

Lizzie Wild
January 2022
University of Wales Trinity St David
MA Outdoor Education
Unit 7003

Queer Nature: Building communities and recovering from Covid 19 through nature.

Introduction

In recent years, the world has found itself amid an environmental (Pörtner, H.O. et al., 2021) and mental health (McManus et al., 2016, Birch et al., 2020) crisis. At the same time, books like *Losing Eden* (Jones 2020), *The Natural Health Service* (Hardman 2020) and *Last Child in the Woods* (Louv 2013) have brought an awareness of the lost connection with nature to more people and an understanding of how that connection can begin to heal wounded bodies and minds, perhaps even nature itself. The evidence collated by the government in recent years, from reports such as 'Revaluing Parks and Green Spaces' (Fields in Trust 2018) and 'A Public Health Perspective on the future role of outdoor recreation' (White 2019), is so strong that the government launched a multimillion-pound fund in 2020 (NHS 2020) for social and green prescribing as a treatment for health conditions. In a society already struggling, the Covid 19 pandemic has had a detrimental impact on many people's lives in the UK (ONS 2020). This impact, however, has been disproportionate. The Office of National Statistics reported that people in deprived areas of England and Wales died at double the rate of more affluent areas (2020). Tania Lemmey's 2020 report highlighted a significant rise in nature connection during lockdown and unequal access to nature connection and green spaces. As a result, people from affluent households "often experience a rich variety of places both locally and internationally that are not easily accessible to those who are less fortunate." (Vander Ark et al., 2020, p.11). When this is looked at alongside Friedman's 2021 report, which concluded that there was a clear correlation between mental health and wellbeing and time spent in nature during lockdown, we can see that the disproportionate access to nature is likely to have had more impact on the mental and physical health of those from marginalised groups. A report in May 2020 by the LGBT Foundation showed that the mental health of the LGBTQIA (Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual) community was disproportionately affected by the Covid 19 pandemic. We must

consider the correlation between social and environmental injustice and look at how particular groups in our local areas are disproportionately impacted by the pandemic and have unequal access to the outdoors. We must break down barriers to the outdoors for the groups and communities who are most severely impacted so that more people can have an equitable chance at recovery.

This essay explores the public health initiatives in Basingstoke, UK and surrounding villages, which promote and support outdoor recreation and looks at how time spent in nature could positively impact the local LGBT+ community. In order to do this, it will first explain the impact that nature has on health and wellbeing by looking at the theories and studies which demonstrate this. Then it will look at public health initiatives relevant to the local area and explain why this group is in particular need of the support that nature can give, emphasising the impact of the Covid 19 pandemic. Next, it will look at the barriers that are faced by this group and, finally, make recommendations for their removal.

This paper's position is that in a society of global health, social and environmental inequalities, we must focus on groups that most need support. We cannot be a fair and healthy society if we have unequal access to the health and wellness provided by the outdoors. The World Health Organisation defined health as "A state of complete physical, mental and social wellbeing, not merely the absence of disease or infirmity" (WHO 1946, pg.263). When we sit this alongside the aims of Social Justice, which include "a vision of society that is equitable and all members are physically and psychologically safe and secure" (Bell, 2007, p.2), we cannot ignore the health gaps in society. It also argues that by focussing on local groups and spaces, we can begin to tackle the issues of mental and physical health, environmental and social justice at the same time. After all, when we engage with our local green spaces, we create a sense of belonging "that allows us to be engaged with the place as home, as a meaningful and alluring place which not only offers comfort but also demands responsibility" (Henderson, 2001, p.15)

Nature as Medicine

The explanation of why nature benefits us is as complex as ecosystems themselves. One theory cannot explain this connection, but multiple theories can begin to. In the later part of

