

Chapter 1 Woodland wellbeing

The 2030 Agenda for Sustainable Development, with its seventeen Sustainable Development Goals (SDGs) (United Nations, 2015), has become the central framework for guiding development policies in countries throughout the world. Sustainability is not just about ‘looking after nature’ but includes social justice and the wellbeing of all who share this planet through economic, political, social and natural dimensions. There are many studies that have linked natural environments and human wellbeing. In our book *Wellbeing from Woodland*, we zoom in on natural and social aspects of woodland experiences in England and how these might support sustainable approaches to wellbeing. In this first chapter, we outline the power that green spaces have for human health and wellbeing, before beginning to explore the special place that trees, woods and forest occupy in relation to people, how this varies according to species and cultures, what qualities make woodland special, and how certain cultural woodland practices intersect with feelings of wellbeing. In summary, we offer an introduction to woodland wellbeing.

The power of green and our evolution within nature

Our human attachment to trees, woods and forests and capacity to gain wellbeing from spending time in arboreal landscapes can be explored through the lens of our evolution within green environments. Much research about the power of green landscapes concerns human interactions with ‘nature’ or ‘natural environments’. Pinning down exactly what is meant by these terms and specifying effects and relationships is complicated (Wilson, 2019). However, there is strong evidence that green, even on screen (Lohr & Pearson-Mims, 2006; White et al., 2018) is beneficial for human health and wellbeing. Several theories, summarised below, explain our perceptions of green landscapes and associated impacts to our health and wellbeing as effects of our evolved responses to environment (Hartig et al., 2011). These suggest that human preferences for green are innate responses to landscape that are in no way random but evolved to meet our needs.

Biophilia

The biophilia hypothesis, first proposed by Wilson (1984) and developed by Kellert (1995), identifies people’s positive responses to nature to be an evolutionary adaptation for enhancing survival. The biophilia concept suggests we possess an innate ‘biocentric’ affinity

with the natural world, that is rooted in our coevolution (Wilson, 2009). This long-evolved kinship is arguably demonstrated by our emotional reaction towards natural environments and their presence across cultures (Wilson, 2009, Lumber et al., 2017). Biophobic responses (such as fear of snakes) are seen by some as complementary in heightening chances of human survival through promoting aversion to threats (Ulrich, 1993). There are two subsets of rationale linked to biophilic theory which help explain human orientation toward natural environments:

1. Savannah theory suggests that we are genetically programmed to prefer landscapes with spreading trees and broad vistas where early humans developed (though Han, (2007) points out that evolution in savannah areas is now contested).
2. Prospect-refuge theory attributes preference for landscapes to survival advantages of seeing without being seen. It is linked closely to functional interpretations of preference where objects are perceived by humans in terms of what they allow, such as Gibson's theory of affordances (1979).

Kahn (1997) questions how far biophilia is genetically determined, whether biophobic reactions contradict the proposed affinity with nature, and how the influence of experience and culture may shape any innate propensities.

Environmental Preferences

This theory suggests that the optimally preferred environment is one that has predictability but also elements of complexity and uncertainty that encourage individuals to seek more information. Visual complexity of a landscape, for example, could indicate richness of resources, whilst patterns and coherence may make a landscape relatively easy to interpret (Kaplan, 1992). Changeable natural environments stimulate preference through their intermediate balance of the new and familiar alongside a heightened state of awareness that is thought to have survival advantages (Kaplan and Kaplan, 1982).

Restoration

Theories about restoration through nature experiences also assume that a person will innately prefer and seek out circumstances they find pleasing and so share ground with the evolutionary-based theories described above. Their distinct contribution is to contrast human responses to natural and built environments and the differing demands these settings place on our cognition. Restoration theories tend therefore to be more

psychologically and culturally focused. Two main strands of explanation underpin restoration theorisation:

1. Psychoevolutionary theory (PET) argues that humans experience involuntary pleasure and consequent recovery from stress in safe natural environments and that this response is the hallmark of an evolved reflex (Ulrich et al., 1991, p. 208). Early humans that recuperated in unthreatening landscapes may have better managed their survival. Our general preference for natural over urban settings (Ibid) may still have evolutionary advantages in managing stress.
2. Attention Restoration Theory (ART) suggests our brain processes require rest from directed attention (a focus frequently necessary in modern contexts, but a limited resource), through the comparatively effortless 'soft' fascination of natural environments. The four stages of restoration include: 1) 'clearing the head', 2) recharging directed attention capacity. 3) random unbidden thoughts facilitated by soft fascination, 4) 'reflections on one's life, on one's priorities and possibilities, on one's actions and one's goals' (Kaplan and Kaplan, 1989, p. 197). This affordance of reflection, particularly upon our self and circumstances, may help us resolve distracting issues, further restoring our attention (Basu et al. 2018).

