

Landscapes and Wellbeing: Reflections on Two Decades of Research and Practice in Europe

《风景园林与福祉：欧洲二十年研究与实践反思》

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Abstract

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Since 2000, research into the links between landscape and human health and wellbeing has accelerated, shaped by dedicated centres such as OPENspace at the University of Edinburgh, collaborative European research projects, COST Actions, and new educational initiatives. This paper reflects on the milestones in this field from the perspective of my direct involvement, charting how the agenda evolved through major initiatives such as COST Actions E12 (Urban Forests and Trees), E33 (Forest Recreation and Nature Tourism), E39 (Trees, Forests and Human Health and Wellbeing), TU1201 (Urban Allotment Gardens in Europe), FP1204 (GreenInUrbs), and IS1204 (ToBeWell), European research framework projects including BlueHealth, and landmark syntheses such as The Oxford Textbook on Nature and Health. Alongside these initiatives, publications such as the influential 2007 Urban Forestry and Urban Greening paper on mapping UK research priorities, and a range of books authored or edited by colleagues and me, helped consolidate the field. Presented as a timeline, this review highlights how a disparate collection of projects gradually coalesced into an established evidence base linking green and blue spaces with human health, wellbeing, and policy action. In addition to reviewing outputs, I reflect on lessons learned and offer a personal perspective on the trajectory of landscape and wellbeing research over the past two decades.

摘要：2000年以来，风景园林与人类健康及福祉之间关联的研究进程显著加快，这一领域的发展得益于爱丁堡大学开放空间研究中心等机构、欧洲合作研究项目、COST行动以及各类新型教育计划的推动。本文基于笔者的直接参与经历，回顾该领域的关键里程碑，梳理研究议程如何通过一系列重大举措逐步演进——包括COST行动E12（城市森林与树木）、E33（森林休闲与自然旅游）、E39（树木、森林与人类健康及福祉）、TU1201（欧洲城市自留地花园）、FP1204（GreenInUrbs）、IS1204（ToBeWell），以BlueHealth为代表的欧洲研究框架项目，以及《牛津自然与健康手册》等标志性综述成果。除这些举措外，2007年《城市林业与城市绿化》期刊中那篇颇具影响力的“英国研究优先级梳理”论文，以及笔者与同事撰写或编辑的一系列著作，也助力了该领域的整合。本文以时间线形式展开综述，重点呈现各类分散项目如何逐步汇聚，形成一套将绿色与蓝色空间同人类健康、福祉及政策行动关联起来的成熟证据体系。除回顾研究成果外，笔者还总结了经验教训，并对过去二十年景观与福祉研究的发展轨迹提出个人见解。

Keywords: Landscape, wellbeing, health, COST Actions, BlueHealth, OPENspace, green and blue space, urban forestry, opinion piece, European research

关键词：景观、福祉、健康、COST行动、BlueHealth项目、OPENspace研究中心、绿色与蓝色空间、城市林业、观点性论文、欧洲研究

Introduction

The past two decades have seen a profound transformation in how landscapes are understood in relation to human health and wellbeing. At the turn of the millennium, the idea that forests, parks, rivers, and gardens could be central to public health was still marginal in the awareness of many people, especially politicians and policymakers. For a long time, it has been intuitively understood that nature is good for our health and wellbeing, and work was done in the field during the 20th century, but it was an area of research waiting for the right moment to take center stage. Yet through collaborative European networks, COST Actions, and major research projects, the field has grown into a recognized domain with substantial evidence, policy impact, and practical application. This paper reflects on this journey, combining academic review with personal insight from someone directly involved in many of these initiatives. This perspective does not imply that there has been little or no research elsewhere—in the USA, Canada, Australia, Japan, and China there is substantial work which has continued, sometimes in parallel with what has emerged in Europe, and sometimes in collaboration. However, to attempt a global synthesis is too much for a single paper.

The aim of this paper is to look back over the last 25 years and to consider where research led and developed during that time. Other opinion papers in the first issue of the journal, written by leading academics from around the world, will each reflect on where the authors think research should go in the next 10 or more years. This review starts with a timeline of the development, split into periods which reflect a particular moment. Following this is a more detailed look at the contents of some of the major projects and the role of the OPENspace research centre, of which I am co-director, in many of these developments (though not all). I will conclude with some thoughts and reflections on the future of my own research. To my knowledge, this is the first attempt to provide such an overview of these significant decades in the field.

Early Recognition of the Field (2000–2005)

The early 2000s marked the beginning of concerted

European efforts to explore links between urban forestry, landscapes, and wellbeing. COST Action E12, (Urban Forests and Trees), ran from 2000 to 2004 and provided a platform for exchanging knowledge about urban forests not only as ecological resources but also as social and cultural assets. Although framed broadly around education and management, E12 was important in establishing urban forestry-origination in the USA—within a European context in wider quality-of-life debates. This was a time when the language of health and wellbeing had not yet fully entered the environmental agenda, but the seeds were sown. Also, in 2001 the OPENspace research centre was established. More on this can be found later in the paper.