the 20th century, various theories were developed to explain why people are drawn to nature and why it seems to benefit our mental and physical health. Wilson's 1984 Biophilia Hypothesis claimed that there is an "innate emotional affiliation of human beings to other living organisms" (Wilson, 1993, p.31); his hypothesis claimed that we have a genetic need to be in nature and that when we are not the disconnection impacts negatively on our mental and physical wellbeing. Mandelbrot's theory of Fractal Geometry and Visual Fluency claimed that "Nature exhibits not simply a higher degree but an altogether different level of complexity." (Mandelbrot 1977, xiii) and that we are connected to nature as humans are as complex and interesting as nature all around them. Kaplan and Kaplan's work on the Preference Matrix (1989) claimed that humans are drawn to moderate in complexity scenes, mysterious and predictable. That our interest depended upon "the number of different visual elements in a scene; how intricate the scene is; its richness" (Kaplan and Kaplan 1989, p. 53) and that nature offers this moderate complexity and thrives in moderate biodiversity. Indeed, the idea that nature is good for our minds, bodies and souls is interwoven through the texts of the great pioneers of the outdoors, Carson, Muir, Leopold, Theroux. Muir said, "I know that our bodies were made to thrive only in pure air, and the scenes in which pure air is found." (1938, p.191) and perhaps this is the summary of these theories, we are nature, so we feel best when we are right there in it. Another theory that helps explain why nature is good for our mental health is Ulrich's Stress Reduction Theory (1983). He claimed that natural environments reduce stress, citing similar ideas to those of Kaplan and Kaplan, that nature offers an environment of moderate complexity and moderate depth. Ulrich conducted a study that looked into the records of 46 patients recovering from gall bladder surgery at a hospital in Sweden (Ulrich 1984) to see if having a window view of nature impacted their recovery. The patients that did had a shorter stay in the hospital, less pain relief and fewer complications.

Research consistently shows that interacting with natural environments can increase mood and attention, reduce stress levels (Hartig et al., 2014), reduce long-term stress, lower chronic disease risks, increase surgery recovery speed, and give an enhanced quality of life. (Coon et al. 2011, Pretty et al. 2007, Sarkar 2017, Mitchell 2008). Twohig-Bennett and Jones' 2018 meta-analysis of data demonstrated that green and blue exercise reduced blood pressure and cortisol levels and reduced the risk of stroke, heart disease and type 2

diabetes. However, this paper also observed that the results often had “high levels of heterogeneity” (Twohig-Bennett and Jones’ 2018, p.9). Whilst the evidence builds that time in nature improves health in many ways, there is also a lack of representation in the research participants, which may mean a lack of participation from certain marginalised groups in society. Overall, if we create policies that encompass not just the benefits nature on health but the known inequalities, we can use green and blue exercise as “a vehicle to drive behavioural change and ensure a more inclusive approach to health.” (Barton et al. 2010, p.3)

The Natural Health Service

Barton et al. s 2010 book, ‘Green Exercise: Linking Nature, Health and Wellbeing’, concluded that “green exercise benefits individual health and wellbeing, increases knowledge and care for natural environments, and provides a policy link between health and the environment.” (p.4) The government have been conducting various research projects that evidence the benefit of access to nature and green spaces and, as a result, the overall economics of the UK. Public Policy requires a robust research base to support it, and the growing number of these reports is beginning to provide this. The report ‘Revaluing Parks and Green Spaces’ (Fields in Trust 2018), for example, found that ‘The Wellbeing Value associated with the frequent use of local parks and green spaces is worth £34.2 billion per year to the entire UK adult population.’ (p.2) They found that overall ‘parks and green spaces are estimated to save the NHS around £111 million based solely on a reduction in GP visits and excluding any additional savings from prescribing or referrals.’ (P.2). ‘A Public Health Perspective on the future role of outdoor recreation, in improving health and wellbeing outcomes’ (White 2019) is a policy based on a salutogenic approach the healthcare, based on Antonovsky’s idea that we should focus on the capacity for health rather than risk factors. The policy concluded that Natural Capital (the monetary value of nature) in urban environments “offer significant potential for improvements in physical and mental health which in turn will reduce health expenditures and improve labour productivity.” (p.21)

These reports have resulted in a multimillion-pound investment, announced in July 2020, for a cross-governmental project tackling ill-health through social and green prescribing (NHS