Taken together, these predominately evolutionary and psychological theories have underpinned many reported associations between green environments and both therapeutic and preventive health and well-being outcomes (Hartig et al., 2011).

Testing hypotheses of benefits

These hypotheses have inspired numerous experimental studies exploring the association of green with relief of stress and cognitive fatigue in various populations. The siting of trees and plants outside apartment blocks has been argued, for example, to alleviate mental exhaustion and refresh attention amongst female residents (Kuo, 2001; Kuo & Sullivan, 2001), so that women feel better able to manage personal concerns and intrafamily aggression (Ibid). These findings form some of the results from an influential series of studies by Kuo and colleagues in the late 1990s, which led the researchers to propose increasing tree cover as a preventive strategy for avoiding negative social effects. The researchers conducted several large-scale studies in Chicago comparing buildings and spaces with varying levels of tree and grass cover (and controlling for potentially confounding social and environmental factors). Greener spaces were defined by a greater

number of trees and their presence transformed barren areas previously viewed with suspicion into spaces well-used by local communities and associated with lower levels of graffiti, property and violent crime (Kuo et al., 1998). Public housing residents also showed a strong preference for images of urban landscapes with more trees, leading Kuo (2003) to conclude that urban forest should be integrated into residential areas.

Focusing on forest effects

A number of experimental studies focus on the physiological and psychological aspects of human responses towards woods and forests. A review by Forest Europe (Marušáková & Sallmannshoferet, 2019) found strong evidence that forest visits impact positively on restoration and psychological wellbeing, improve mood and attention and speed psychological stress recovery (Berman et al., 2008; Berto et al., 2018; Hartig et al., 2003; Laumann et al., 2003). It also established there is increasing evidence that time spent in woodland has positive physiological effects, including lowering blood pressure and pulse rate, cortisol levels and sympathetic nervous activity (Meyer and Kotsch, 2017; O'Brien & Morris, 2014; Tyrväinen et al., 2018; Martens and Bauer, 2013; Morita et al., 2007). For example, female walkers in forests had reduced perceived tension and confusion (Stigsdottera et al., 2017), whilst office workers visiting for a day demonstrated lowered blood pressure during their visit and for the following five days (Song, et al., 2017). It can be difficult, however, to disentangle the influences of the place and the activities undertaken there. Hansmann et al. (2007) in their study of improvements in stress-related complaints through time spent outdoors found the recovery ratio for stress was 87% on five-point rating scales, but the duration of visits and level of physical activity significantly enhanced positive effects compared to visits involving less strenuous pastimes such as taking a walk or simply relaxing.

Much of the evidence for the impacts of time spent in forests is emerging from Asia, notably Japan, China and Korea, where therapeutic Shinrin-yoku or forest walking or 'bathing' inspires research (Kobayashi et al. 2018, Li, 2009, Park et al. 2010). This practice of immersing oneself in nature by mindfully using all five senses is a preventive health care initiative that started in the 1980s in Japan. Hansen et al. (2017) conducted a systematic review of 64 studies pointing to positive health benefits for the human physiological and

psychological systems from this intervention. It has been associated with therapeutic effects on: (1) the immune system function (increase in natural killer cells/cancer prevention); (2) cardiovascular system (hypertension/coronary artery disease); (3) the respiratory system (allergies and respiratory disease); (4) depression and anxiety (mood disorders and stress); (5) mental relaxation (Attention Deficit/Hyperactivity Disorder) and; (6) human feelings of “awe” (increase in gratitude and selflessness) (Hansen et al., 2017). Within their review, 12 studies specifically addressed stress and stress-related heart disease, emotional distress and chronic depression, alcoholism, sleep disorders, and pain. For example, Kim, Lim, Chung and Woo (2009) found a 4-week forest-walking based Cognitive Behavioural Therapy programme for treating clinical depression resulted in a significant remission rate of 61% compared to hospital-based therapy (21%). Ideno et al. (2017) compared trials of interventions walking in forest areas (11) or sitting and viewing forest landscapes (7) with the same activities in non-forested city areas (13), sitting in a room (4), or with only measuring blood pressure daily (2). Most trials lasted less than 2 hours (16 trials), but two were longer than 1 day. The meta-analysis showed that the forest environment had a significant effect on lowering blood pressure. Another review of the physiological effects linked to stress reduction of Shinrin-yoku (Park et al., 2009) showed that forest environments could lower blood pressure, sympathetic nerve activity and concentrations of cortisol, and slow pulse rates compared with city settings.

