Parks in London that focused entirely on LB. The second poster was based on early findings of our overall RELU research project and set the risk of LB in the wider context of biological life within the wood. The title of the poster was ‘Alice Holt Forest is teeming with life’. Quotes were used in this poster from interviews undertaken (as part of the wider RELU project) with those who had LB and identified some of the information they felt they could have benefited from before getting LB. The questionnaires assessed the participants’ understanding of the symptoms of LB gained from the posters and of the precautionary measures that can be taken to reduce risk. In addition, the questionnaire evaluated the participants’ perceptions of risk from being bitten by an infected tick, their information sufficiency in relation to the risk of LB, and their preferences for precautionary measures during future visits to the countryside (see Griffin et al. 1999).

**Data analysis approach**

Photographs were sorted into positive and negative categories, descriptions of why photographs were taken were transcribed and coded for themes in NVivo (Qualitative software). For ease of analysis the photographs were categorised into canopy shots, individual tree shots, pictures that focused primarily on the ground, photographs of general woodland scenes and shots that focused on specific detail such as rubbish, a spider’s web etc. Discussions were recorded using dictaphones and these were transcribed verbatim and coded for themes (following thematic analysis outlined by Braun and Clarke, 2006). The questionnaire data were analysed in SPSS15 using non-parametric tests. Wilcoxon signed-rank tests were conducted to assess the differences between the two posters and on the eleven questions focused on LB risk communication.

After applying the correction required for multiple statistical tests (following the Bonferroni corrections see Abdi, 2007) it was evident that there were no statistically significant differences between the posters, thus the mean scores were derived from both posters and these scores were the subject of the analysis.

**Results**

We start by presenting the ways in which values concerning woodlands were demonstrated through the photographs taken by participants. Following this we identify the ways in which participants debated and made meaning of risk in the woodland environment.

**Values for woodlands**

Of the 203 photographs taken by participants over

### Table 2. Values and negative issues identified by participants and grouped into themes in the analysis by the authors

<table>
<thead>
<tr>
<th>Analytical themes</th>
<th>Written responses of participants accompanying the photographs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restoration and atmosphere</td>
<td>Calming, tranquil, peace, quiet, inviting, magical, mystical, forest atmosphere.</td>
</tr>
<tr>
<td>Aesthetic/sensorial characteristics</td>
<td>Light, shapes, leaves, vivid blue sky, glades, clearing, vista, contrasts (colours, wood, water), textures (lichen/moss).</td>
</tr>
<tr>
<td>Sensory - non visual</td>
<td>Bird song, quiet, peace and quiet.</td>
</tr>
<tr>
<td>Features of interest</td>
<td>Textured tree stump, hollowed oak with Ivy, yew trunk formation, plated tree trunk, unusual trees — redwoods, yews, avenue of maple trees.</td>
</tr>
<tr>
<td>Sustainable management</td>
<td>Brushing, new trees important for regeneration.</td>
</tr>
<tr>
<td>Spaces for people</td>
<td>Paths, easy walk ways, attractive trees for visitors and employees.</td>
</tr>
<tr>
<td>Negative impacts</td>
<td>Person induced — debris and litter. Management issues — not clearing litter, not providing appropriate signage, maintenance of signs.</td>
</tr>
</tbody>
</table>

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three quarters (n=158) were classed by participants themselves as positive and 45 as negative. Very similar numbers of positive photographs were taken by each group (between 47-54 per group) and negative photographs (11-12 per group). Pictures of broad general scenes were the most common type of photograph taken (n=92), followed by shots of individual trees (n=50), and then shots of specific details (n=33), the ground (n=26) and the canopy (n=2) (Photo 2).

**Positive Values**

The key themes that were identified in the analysis of data (Table 2 and Figure 1) suggest that participants hold a wide range of values for woodlands.