2020). The Environment Minister, Rebecca Pow, stated at the opening of the scheme “we know that connecting with nature is good for us, and the pandemic has given us and even greater awareness of the link between our own health, and that of our environment”. (Pow, 2020). In Basingstoke, Family Action runs the social prescribing scheme, making referrals through GPs. There have been questions over whether green prescribing really works; Dr. R. Lovell stated in an interview that “we don’t know really if this delivery mechanism is a good way of using the environment to promote people’s health.” (Lovell, R. 2019, pg.100). The issue being that where we know that nature is good for health, we also know that we are facing an environmental crisis and we must be sure “that the increased use of ‘nature as a therapy’ is accompanied by a conservationist approach to ensure preservation of the environment” (Gladwell et al, 2013, p.6). The Government’s ‘25-year environment plan’ (HM Government 2018) also draws on this research and sets out a policy for ‘Connecting People with the Environment to Improve Health and Wellbeing’ (p.71), the policy promises improved access to green spaces, eco-therapy approaches for mental health issues, green infrastructure and nature education in schools. The policy has a strong focus on recognising that access to the environment is not equal for all and recognises that a “healthier environment also helps deliver social justice and a country that works for everyone.” (p.16). The latest annual progress report (HM Government 2021) uses the green prescribing policy as evidence of movement towards these goals. However, it also states that funding cuts due to the Covid 19 pandemic (p.65) have meant very little progress has been made towards the improvement of health and wellbeing through nature. A challenge we face is lack of funding for these policies; after all, “politicians continue to speak worthy words about mental health, but they are still failing to fund it adequately” (Hardman 2020 p.ix)

In Basingstoke, various outdoor groups are run by charities and private companies, not through government funding. There are Forest School and horticulture sessions aimed at young children by Muddy Puddle Club and Little Green Fingers. Inspiro run gardening groups for the physically disabled and for adults and children with special needs. Thrive run outreach programmes for adults with learning difficulties, mental health problems, PTSD, autism, dementia or visual impairment. Thrive's aim is for the horticultural therapists to "use plants and the gardens to improve the physical and mental health of people with a

disability or illness" (Jones 2020 pg102). There are walking groups in the smaller villages, predominantly accessed by over 50s and aimed at combating loneliness and improving fitness. The issue for many accessing these groups is that nature is not free; the risk factors vary for different people. There can be a financial risk, buying appropriate clothing to access the outdoors or cost of travel, for example. There is also a social risk; walking groups are aimed at the over 50s, and young people rarely attend. For many in minority demographic groups, lack of representation in leaders and attendees is a barrier; the risk of hate crimes and discrimination is high for BAME groups and the LGBT community. In 2015, a Natural England report 'Monitoring engagement with the Natural Environment' found that members of all disadvantaged communities were less likely to visit green spaces. However, we also know that when disadvantaged groups visit these green spaces, they receive a higher benefit (Fields in Trust, 2018, p.4).

A community in crisis

The theories of Biophilia, Fractal Geometry and Stress Reduction Theory placed alongside the research that has shown the benefits of green and blue exercise on mental and physical health, show that being outdoors in nature, especially whilst also connecting with others, can speed up recovery from illness and prevent health issues. LGBT+ people in the UK are disproportionately likely to suffer from mental conditions than the general population. In 2018, Stonewall, the LGBT+ charity, published a report on the health of LGBT people in the UK. The report showed that;

LGBT people are at a higher risk of experiencing common mental health problems than the general population. Participants explained how experiences of discrimination and harassment in day-to-day life, rejection from one's family and friends and being subjected to hate crimes and incidents can have a negative impact on mental wellbeing.

(Bachmann & Gooch 2018, p.6)

For example, they found that 46% of transgender people had thoughts of taking their own lives in 2018 compared to 5% of the general population. Members of the community are also more likely to suffer from issues related to drugs and alcohol abuse. For example, the

study found that 16% of LGBT+ people are likely to drink every day compared to 10% of the general population. (pg. 16). Overall, the report "uncovers worryingly high rates of poor mental health experienced by LGBT people in Britain today, as well as the challenges many LGBT people face" (Hunt 2018, p.3). It also made a series of recommendations to improve health, including support groups for LGBT+ people, transgender inclusion training for those working in education and healthcare, and services specifically for the community.

The World Health Organisation has recognised the overall profound impact of Covid 19 pandemic on mental health, warning of a mental health crisis across the globe and stating that mental health is a "priority to be addressed urgently." (Rourke 2020) The LGBT Foundations 2020 report showed that the pandemic disproportionately affected the community's mental health. The study showed that 37% of respondents were concerned about their mental health during lockdown. It "uncovered some of the wide-ranging and profound effects the pandemic has had on the lives of LGBT people across the country" (p.4) and provided statistical evidence for a disproportionate increase in social isolation, substance abuse, eating disorders, hate crimes, domestic abuse, homelessness, safety concerns, access to trans and non-binary specific health care, homophobia and a decrease in access to support.