Some of these studies have added a further dimension to stress reduction and attention restoration theorisation, suggesting that the plant life of forests may have a chemical effect on human physiology. Authors exploring improved immune system function and stress reduction following time spent in forests have proposed ‘phytoncides’, the natural essential oils that trees use to defend themselves from pests, as promoting these outcomes (Li et al., 2008, Li, 2009, Lee & Lee, 2014). Spending time in this unique chemical environment has been proposed both as a form of preventative medicine and immune system support in the treatment of disease such as cancer (Kim, 2015).

Complicated associations

These types of findings have been taken up with enthusiasm by audiences seeking to establish how and why green environments support human health and happiness, but there are limitations within the current evidence base. A 2016 systematic review of research exploring ART found for example that studies were so diverse in design, definitions, outcomes and participants that comparisons and conclusions were difficult to draw (Ohly et al. 2016). Some key assumptions within ART also remain relatively empirically untested such as the presumed functions of soft fascination (Joye & Dewitte, 2018) with some evidence suggesting it can also characterise attention to natural features not indicative of human survival (Menattia et al., 2019). Researchers have also cautioned that definition of 'green' space and the metrics measuring exposure to it in experimental studies vary considerably making it difficult to compare effects (Dinand Ekkel & De Vries, 2017). Finally, a number of experimental studies also argue that identity, our subjective sense of who we are, can play an important role within environmental preferences and their capacity to restore us, something GfW research case studies explored in further chapters corroborates (Buijs et al., 2009, Knez et al., 2018, Morton et al., 2017, Wilkie & Stavridou, 2013). For example, Lohr and Pearson-Mims (2006) carried out a US based experiment to see whether emotional and physiological responses to scenes with trees of different forms confirmed the savanna hypothesis. They measured aesthetic preference, affective responses, skin temperature, and blood pressure before, during, and after viewing slides of urban scenes with inanimate objects or trees with different forms (comparing responses to a spreading tree or a conical and rounded shaped tree and more open or denser tree canopy). Scenes with trees were all liked more than those with inanimate objects but spreading treeforms and denser canopy were marginally but significantly preferred, which supports explanation of biophilia through savannah and prospect and refuge theories. However, Coss & Moore (2002), in a similar study with 3- to 5-year-old children, found children reported the columnar shape of the familiar Australian pine prettier than an African umbrella thorn tree, but chose the spreading form as preferable to climb, to hide in, to sleep in, or to feel safe from a lion. Such findings suggest that innate responses to nature may be entangled with those that are learnt, in ways yet fully understood. This evidence reinforces that cultural influence and explanation should warrant careful attention.

Cultural perspectives on woodland

Alongside possible innate preference for treed landscapes, our attachment and capacity to feel good in relation to trees, woods and forests varies in relation to social, cultural and economic factors. From a minority world viewpoint, for example, it is easy to forget that non-wood forest products (NWFPs) provide food, income, and nutritional diversity for an estimated one in five people around the world, notably women, children, landless farmers and others in vulnerable situations (SOFO 2018). Trees' material value to humankind varies; for some, an essential living source of food, tools and shelter; for others, felled for timber, fuel and to create space for crops (SOFO 2018). Human populations are increasing rapidly and expected to reach 10 billion by 2050 with a corresponding 50% increased food demand, putting enormous pressure on forested areas in poor areas to convert to agriculture, but threatening the livelihoods of those dependent on the forest and the continuation of variety of life on Earth. Trees regrow, at least if they are not clear felled. This capacity to withstand many forms of attack and their resilience are perhaps also sources of trees' cultural importance. They not only provide for our physical needs but inspire endurance and fortitude. As Wilson (2019, p. xvi) suggests, 'Trees do more than nurture our physical bodies; they nurture our spirits and our souls, as well'.

People respond more positively to trees than to other plant types in the landscape (Tahvanainen et al., 1996) and they are interwoven into our ideas about who we and our communities are. Many religions for example have symbolic trees, like the tree of knowledge in the Garden of Eden and the Bodhi tree beneath which Buddha found enlightenment. In Maori culture, the towering kauri tree is the son of Land and Sky and God of the Forest. Trees have also been associated with the nurturing of mankind since ancient times. Some species of ash tree exude a sugary substance called *méli*, which was harvested commercially in Greece until recently, and in Norse mythology, Yggdrasil, the world ash, is said to have mead flowing through its branches and to rain honey (<http://www.musaios.com/ash.htm>). Tree and forest imagery have been central to projects of nation building for example, the Oak is emblematic of reputed steadfastness and endurance in England (MacNaghten and Urry, 2001, Stafford (2016). While the tree is often valorised in the singular, *en masse* as 'forest', they sometimes elicit more ambivalent views, with many fairy tales depicting woods as dark, unsafe and hostile. Spiritual, literary and

cultural meanings enrich the scientific biodiversity represented by the over 60,000 species of trees on our planet. Several studies of public views of woodland in the UK have found that adults perceive trees in relation to such historical and cultural significance, as symbols of nature, life, the state of the environment and British values (O'Brien, 2005, Carter et al., 2011).