These values included the peaceful and atmospheric nature of the woodland and its aesthetic character which can provide vistas, and contrasts of textures and colours. Wider issues of nature and naturalness were identified through the importance of woodlands for wildlife, conservation of woodlands and regeneration of nature. Features of particular interest mostly related to unusual trees. Participants enjoyed the quietness, the chance to listen to bird song and were aware that the woodland was an important space for others, as well as themselves, to enjoy their leisure. One participant talked about wanting to take a photograph of the peace and quiet. Being asked to take photographs of what they thought was important in the wood, or any negative aspects they noticed, provided people with an opportunity to stop and take a closer look at their surroundings. For some this was unusual:

[Photograph taken: View looking up a tree] Respondent’s comment: ‘I like this, I think you notice a lot more about the forest if you stop to take a look around, something I’ve not really done before’. (Participant from Group 1)

It became clear from the comments that accompanied the photographs that people thought beyond individual value and benefit for themselves to wider values concerning nature conservation and benefits to others. Symbolic values of nature included the magical and mystical, trees and woods as part of the cycle of life and regeneration. There was also consideration given and reference made to issues such as sustainability and biodiversity;

‘A picture of new trees, important for regeneration for the forest’ (Participant from Group 1)

‘Moss on tree stump – natural, and source of food for wildlife’ (Participant from Group 2)

Participants also noticed specific detail in the woodland around them. They identified features that were important to them and worthy of note and which added value to their woodland experience:

‘Redwood – very interesting bark’ (Group 1)

‘Tree with ivy and moss’ (Group 3)

‘Hazel and catkins – different textures’ (Group 3)

‘Lichen on dead branch, beautiful light on lichen, insects wildlife’s paradise’ (Group 4)

‘Old yew tree with interesting trunk formation’ (Group 2). [Written comments with photographs]

**Negative values**

Negative views of the woodland could be divided into two main categories that related to what went on in the woodland rather than specific issues about the woodland itself. These were:

1) person-related/induced issues and 2) management issues.

Person-related issues were to do with litter left behind by other woodland users such as crisp packets, an old drain pipe, bottles and cans, and dog faeces. Management issues were related to management operations that participants may not agree with (such as putting a fence around a pond) or the perceived lack of required interventions such as clearing fallen branches, maintaining sites or providing no or little signage.

Overall, the findings from the photo elicitation task suggest that people represent woodlands, not just Alice Holt woodland, as restorative, inherently peaceful and mainly risk-free environments, where the only apparent risks are man-made. These representations of woodlands served as a backdrop for the group discussions on the issue of woodland risks and LB.
Assigning meaning to the risks encountered in the woodland environment

The themes in this section focus on the risks identified by participants and issues of health and safety, followed by how participants make sense of and differentiate various types of risk.

Presence of risks and issues of health and safety

Having identified some of the ways in which people valued the woodland environment through the walk in the woods, the group then moved indoors and explored, through discussion, the risks that people can encounter in woods and the wider countryside. The participants talked about what they had experienced personally or what they had heard about from others i.e. family or friends. These included hazards associated with large animals and domestic stock such as walking past cows with calves, dogs, adders, proximity to ponies/horses, deer. Management activities such as timber production, military operations on Ministry of Defence (MOD) land, and biological conditions such as algae in ponds, were also brought up in the discussion. Ticks were not mentioned spontaneously by participants in the initial debate of potential risks, possibly because this was a less obvious risk to them. While the debate was situated within a woodland context, participants brought issues to bear and experiences from their everyday lives in order to try and make sense of risk. There was understanding and acknowledgement that citizens cannot live in a risk free society, all risk should not be eliminated and that risk can be positive and valuable as well as negative. For example, participants constructed the need for a certain amount of risk so that children can learn and develop; some risks were also identified as fun and it was understood that some people may seek out risk through active leisure activities such as mountain biking.

Making distinctions – starting to categorise risks

Through their interaction and discussions the participants identified a number of distinctions when thinking about risk. For example, they talked about:

- Risks that are visible and can be easily seen - this included timber logging and harvesting activities where there are signs and potentially areas within the forest that are sectioned off while management takes place.
- Risks that are less visible or invisible such as the spraying of vegetation.

There was understanding and acknowledgement that citizens cannot live in a risk free society, all risk should not be eliminated and that risk can be positive and valuable as well as negative. For example, participants constructed the need for a certain amount of risk so that children can learn and develop; some risks were also identified as fun and it was understood that some people may seek out risk through active leisure activities such as mountain biking.

Box 1. Common quotes from individual participants on health and safety

<table>
<thead>
<tr>
<th>Issues of health and safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘health and safety gone mad’ (Group 2)</td>
</tr>
<tr>
<td>‘the usual thing they’ve got now is health and safety and it’s rammed down ones throat practically every day in one form or another’ (Group 4)</td>
</tr>
<tr>
<td>‘well it’s a touch of the Nanny state, which unfortunately there is so much stuff now that you can’t do….’ (Group 3)</td>
</tr>
<tr>
<td>‘it all gets blown out of proportion, it would be stupid having signs everywhere’ (Group 1)</td>
</tr>
</tbody>
</table>

Figure 1 continued.
Ape (a high wire woodland adventure experience), and potentially dangerous old mine shafts or disused buildings. Legally landowners have a duty of care to ensure that a visitor will be reasonably safe in using their premises. However visitors should also behave responsibly and not put themselves at risk.