Across the UK, there are very few outdoor groups aimed explicitly at the LGBT+ community. Scouts have a support group for leaders called 'FLAGS' (www.flagscouts.org.uk/), and there are a few specific LGBT+ organisations for both youth and adults to increase involvement with outdoor learning; outdoor Lads, for example, provides regular outdoor experiences for gay, bisexual and transgender men. A project in London, Gendered Intelligence, provides summer camps for young trans people to connect with other people like themselves and participate in various outdoor adventure and nature connection activities. They run this as an intervention for an "at risk for mental health problems and suicide" group. (Jones 2020, p.100) There is a strong need for programmes aimed directly at LGBT+ due to the many barriers that face this group from interacting in groups aimed to be inclusive for everyone.

Isolation

Members of the LGBT+ community are less likely to have access to the health benefits of the outdoors due to many barriers. In 2018, Government Equalities Office created the 'LGBT Action Plan'. This policy was created based on research by the government alongside the charity Stonewall. It showed that not only did the community suffer from disproportionately poor health, "LGBT people feel their specific needs go unaddressed when accessing healthcare." (p.4). It revealed that transgender people did not access support due to fear of misgendering, dysphoria and lack of respect for their gender identities. Basingstoke's social and green prescribing programme is delivered via the GP surgery, where LGBT+ people often do not feel safe attending. The study also demonstrated the fear that LGBT+ people often have when participating in activities or simply walking in public with their partners. The introduction to the policy stated:

One statistic alone speaks volumes. Two-thirds of respondents said they had avoided holding their same-sex partner's hand in public for fear of a negative reaction.

Holding hands with someone you love should be one of the simplest things in the world; not a source of fear or hesitation. (p.1)

The community still needs groups that are just for them. To feel safe, feel connected, and be with other members of the community who know and understand the struggles they face, and not be afraid to be themselves when they are outdoors. When we design programmes for this group, the focus on "their specific needs is fundamental in mitigating the disproportionate effects of the pandemic." (LGBT Foundation 2020 p30). The specific need of this community is groups just for them.

Austerity is a barrier; we must consider that to deliver this programme, we rely on both funding to make these services affordable to the community and public green spaces. Dobson (2018) argues, in their paper 'Urban Green Space and Public Policy', that the everyday infrastructure of parks, public transportation, footpaths and cycle routes, public toilets and places to sit in green space are fundamental to ensure public use. However, it is also 'precisely this infrastructure that is at risk when austerity policies shrink public services to a clutch of 'life and limb' statutory obligations.' (Dobson 2018, p.10). We have also seen before that those policies are often 'watered down' at the point of delivery, such as the non-delivered ban of conversion therapy promised in the LGBT Action Plan and the impact of funding cuts in the review of the 25-year plan for the Environment.

The outdoor community is also, arguably, a traditionally white, hetero-normative industry which is dominated by cisgender men. (Birrell 2018, Birrell & Gray 2020) 'Speaking out: perspectives of gay and lesbian practitioners in outdoor education in the UK' (Barnfield & Humberstone 2008) used interviews with gay and lesbian outdoor practitioners to discuss their experiences. It highlighted continuing issues of hetero-normality in the industry and that the LGBT+ practitioners still did not feel freely able to speak about their sexuality. It concluded that there is still so much work to be done to increase the representation. Clearly, as leaders in outdoor learning, we need to challenge these issues head-on, find ways to increase safe places and openness and show young people that they are represented. The issue is finding members of the LGBT+ community with the skills and experience to run these groups safely. Conversely, this is also an opportunity for LGBT+ practitioners to thrive in their communities and take on leadership roles, representation, and change.

Breaking Barriers: Creating Connections

The LGBT+ community in Basingstoke can be supported within the public health and wellbeing policies. For example, Thrive, a national organisation, is based near Basingstoke and works within The Vyne, a National Trust building and gardens just north of the town. Their scheme could offer a horticulture therapy session. The therapists provide the client with a private area to plant because "talking and interacting for many people with mental health problems, especially introverts, can be draining. Nature, though, demands nothing of the kind." (Jones 2020, p.105).