There are many woody words beyond forest and woodland, such as copse, spinney, grove, jungle, backwoods, weald, bush, brake, boscage, coppice, chase, plantation, scrub, thicket, greenwood, wildwood, rainforest, which conjure a variety of cultural associations, and this is just in the English language. England itself only has 13% of wooded land compared to an average of 44% in the rest of Europe and 31% worldwide (SOFO, 2018). Like snow types in Inuit, the density and types of trees within forests within different countries perhaps impacts both on the number of associated words and the cultural meanings that they represent. For example, when there was a threat to publicly owned forests in England in 2011, the response was an unanticipated popular outcry. This may have reflected preferences for arboreal landscapes, cultural valuations of this natural heritage, but perhaps also an awareness of the scarcity of this resource is in England -the chance that access might be further restricted hitting a chord with many (BBC, 2011). Plans to privatise large areas of publicly owned forest resulted in 42,000 responses to a public consultation by the Panel appointed to advise on forestry policy in England (Independent Panel on Forestry, 2011). The potential loss of this asset refreshed popular appreciation of woodland, which had been stimulated earlier following widespread felling between 1950 and 1975, and gathered pace during shifts to more mixed woodland planting since the 1990s and the establishment and expansion of the UK's Woodland Trust (Rackham, 2010).

Trees are often seen as totems by long-established communities that had grown up alongside them (Ingold, 1993) carrying meaning across generations, but diverse cultural meanings can collide. Indigenous management of forests in India based on mutuality of humans and nature were transformed into plundered timber mines during British colonisation (Macnaghten and Urry, 2001). Similar tensions between conflicting values are evident in Levang et al's study (2007), describing how extreme deforestation in Indonesia is

entangled within priorities of economic gain and cultural loss that continues to resonate within and across nations. Richard Mabey (2007, p.9) reflects that:

The long pattern of our relations with trees begins to look familiar...dependence and notional respect at first; then hubris, rejection, the struggle for dominance and control; then the regret for lost innocence, the return of passion, the pleading for forgiveness.

Some of our capacity to derive wellbeing from spending time in woodlands is thus likely connected to the cultural associations trees and forests hold for us and whether they reinforce a sense of positive personal and collective identity.

Sociodemographic influences on woodland experience

Sociodemographic factors also influence attitudes towards woodland as well as the types of engagement we have with arboreal landscapes (Macnaghten and Urry, 2001, O'Brien, 2004). As MacNaghten and Urry (2001) note in their focus group study of attitudes towards woodland within various social groups (from country sports enthusiasts to inner city youth), the affordances of treed landscapes, revitalising, relaxing, social, solitary, active or passive, are experienced very differently according to personal and family life-stage, socio-economic circumstance, and geographical location. So, for example, ancient broad-leaved trees were perceived as symbols of freedom and the English countryside for most groups, but commercial conifer plantations were preferred by Asian young people. This group, who were not interested in spending time amongst trees, was the only one to raise a global ecological need for more woods and forests as a higher priority than personally being in nature. Younger people tended to emphasise use of woodland for being physically active; while outdoor specialist and outdoor enthusiast groups described making use of woods as a rich resource, for foraging flora for food or medicine and developing skills of coppicing, trapping and charcoal making.

A similar focus group study in the southeast and northwest of England by Forest Research (O'Brien, 2004) found woodland was especially valued for social and emotional wellbeing (rather than physical health benefits) through providing an escape from daily pressures.

Even in small copses near busy roads, the sense of quiet and being ‘away from it all’ persisted, although most women regarded visiting forests alone as somewhat risky. Groups tended to attribute feeling good in woods to the multisensory immersion that they provided and to positive cultural, spiritual and historical memories that they stimulated. Their sensory appreciation was at the level of the wood, the individual tree (down to the leaf shapes and tiny lichens growing on them), and the woodland wildlife and flora. In making cultural associations, they referred to Robin Hood, Thomas Hardy and the oak as emblematic of Britain. Generally, people liked safe managed woodland with clear paths and picnic areas and Tyrväinen et al. (2005) found that for urbanised people, relative familiarity and perceived safety of natural areas was crucial in enhancing restoration in nature. However, broad leaved woodland was mostly preferred to conifer plantations.