- Risks that people may not, or do not, need to be told about – this related to ideas of ‘common sense’ that participants talked about. For example, cycling and mountain biking could result in a person falling off their bike but it was felt no warning was needed about this as such potentially risky activities were seen to be undertaken voluntarily.

Participants also suggested that it was useful to identify different groups of people who might be at risk in various situations; in particular they contrasted the risk to workers (i.e. those who work in woodlands whether on management of the woodland or leading recreation activities) with risks to the wider public. Some risks were constructed as ‘natural’ (i.e. part of nature such as adders) and therefore not something where action should necessarily be taken while risks constructed as ‘man made’ such as harvesting operations were thought to need action such as putting up warning signs.

**Awareness of LB and responses to communication on LB**

Three themes are identified in this section and are based on the discussions and questionnaires. They include: familiarity and communication; issues of action that might be undertaken; and finally debates about responsibility.

**Limited familiarity and communication**

Awareness of LB was mixed. When participants were specifically asked about this issue, 20 participants stated that they knew about LB before taking part in this research and 19 did not. Nine said they knew about the precautions to take against LB. One person stated she had been diagnosed with LB and had been treated successfully with antibiotics. Another person’s sister had had LB and someone’s colleague had also had LB, both of whom were not apparently diagnosed quickly and were said to have been badly affected by the disease for a number of months.

<table>
<thead>
<tr>
<th>Nature/naturalness</th>
<th>Features of Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Lichen on dead branch, beautiful light on lichen, insects wildlife’s paradise’ (Group 4: ages 50-71)</td>
<td>‘Yew magical and mystical (faces in tree)’ (Group 3: 50+ age group)</td>
</tr>
<tr>
<td>‘Hollow oak with ivy’ (Group 4: 50-71 age group)</td>
<td></td>
</tr>
</tbody>
</table>

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**Table 3. Open text responses by participants to two posters communicating the risk of LB**

<table>
<thead>
<tr>
<th>Participants were asked to read the posters and write down the first three thoughts or images that came to mind</th>
<th>Participants open text responses from the poster questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative comments (many felt the poster provided too much information)</td>
<td>Too many words</td>
</tr>
<tr>
<td></td>
<td>Don’t go to the forest</td>
</tr>
<tr>
<td></td>
<td>Every time I go into a wood I’m-going to be bitten by a tick</td>
</tr>
<tr>
<td></td>
<td>Scary</td>
</tr>
<tr>
<td></td>
<td>Too much information</td>
</tr>
<tr>
<td></td>
<td>Could put people off visiting</td>
</tr>
<tr>
<td>Positive comments (of particular interest were photos and diagrams that showed what to look out for)</td>
<td>Good illustrations</td>
</tr>
<tr>
<td></td>
<td>Personal experience comments useful</td>
</tr>
<tr>
<td></td>
<td>Informative</td>
</tr>
<tr>
<td></td>
<td>Clear information</td>
</tr>
<tr>
<td></td>
<td>Eye catching</td>
</tr>
<tr>
<td></td>
<td>It’s good to have a big picture of the actual tick to take notice of</td>
</tr>
<tr>
<td>Actions that could be taken (some confusion amongst participants of which actions were the most important to undertake)</td>
<td>Watch out for ticks</td>
</tr>
<tr>
<td></td>
<td>A quick and easy way to remove a tick</td>
</tr>
<tr>
<td></td>
<td>Wear the correct clothing to prevent ticks</td>
</tr>
<tr>
<td></td>
<td>Antibiotics – take if infected</td>
</tr>
<tr>
<td>Questions/clarification</td>
<td>Would like to see picture of tick attached to the skin not on the finger</td>
</tr>
<tr>
<td></td>
<td>Tick population- between April-October?</td>
</tr>
<tr>
<td></td>
<td>The risk of attachment is small?</td>
</tr>
</tbody>
</table>
Interestingly, with Space for people and woodland experience (Box 2). woodland (this was particularly the case for the impinging on the participants’ practices in the cautionary action was more strongly viewed as well as the group discussions suggest that taking precautionary measures during a visit from those taken after visiting. There was a marked preference for taking action after visiting woodlands such as checking skin for tick bites, checking for a rash or seeing the doctor if unusual symptoms were noticed, rather than taking precautions before hand, such as covering bare skin, and using insect repellent. Participants indicated higher preferences for precautions post-visit (Mdn = 5.63) than for precautions during visit (Mdn = 3.50). T = -4.92, p < .001, r = -.56. Interestingly, precautions post-visit was positively and significantly correlated with self-efficacy, rs = .33, p = .046, with worry about being bitten by an infected tick, rs = .42, p = .007, and with perceived severity of LB, rs = .46, p = .003.