Another company that is well placed to support this community is Muddy Puddle Club CIC, a Forest School and outdoor outreach company based in Basingstoke and Whitchurch. Their focus is on building communities outdoors through nature. The leader is also a member of the LGBT+ community. They could offer a range of sessions at their woodland, within walking distance and on a cycle path from Basingstoke. A Forest School session run monthly for families with LGBT+ parents so that children can meet other families like their own and for young LGBT+ people to see representation from adults in their lives. The Forest School philosophy is ideal for this group because it helps build a sense of place and belonging,

something shown by the Stonewall report to be lacking for many community members during Covid. The 25-year plan for the environment (2018) also mentions Forest School, saying that it “encourages children to explore nature and have a relationship with the outdoors.” (p.71). Sackville-Ford (2019) argues that ‘the progressive, liberal nature of the Forest School ethos seems to demand a new way of thinking about gender, congruous with developing societal thinking around gender identity.’ (p.141) which is a fantastic opportunity for this demographic group.

Many local secondary schools have disbanded their LGBT+ Pride youth groups due to rules on mixing year group bubbles indoors during the pandemic. Testbourne School in Whitchurch, for example, have not run their Pride group for almost two years, removing a much-needed connection for young LGBT+ people. These Pride groups could be moved outdoors, with Muddy Puddle Club creating a connection between them, organising walks and trips for these young people to come together and visit outdoor adventure activities in the local area, such as kayaking Basingstoke Canal or visits to local adventure activity centres.

The LGBT Action Plan (2019) is committed to developing transgender inclusion training in healthcare and educational settings. A training programme could be delivered to local outdoor settings to encourage inclusion and diversity; if people feel that their gender identities will be respected and celebrated, they are more likely to participate in activities organised for the wider community.

Evaluation

We know that we are in a current crisis for mental health and nature, and now is an excellent time to start addressing these challenges, together, rather than apart. The public health initiatives recognise that health and wellbeing can be improved through blue and green exercise and nature connection. They also highlight social and environmental justice issues that give unequal access to both the outdoors and health and wellbeing and seek to change this through town planning, education and green and social prescribing. In addition, the government's LGBT action plan highlights a need for support for people in this

community, which focuses on mental health and the removal of barriers for them to access healthcare.

There is a growing understanding of how our health and wellbeing are intrinsically connected to nature, and more people than ever accessed the outdoors during the Covid 19 pandemic to support their mental health (Lemmey 2020). Grassroots organisations in local areas, like Muddy Puddle Club CIC, are well placed to deliver programmes to specific communities with their local areas and do so with the knowledge and passion to protect the environment. The challenges of using green and blue exercise to combat mental and physical health issues, environmental and social injustice and the climate crisis are enormous, but the research is in place. Even if the public health policies fall short of delivery, a collective passion for the benefits of the outdoors and the environment should allow us to move forward whilst also learning to “live an equitable life, a life that is devoted to the pursuit of collective wellbeing.” (Banargee 2012).

Word count
4009

Bibliography

Allan, Hardwell, A., Kay, C., Peacock, S., Hart, M., Dillon, M., & Brymer, E. (2020). Health and Wellbeing in an Outdoor and Adventure Sports Context. *Sports (Basel)*, 8(4), 50

Bachmann, C. and Gooch, B. (2018) *LGBT in Britain. Health Report*. Stonewall and YouGov

Banerjee, D. (2012) *Just Places: Creating a Space for Place in Environmental Justice* University of Tennessee—Knoxville

Barnfield, D. & Humberstone, B. (2008) Speaking out: perspectives of gay and lesbian practitioners in outdoor education in the UK, *Journal of Adventure Education and Outdoor Learning*, 8:1, 31-42

Barrable, A. & Arvanitis, A. (2019). 'Flourishing in the forest: looking at Forest School through a self-determination theory lens.' in *Journal of Outdoor and Environmental Education*, 22(1), 39–55.

Barrable, A. & Booth, D. (2020). 'Nature Connection in Early Childhood: A Quantitative Cross-Sectional Study.' In *Sustainability (Basel, Switzerland)*, 12(1), 375.