The woodland case study sites explored in subsequent chapters were mixed broadleaf and conscious that the type may influence responses to it, we are careful to describe the type of woodland in each case study. In the light of these variations in response, we would also advocate further research that explores meanings of woodland wellbeing in different countries with different tree species and densities of woodland.

There is interesting evidence that suggests that when natural environments become associated with work their restorative capacity can be limited. Children, for instance, who take part in agriculture in rural areas report reduced restorative experiences than children who spend only free time there (Collado, Staats & Sorrel 2016). A similar conflict seems to operate for forest workers. Although trees in educational and working environments have been shown to offer wellbeing benefits, forest professionals do not report as much restoration after forest visits as non-forest professionals (von Lindern et al., 2013), perhaps because of experience fatigue. Nature’s restorative qualities differs according to our daily relationship with nature. This might be explained by the concept of cultural density (Waite, 2013).

Cultural lightness in woodland

Woodland settings in the UK have fewer cultural associations than their everyday contexts for many people, and novelty is sometimes proposed as supporting engagement with

natural environments and allowing new ways of being (Waite & Davis, 2007). Knopf (1987, p 787) suggests that the unfamiliar culture of green spaces can challenge 'accustomed behaviour patterns, resources, and problem-solving styles.' The non-judgemental indifference of nature permits self-expression, whilst its relative stability requires less exercise of control. This potential freedom to behave in ways not dictated by our usual habits has also been noted by Waite (2013), who through the concept of institutional habitus suggests that the 'cultural density' of natural environments is often 'light' carrying fewer expected norms of behaviour. Cultural lightness is argued to provide more opportunities to be oneself or try new behaviours, away from the constraints of daily life (Ibid).

Plants as partners: Interspecies relational theories

Other research, drawing on new scientific insights into the 'agency' - capacity to act - of the more-than-human world, has begun to challenge anthropocentric theorisation from evolutionary, psychological and more recently, cultural perspectives.

Rather than a mere backdrop to human action, plants have been shown to engage in forms of interactive relations and behaviours, processes which were formerly assumed to be available only to some animals and humans, including perception, memory, learning, decision-making and intra-species communication (Beresford-Kroege, 2010; Gagliano, 2015, 2017; Gagliano et al., 2012). A blurring of boundaries between human/nonhuman and what it is to be sentient/non-sentient may be necessary to explore people and natural world intra-actions (Stephens et al., 2019). Stephens et al., (2019) argue we need to become more critically aware not only of the dimensions of our personal wellbeing but our responsibilities for the wellbeing of others, including other species (Stephens et al., 2019). This is a world away from the developmental model of nature values proposed by Kellert (2002), which essentially places humankind at the top of Nature's pyramid.

Our current environmental crisis is arguably underpinned by devaluation of plants and microbiota as 'humbler' participants in life on Earth in Western scientific taxonomy (Gagliano, 2013). Gagliano suggests that if we were better able to simply 'be' nature as

plants are we might better appreciate our role within a global network of interrelations.

Plants, she says, can:

‘teach us to move past the illusion of duality that restrict modern life...and enter a level of entangled reality where there is no time and no separation into self and other, hence no conflict, no destruction, no ecological crisis. Because of this unitive ability to feel at one with life and see the dignity of all manifestations of life, this view of the world cherishes and accepts all beings “as is” in a non-controlling and non-hierarchical way (Gagliano, 2013, p. 6)’.

Gagliano’s suggestion that we take a plant perspective to better understand ourselves and our interrelation with the non-human world can lead to new insights. A tree does not stand alone for example; it is a holobiont - dependent on many other organisms and with many organisms depending upon it. Humans can also be regarded as holobionts, assemblages of different species that form ecological units (Mills et al., 2019). Dominant conceptualisations of the relationship between nature and culture are often founded upon an anthropocentric view of what it can do for us. Even recognising that nature and culture merge and we are part of nature, we still face challenges to our comprehension of this as we inevitably see through our human cultural lens. Our very struggle to understand puts us at a disadvantage in fully inhabiting our interconnectedness with nature, as Gagliano (2019) points out.