The above responses to the questionnaires as well as the group discussions suggest that taking precautionary action was more strongly viewed as impinging on the participants’ practices in the woodland (this was particularly the case for the younger age group) and reducing the value of their woodland experience (Box 2).

Participants tried to make meaning of the relative risk of contracting LB. One of the posters outlined that approximately 800 people a year are diagnosed with LB (Quine et al. 2011). Participants argued that out of the millions of people who must be visiting woodlands and the countryside per year this was a very small percentage. A couple of people suggested that the total numbers of visits should be stated so they could compare that with the numbers diagnosed. They also wanted to know how many people got bitten with LB (Quine et al. 2011). Participants felt without this type of information they could not judge how great the risk was to themselves. ‘But put it into context of how many people actually got bitten as well, because 800 people got Lyme disease from a bite but probably 8 million got bitten by a tick’. (Group 1)

Responsibility: whose problem is it and who might take action?

Issues of responsibility for dealing with risks and any actions undertaken arose from the discussions and participants started to make distinctions between individual, parental and organisational/management responsibility. Personal responsibility was thought appropriate for the ‘common sense’ issues constructed...
around activities such as cycling and walking in the woods. As one respondent stated:

'If you’re doing something like that [active leisure] you’re going to know the risks, like if you go skiing you know that people break their arms and legs all the time. Obviously riding a bike you could fall off, the Go Ape stuff’s pretty safe, you’ve got the harnesses and stuff but I think you’re aware of the risks when you’re doing the activity’ (Group 1)

It was argued that people were also personally responsible for controlling their dogs and horses. There was some debate about those in more urban areas who might potentially be less familiar with woodlands and not be aware of any potential risks, and therefore might need more information. Parents were thought to be responsible, for example, if their children were climbing trees, and ensuring they did not climb timber stacks by the side of footpaths.

One of the participants who had heard and knew of LB described how she picked up a tick in the wood and assigned the responsibility of that to herself and her own actions:

'I've had a tick from here and it was my fault because I was walking in bracken with the dog and had shorts on, and when I got home I saw this little thing on my leg, but that was totally my fault’ (Group 4)

The participants also suggested that organisations might not want to raise awareness about LB; however, because it occurs in nature it was said not to be the responsibility of an organisation if someone gets bitten:

'Surely, if somebody goes for a walk in this wood and gets bitten by a tick it can’t be the responsibility of the Forestry Commission?’ (Group 3)

Some argued that organisations should not put up too many signs and overwhelm visitors with health and safety issues as this might reduce the value of people’s woodland experiences and the perceived naturalness of this environment. Participants also discussed who was responsible for providing information on something such as LB – for some it was thought of as a health issue rather than a land management one.

'Well people will have already been informed. You are saying that the Forestry Commission should do all the informing whereas maybe the National Health or whoever.' (Group 3)

A further extract from this group’s discussion highlights how people thought through and discussed the issue while relating it to other everyday practices and wider issues of liability (Box 3).

Some distanced themselves from the risk and tried to put it into the context of other risks:

'...at the end of the day if you’re going to get bitten you’ll probably see it. It’s not that big a deal I don’t think. If I found a tick on me I’d be like, ooh, but you’d remove it and then probably not worry about it. OK you might look at for the next few days and think, well if suddenly you get a nice red bite or something or its starts expanding, then you’d be a bit more worried about it. That’s life isn’t it. You go on holiday and get bitten by a mosquito that can have malaria in it’. (Group 1)