Barrable, Alexia. (2019). 'Refocusing Environmental Education in the Early Years: A Brief Introduction to a Pedagogy for Connection.' in *Education Sciences*, 9(1), 61

Barton, Bragg, R., Pretty, J., & Wood, C. (2016). *Green exercise : linking nature, health and wellbeing*. Routledge

Beames, S & Brown, M. (2016) *Adventurous Learning: A Pedagogy of a changing world* Routledge

Bell, L. A. (2007). Theoretical foundations for social justice education. In M. Adams, L. A. Bell, & P. Griffin (Eds.), *Teaching for diversity and social justice* (pp. 1-14). New York: Routledge.

Birch, Rishbeth, C., & Payne, S. R. (2020). Nature doesn't judge you – how urban nature supports young people's mental health and wellbeing in a diverse UK city. *Health & Place*, 62, 102296–102296

Birrell C., Gray T. (2020) 'Gender Issues in Outdoor and Environmental Education' in Peters M. (eds) *Encyclopedia of Teacher Education*. Springer, Singapore.

Birrell, C. (2018). 'Eyes wide shut: A history of blindness towards the feminine in outdoor education in Australia.' In T. Gray & D. Mitten (Eds.), *The Palgrave international handbook of women and outdoor learning* (pp. 473–488)

Carpenter, Cathryn & Harper, Nevin. (2016). Health and Wellbeing Benefits of Activities in the Outdoors in Humberstone, B., Prince, H. and Henderson, K. (2016) *Routledge International Handbook of Outdoor Studies*

Clarke. (2020). Nature and nowness under lockdown in *The Lancet (British Edition)*, 395(10242), 1964–1965

Dickinson, E. (2013) The Misdiagnosis: Rethinking “Nature-deficit Disorder”, *Environmental Communication*, 7:3, 315-335

Dobson. (2018). *From contest to context: urban green space and public policy*.

Fields in Trust (2018) *Revaluing Green Spaces: Measuring their economic and wellbeing value to individuals*

Friedman, Imrie, S., Fink, E., Gedikoglu, M., & Hughes, C. (2021). Understanding changes to children's connection to nature during the COVID-19 pandemic and implications for child wellbeing. *People and Nature (Hoboken, NJ)*.

Gladwell V. F., Brown D. K., Wood C., Sandercock G. R., Barton J. L. (2013). The great outdoors: how a green exercise environment can benefit all. *Extreme Physiol. Med.* 2:3.

Government Equalities Office (2018) titled ‘LGBT Action Plan: Improving the Lives Of Lesbian, Gay, Bisexual And Transgender People’ HM Government

Gullone. (2000). The Biophilia Hypothesis and Life in the 21st Century: Increasing Mental Health or Increasing Pathology? *Journal of Happiness Studies*, 1(3), 293–322

HM Government (2018) *A Green Future: Our 25 Year Plan to Improve the Environment*

HM Government (2021) *25 Year Environment Plan Progress Report 2020 – 2021*

Hunt, R. (2018) in Bachmann, C. and Gooch, B. (2018) *LGBT in Britain. Health Report*. Stonewall and YouGov

Jones, L. (2021) *Losing Eden: Why our minds need the wild* Penguin

Lemmey, T. (2020) *Connection with nature in the UK during the COVID-19 lockdown*. University of Cumbria, Carlisle.

Leopold, A. (1968). *A Sand County almanac and sketches here and there*. Oxford University Press.

LGBT Foundation (2020) *Hidden Figures: The Impact of the Covid-19 Pandemic on LGBT Communities in the UK*

Louv, R. (2013). *Last Child in the Woods Saving our Children from Nature-Deficit Disorder*. Atlantic Books Ltd.

Louv, R. (2014). *The Nature Principle: Reconnecting with life in a virtual age* Algonquin Books

Lovell, R; Depledge, M; Maxwell, S (2018) *Health and the natural environment: A review of evidence, policy, practice and opportunities for the future*

Lovell, R. (2019) in Jones, L. (2021) *Losing Eden: Why our minds need the wild* Penguin

Lu. (2018). The Association of Urban Greenness and Walking Behavior: Using Google Street View and Deep Learning Techniques to Estimate Residents' Exposure to Urban Greenness. *International Journal of Environmental Research and Public Health*, 15(8)

Lucas, K., Walker, G., Eames, M., Fay, H. and Poustie, M. (2004) *Environment and social justice: rapid research and evidence review*. London, UK Policy Studies Institute.