Nonetheless, nature is demonstrably a network of symbioses with increasing evidence for physical association between individuals of different species for significant parts of their life (Haskell, 2017). This turns the idea of competition being the dominant (or only) impetus on its head, reconfiguring many relationships between species as cooperative and mutual, maintained by communication and a collective intelligence according to some scholars (Gagliano, 2013; Stephens et al., 2019; Mills et al., 2019). The term wood-wide web has been coined to describe the relationship between fungal mycellia, trees and other plants in a complex network of soil ecology (Wohllenberg, 2016). In this broader multi-species picture, communication and learning are not the preserve of ‘higher order’ mammals. Plants here are sentient - perceiving, feeling, learning, remembering and anticipating - knowing when they are going to be fed or be attacked by pests for example (Gagliano & Grimonquez, 2015). Using a biological lens, we can see that plants for example interact with their

environment through chemicals, conveying messages that are acted upon by recipients. Gagliano and Grimonquez (2015) define language as 'a meaning-making activity at the core of every form of life, including plants' (p147). The authors suggest that reconceptualising language as embodied and 'beyond words' acknowledges plants' subjectivity and status and could renew appreciation of our kinship with the more than human. It could be argued that plants and trees along with all matter sharing our planet are our partners - from the Middle English origin of the word as 'joint heir' and 'engaged in the same activity' of being (Dictionary.com).

In contrast, others have questioned the need to attribute anthropomorphic intention and purpose to interactions which may be governed more prosaically by genetic programming. Jose, Gillespie and Pallardy (2004, p. 239), for example, examine a range of possible interspecies relationships, including Amensalism, where one species is inhibited and the other unaffected; Allelopathy, where one species suppresses the growth of another; Commensalism, where one species benefits and the other one is unaffected; Competition, where both species are negatively affected as a result of each other's use of resources to grow; Mutualism (or synergism), where both species are positively affected; Neutralism, where neither species affects the other and Predation and Parasitism, where one species consumes the other from the outside or inside. Not all relationships are necessarily positive for all concerned across plants and animals including humans!

However, beneficial networks have been found to exist through holobiont relationships beyond the plant world. Mills et al. (2019) point out that people living in or near more biodiverse environments have less illness and live longer than those from less biodiverse areas, independent of socioeconomic status. Such interdependencies suggest human health outcomes can be enhanced by increasing biodiversity with relatively low risk and cost in urban contexts where more and more people are living. Non-human agency, observable in the apparently independent existence of trees, woodland plants, animals and birds, has also been suggested by Milligan & Bingley (2004) as an appealing quality of woodland for people who are stressed.

Popular woodland practices

As we have argued there is a need for more subtlety in understanding what woodland wellbeing comprises. In this next section, some current woodland-based activities in the UK are considered to illustrate contexts within which woodland wellbeing services are being assessed and/or promoted.

The Natural England survey, Monitoring Engagement in Natural Environments (MENE, 2018) has been charting the use of green space in England for a decade. Results from MENE 2015-16 estimated a total of 446 million visits to woodlands in England during that year; over 100 million more than when the survey began in 2009 (Forest Research, 2018). The MENE surveys also tell us why people visit; 50% of visits were primarily for health and exercise; 38% for walking the dog and 34% to relax and unwind in 2017/18 (MENE, 2018).

In a survey by Forest Research (2017) of a representative sample of over 2,000 adults aged 16 and over across the UK, sixty one percent of respondents had paid visits to forests or woodlands for walks, picnics or other recreation over the last few years and of those, about three quarters had visited at least once a month during the summer. A much smaller proportion (3%) had been involved actively in woodland conservation, for example through tree planting, volunteering or community-based woodland. However, more than nine in ten respondents said they saw woodland as a place to relax and de-stress and/or valued them for fun and enjoyment.

Staats and Hartig (2004) found that a forest walk was preferred to a walk in the city when people needed to feel restored and that this benefit was also strongly linked to their expectation that it would do them good. This awareness that some environments are more beneficial may enable people to make better choices for their wellbeing (Korpela and Ylén et al., 2009).

Woodland environments have also long been identified as sites for children's adventurous play. Playlink assessed play space in Forestry Commission owned woodland, suggesting structured play spaces at the entrances to woodland could provide steps towards free play deeper in the forest (Playlink, 2008). This research led to the establishment of The Growing

Adventure approach, promoting nature play spaces, environmental play programmes and independent play in woodlands as potential ladders of engagement. The idea is that designed spaces and/or programmed and supervised activities will over time build confidence to explore woodland independently (Gill 2006). For teenagers too, forest can provide freedom to express themselves. For example, having their own 'territory' to meet up and spend time with friends was valued by young men in Scotland (Weldon et al., 2007; King, 2010; Morris & O'Brien 2011).