**Discussion**

**Values and risk**

This research has explored some of the risks people encounter in woodlands (with a specific focus on LB) and how they respond to these, what awareness
people have of LB and how they respond to risk communication about this particular disease and how this is set within the broader context of people's values for woodlands. The findings concerning values for woodlands and the countryside have resonance with other work such as a large scale survey in England in which the most frequently cited reasons for visiting the natural environment were to relax and unwind, enjoy fresh air, pleasant weather and scenery (Natural England, 2010). Also a survey of woodland use across the UK found that visits just to watch nature, relax and think were important (FC, 2009). A growing body of research shows nature as a potential arena to deliver salutogenic (health improving/supporting) health and well-being benefits (De Vries et al. 2003; Mitchell and Popham, 2007 and 2008; Nilsson et al. 2011). These can include physical benefits from exercising in nature, social contact benefits from using and enjoying nature spaces with friends, family and others, and psychological benefits from stress reduction, restoration and relaxation that can take place when people have contact with nature (Nilsson et al. 2011). It appears that for woodland users the benefits they gain and the practices undertaken to secure those benefits (e.g. visiting woodlands, visiting with friends/family etc.) are of worth to them and focusing too much on risks in this environment would detract from their experience. This applied particularly to risks that people viewed as very small. These findings concur with those shown by Marcu et al. (2011) in their interviews about LB with countryside visitors in the UK.

Overall it was clear from the discussions that respondent's values for woodlands and ideas of nature and naturalness was something that was taken into consideration when they thought about risk, discussed communication of LB and potential responses to risk. Too much signage on health and safety, having to consider what to wear (i.e. appropriate clothing) and what to bring (i.e. insect repellent) was argued as spoiling the experience and enjoyment of engagement with woodlands that would impinge on people's broader values of having contact with nature. This is what Marcu et al. (2011) describe as 'distancing from risk'. Younger participants in particular were reluctant to take any precautionary action; even post woodland visits.

Methodological Issues

Research on risk and risk communication uses a wide range of methodological approaches including interviews, focus groups, and questionnaires. The combined methods used in this study are less usual i.e. going for a walk with participants, photo elicitation, discussions and questionnaires (Joffe, 2003). We suggest that this approach is particularly useful for situating a particular risk (in this case LB) within the context of people's values and practices to gain a better understanding of how people make sense and meaning of the risks they may be faced within a specific context. The approach highlighted that there were shared common meanings and understandings amongst participants around health and safety issues and the sorts of clothing people would wear on a summer visit to woodlands. However this was an exploratory case study and the number of participants was small and there are some practical implications to consider as it can be difficult to recruit participants for the approximate three to four hour time commitment these methods required: including the research activity and travel to and from the site. On the other hand the participants that did get involved described gaining enjoyment from their walk through the woods and discovering a new part of the woodland most had not experienced before.

Concluding remarks

People value woodlands in a range of ways both personally for restoration and more broadly as a space for others and in terms of sustainability and biodiversity. Many of these values broadly correspond with those found in a range of other research on woodlands (Henwood and Pidgeon, 2001; O’Brien, 2005; O’Brien and Morris, 2009; Dandy et al. 2011). In making meaning of the risks in woodlands participants take account of these broad values and make distinctions between,

a) what they construct as 'common sense' understandings related to more familiar visible risks which people know of or have experienced (e.g. mountain biking),
b) risks associated with what is perceived as natural or part of nature (e.g. adders) and
c) risks associated with human/organisational activities such as woodland management and timber harvesting operations.

Due to these distinctions participants expect different approaches to be taken in dealing with risks. In viewing the two posters communicating and raising awareness of LB, participant's framed this in the context of their own everyday experiences, practices and use of woodlands e.g. what clothes they wear and activities they undertake, who they visit with. They discussed actions that they would not be prepared to take, such as wearing long sleeved tops or long trousers on hot days, as it would impact on the value of their experience. These measures were at odds with people's behavioural preferences.

What do these findings mean for those policy makers and managers who want to encourage people to use woodlands but avoid acquiring LB? Contrary to some managers' concerns, providing information on LB does not (seem to) lead participants to identify the risk as impeding or changing their use of woodlands – i.e. making them more fearful and less likely to visit a woodland (Marcu et al. 2011). Practical implications for communication of LB by providing information on posters/leaflets suggests that a short, clear and concise approach with suitable diagrams might be particularly useful along with a focus on post visit action i.e. looking for attached ticks after a woodland visit or visiting the doctor (Quine et al. 2011; Marcu et al. 2011). Finally any information on LB 'in situ' i.e. in the woodland environment should
be sensitively placed so as not to reduce the ‘naturalness’ of the experience. Responsible management was not equated, in the case of LB, with the need for a lot of visible warning signs or information.

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