Mandelbrot, & Mandelbrot, B. B. (1977). *The fractal geometry of nature* . Freeman

Marselle M.R. (2019) Theoretical Foundations of Biodiversity and Mental Well-being Relationships. In: Marselle M., Stadler J., Korn H., Irvine K., Bonn A. (eds) *Biodiversity and Health in the Face of Climate Change*. Springer, Cham.

McGeeney, & Royan, L. (2016). *With nature in mind : the eco-therapy manual for mental health professionals*. Jessica Kingsley Publishers.

McManus S, Bebbington P, Jenkins R, Brugha T. (eds.) (2016) Mental health and wellbeing in England: Adult Psychiatric Morbidity Survey 2014. Leeds: NHS Digital.

MENA (2019) Se925 - Active Lives Children And Young People Survey. *MENA Report*.

Muir, J. (1938) in Wolfe, L. (1979) *John of the Mountains* Wisconsin Press, Madison

Natural England (2015) *Monitor Engagement with the Natural Environment: Annual report from the 2013-2014 survey*

NHS (2019) *Exercise*. Available at: <https://www.nhs.uk/live-well/exercise/> (Accessed: 6th November 2021)

NHS (2020) [www.england.nhs.uk /personalisedcare/social-prescribing/green-social-prescribing/](https://www.england.nhs.uk/personalisedcare/social-prescribing/green-social-prescribing/) (Accessed 5th January 2022)

Nicol, R., Higgins, P., & Ross, H. (2013). 'Call for papers for a themed edition of the Journal of Adventure Education and Outdoor Learning 'Space, place and sustainability and the role of outdoor education.'" in *Journal of Adventure Education and Outdoor Learning*, 12(3), 267–268.

Nisbet, E, Zelenski, J, & Murphy, S. (2009). 'The Nature Relatedness Scale.' In *Environment and Behavior*, 41(5), 715–740.

Office for National Statistics (2020) *Deaths involving COVID-19 by local area and socioeconomic deprivation Deaths involving COVID-19 by local area and socioeconomic deprivation: deaths occurring between 1 March and 17 April 2020* ONS

Orr, D. W. (1990). 'Environmental education and ecological literacy.' in *Education Digest*, 55(9), 49-53.

Pörtner, H.O. et al. (2021) *Scientific Outcomes of the IPBES-IPCC co-sponsorship workshop on biodiversity and climate change* IPBES secretaria

Pow, R. (2020) *Green Social Prescribing Pilots open for application* www.gov.uk Accessed 5th January 2022

Rawls, J. (1971) *A Theory of Justice* The Belknap Press of Harvard University Press

Reed, Wood, C., Barton, J., Pretty, J. N., Cohen, D., & Sandercock, G. R. H. (2013). A repeated measures experiment of green exercise to improve self-esteem in UK school children. *PloS One*, 8(7)

Rourke, A. (2020) *Global report: WHO says Covid-19 'may never go away' and warns of mental health crisis*. The Guardian [Online].

Sackville-Ford, M. (2019) 'Identities and Genders at Forest School' in Sackville-Ford, M. and Davenport, H. (2019) *Critical Issues in Forest School* London: Sage.

Thomson, R.M., Katikireddi, S.V., (2018). Mental health and the jilted generation: using age-period-cohort analysis to assess differential trends in young people's mental health following the Great Recession and austerity in England. *Soc. Sci. Med.* 214, 133–143

Twohig-Bennett, & Jones, A. (2018). The health benefits of the great outdoors: A systematic review and meta-analysis of greenspace exposure and health outcomes. *Environmental Research*, 166, 628–637.

Ulrich, R. (1984) 'View through a window may enhance recovery from surgery', *Science*, 224(4647) pp.420-21

Van den Berg, Joye, Y., & Koole, S. L. (2016). Why viewing nature is more fascinating and restorative than viewing buildings: A closer look at perceived complexity. *Urban Forestry & Urban Greening*, 20, 397–401.

Vander Ark, T., Liebttag, E. and McClennen, N. (2020) *The Power of Place: Authentic Learning through Place Based Education*

White, M. (2019) *A Public Health perspective on the future role of outdoor recreation, in improving health and wellbeing outcomes* Public Health England South West

WHO (1947) Constitution of the World Health Organisation. (1947). *International Law Quarterly (London, England)*, 1(2), 263–280