Another form of woodland practice that is mostly focused on children's engagement and wellbeing is Forest School. What Forest School is remains a contested topic (See for example, Leather, 2018; Waite and Goodenough, 2018) but it is gaining momentum across numerous countries worldwide as a means of supporting children's health and wellbeing. Generally, it provides opportunities for children to have regular and frequent contact with woods, to be physically active, to learn through pursuit of their own interests and to become familiar with their local woodlands (Forest School Association, n.d). There is wealth of research now about Forest School (and examples of practice discussed in later chapters). For example, Roe and Aspinall looked at its role in anger management with young people. Comparing behaviour in school (in a mainstream secondary school and a residential special school), and forest settings and its effects on pupils with 'good' or 'poor' behaviour, they found Forest School helped control anger in young people at risk (Forestry Commission Scotland, 2009).

Studies exploring woodland based practical conservation activity (such as that organised by the Forestry Commission, Wildlife or Woodland Trusts), have established that effects it can elicit include spiritual connection to nature and its purposes (O'Brien & Morris, 2014), a sense of biophilic wellbeing and nurturing (Waite, Goodenough, Norris and Puttick, 2016), social connection and heightened physical activity (O'Brien, Townsend & Ebdon, 2008).

Forest bathing or Shinrin-Yoku has gained recent popularity in the UK with many organisations offering mindful slow walks in woodland. As explored earlier, much of the evidence supporting its delivery as a psychological and physiological woodland based health

services originates in Asia. More research based in Western contexts is needed to begin to explore the effects in different cultures and woodland types.

The National Forest is a huge, new Forest plantation intended to regenerate the physical, economic and social landscape across 200 square miles (520 km²) of central England. Six million trees have increased woodland cover in this region from 6 to 16% in a little over a decade. A study of the impact of the Forest has been carried out by Morris and Urry (2006) where evidence was gathered by spending time with people as they engaged in forest- or non-forest-related activities, such as walking, going on site and educational visits, farm work, tree planting, attending meetings, photography and volunteer work. Sheller and Urry (2006) question conventional distinctions between static 'places' and mobile 'people' who travel to, visit, or access them. They argue that as people move around experiencing but also remembering, imagining and changing, places 'move around' with them. As such, people and place merge in the way that Quay (2017) suggests in his concept of cultureplace. Experience is an amalgam of habitus and the density of cultural norms in places (Waite, 2013), which shapes individual perceptions of and responses to the same events. Thus, for some, tree planting may be seen as the 'new build' in the Forest, for others as a memorial for past communities and times of coal mining, while some may reposition farmers as dog wardens to clear up after their dog walking across now open access land. Morris and Urry (2006) highlight how meanings of places are multiple, shifting and contested but that sources of wellbeing can accrue across many different relationships.

The relationship of effects due to different woodland environments, activities and groups of people can be hard to untangle within research reviews and a framework for comparison such as that proposed by Waite et al., (2016) can help to distinguish the factors that are most influential in different contexts. In Chapter 2, we discuss how the template provided for practitioner-researchers scaffolded attention to purposes/aims, content of sessions, the pedagogies used and features of place with specified nuanced outcomes to enable clearer understanding of contributions to woodland wellbeing.

What is woodland wellbeing?

Forest Research (O'Brien & Morris, 2014) synthesised the results of thirty-one research studies between 2001 and 2012, exploring well-being benefits from a wide range of

engagement with woodlands in Britain. Personal and public/community benefit survey questions concerned physical well-being, nature connectedness, mental well-being, education and learning, sense of place, social connectedness and economy. Nature connectedness, mental well-being and sense of place were the three most salient well-being benefits identified from the meta-analyses.

The first of these is exemplified by a study that looked at transcendent experience in woodland. In 2001, Williams and Harvey in an area of Australia with dense temperate rainforest, open forests of tall mountain ash, scrubby woodland, eucalypt pockets and pine plantation, conducted a study of 131 people who visited, worked or lived in these forest areas. They asked them to describe a transcendent moment and associated causes, thoughts and behaviours, rating the event for qualities, such as absorption, sense of union and timelessness (Ibid). They found these clustered around three dimensions: fascination, novelty and compatibility.

Fascination was characterised by a feeling of being overwhelmed and fascinated by the forest; belief that the experience was caused by the forest; acute awareness of feelings in body and mind; and description of the environment as complex, full of variety and change. Novelty was associated with a new experience but included familiarity, arousal and coherence of the environment. Compatibility was linked to feelings of ease, a sense of belonging in the environment and achieving goals and power over the forest. Six types of experience were noted in their study: Diminutive, Deep flow, Non-transcendent, Aesthetic, Restorative (familiar) and Restorative (compatibility), with transcendence encapsulated in Diminutive and Deep flow experiences. Deep Flow experiences were more relaxing and generally attributed to multiple soft foci being present, while Diminutive ones were deemed less relaxing and tended to be in response to a strong single focus in the environment. Although 'flow' is often associated with engaging activity (Csikszentmihalyi & Csikszentmihalyi, 1992), Williams and Harvey (2001) found most people attributed deep flow to the material environment itself.

In other work on woodland wellbeing, the presence of other people has been found to be important. Social connections enjoyed during a forest visit were likely to encourage people

to spend more time in forests in the future. Three ways in which social connections might support wellbeing have been suggested: through strengthening social relationships; by developing new social relationships; and via participation and community capacity building (Marušáková & Sallmannshoferet, 2019). However, it is often impossible to assess the direction of cause and effect regarding positive feelings from the forest context and/or social benefits. For example, in a large Iranian study of adolescents, it was claimed that more time spent in forests and parks improved self-satisfaction and social contacts (Dadvand et al. 2019). The relationship was associative rather than causal and stronger associations for boys and older adolescents and those in rural areas, as well as those from the lower and higher socio-economic groups were found. As with cultural responses to different types of forest, and complex interrelationships noted between species, nuanced effects are commonly observed.

Milligan and Bingley (2004) similarly note nuance in the ways young people talk about the woods. For example, Tom distinguishes between types of woodland and how they afford different ways of relaxing:

Some sorts of woodlands seem to lend themselves to particular uses like they're fairly spread out trees so it's quite easy to sort of sit down and whereas some are quite packed together. And it just depends on the woodland, I guess. (Tom, 21 years)
(Milligan and Bingley, 2004, p. 63-4)

Jane, however, found dense forest claustrophobic and liked a view out from the trees, resonating with prospect-refuge theory. Trees themselves were seen as calming and protective, with mature trees imbued with wisdom by some, while other young people emphasised their sensory engagement with details in the colours, scents and texture of woodland for relaxation. As the Forest Europe report (Marušáková & Sallmannshoferet, 2019) concluded:

The evidence on the effect of forests on psychological health is not yet good enough to say when, where, and for whom given effects will occur or how long they will last. Positive effects may not be experienced equally by different groups of people (e.g. age, preferences, diseases) and not all types and sizes of forests might be equally effective. (Ibid, p.38).

Thus, it is vital that we take close account of diverse responses and effects for groups and of woodland types in designing interventions as we will discuss further in Chapter 9.

Woodland wellbeing for us and for trees?

Kauppi, Sandstrom and Lipponen (2018) have traced historical changes in forest cover and Human Development Indicators between 1990 and 2015. Although correlational, not causal links, they suggest that human development and wellbeing can also transform into well-being of forest ecosystems, promoting carbon sequestration and global biodiversity.

However, this requires a shift from siloed projects for carbon capture, biodiversity conservation or agricultural development to inter-disciplinary and harmonized approaches that balance well-being of people and forests (Kauppi, et al., 2018). According to Endreny (2018), urban areas occupy 4% of the world's land mass and are expanding, but currently urban forests contain more than 10 billion trees, with over 100 genuses. However, there is further potential in these urban areas for 121 billion trees if planted at global average tree density.

What might be the impacts of the entanglement of nature and culture in woodland wellbeing? In this book, we hope to provoke thinking about woodland and natural/cultural impacts on wellbeing by reporting studies conducted in a particular small and relatively deforested part of the world by forest practitioner-researchers. Stephens, Taket & Gagliano (2019) refer to plants as the 'embedded stakeholders of socioecological systems'; many practitioner-researchers referred to trees similarly as they delivered and researched woodland wellbeing impacts. As we turn now to a chapter that frames the complexity of wellbeing, we suggest that the reader carries with them this new ontology and, as we consider the human health and wellbeing outcomes researched as part of the GfW programme, we also reflect on how these activities might impact on the more-than-human world.

To be frank, this was not the position from which we started our programme of work in 2009 but over the years, its sense and centrality has become more and more compelling. Can we achieve sustainability and ecological and social justice through looking only for Good **from** Woods? The cultural service for human wellbeing outcomes has been described as

‘nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences’ (Millennium Ecosystem Assessment, 2005a, p. 40, cited in Ambrose-Oji & Fancett, 2011) but as experimental evidence for the cognitive capacities of plants accumulates, and the interweaving of culture and nature is increasingly recognised, an ethics of woodland wellbeing must surely include trees’ welfare (Gagliano, 2017).

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