Consolidating Networks (2005–2010)

By the mid-2000s, health and wellbeing were increasingly recognized as an explicit theme in COST networks. COST Action E33, (Forests for Recreation and Nature Tourism, 2004–2008), foregrounded the role of forests as places of leisure and health promotion, while COST Action E39 (Forests, Trees, and Human Health and Wellbeing, 2006–2010), marked the first explicit, pan-European initiative to link forests directly with human health outcomes. Both actions created a durable network of researchers and practitioners that helped to shape subsequent projects. Around this time, Catharine Ward Thompson, Peter Aspinall, Alicia Montarzino, and I co-authored the paper Mapping research priorities for green and public urban space in the UK (Urban Forestry and Urban Greening, 2007), which identified critical knowledge gaps and set out an agenda for the UK that resonated more widely. This was based on a project with the same name for the UK government, which generated increased interest in the policy agenda.

Broadening the Agenda (2010–2015)

The early 2010s saw an expansion of scope beyond forests to different kinds of spaces such as urban allotment gardens, green infrastructure, and also interest in systemic approaches. COST Action TU1201 (Urban Allotment Gardens in Europe, 2012–2016), drew attention to the multifunctional role of allotments and community gardening in urban life, from food security to social cohesion and mental health. COST Action

FP1204 (GreenInUrbs, 2013-2017), provided conceptual frameworks for understanding how different types of urban green and blue spaces contribute to wellbeing. It helped establish the green infrastructure concept, linking social, ecological, and planning dimensions. COST Action IS1204 (ToBeWell, 2012-2017), shifted the focus to tourism and also to the concept of "ecosystem services," which was coming into prominence at the time. This was also the period when the OPENspace research centre consolidated its reputation as a leading institution in landscape and wellbeing, producing evidence that directly influenced Scottish and UK policy. I was involved in several edited volumes and individual chapters during this time, which attempted to capture these diverse developments and link them to practice

Deepening the Evidence Base (2015–2020)

The second half of the 2010s was pivotal. Simultaneously, the Horizon 2020 project BlueHealth (2016-2020)-of which I was a principal investigator based in my other institution, the Chair of Landscape Architecture at the Estonian University of Life Sciences-focused on blue spaces, producing a wealth of publications and tools, including the BlueHealth Environmental Assessment Tool (BEAT), the BlueHealth Behaviour Assessment Tool (BBAT), and the BlueHealth Community Level Survey (BCLS), which are freely available at <https://bluehealth.tools/>. Its findings showed robust associations between proximity to blue space and improved mental health across European cities. In 2018, the publication of *The Oxford Textbook on Nature and Public Health* consolidated the evidence base, serving as a key synthesis that brought together decades of research. My own contribution to this volume focused on forests and wilderness, and I collaborated with Qing Li, a researcher who consolidated research into the Japanese practice of "Shinrin Yoku" or forest bathing. My other contributions during this period included editing books on urban allotment gardens and design for health, which attempted to translate research insights into applied frameworks.

Landscape, Wellbeing and the Pandemic (2020–2022)

The COVID-19 pandemic served as a natural

experiment for our field. Lockdowns made the green and blue spaces essential sites for exercise, respite, and social connection. Studies showed that people with access to such spaces reported better mental health and wellbeing during restrictions (Pouso et al., 2021). Yet inequalities were also exposed: those without access to quality outdoor environments suffered disproportionately. At OPENspace, we adapted projects to study pandemic experiences, finding that the older adults and urban residents developed new relationships with nearby spaces. These insights confirmed long-held arguments about the necessity of accessible landscapes for public health.

Horizon 2020, Horizon Europe, and Emerging Directions (2020–2024)

As Horizon 2020 closed and Horizon Europe began, the field entered a new phase. Health and wellbeing became integrated with climate adaptation and resilience agendas. The legacy of BlueHealth endured, with its methodologies informing subsequent projects such as GoGreenRoutes and REGREEN. The European Commission increasingly recognised green and blue spaces as vital infrastructures for sustainable cities. The agenda for developing Nature-Based Solutions also emerged strongly in this period.

The OPENspace Research Centre

Now I would like to focus in more detail on the OPENspace research centre, which was founded in 2001 at the Edinburgh College of Art (ECA), jointly with Heriot Watt University (ECA merged with the University of Edinburgh in 2011). OPENspace became a hub for research into people, place, and wellbeing. Across projects, OPENspace advanced methodologies ranging from participatory design to mobile and physiological monitoring. Over two decades, OPENspace grew to be a reference point internationally, with our "Open Space: People Space" conference series helping to consolidate global dialogue.

Under the leadership of Catharine Ward Thompson, Peter Aspinall (until his retirement), and me, and with other colleagues such as Penny Travlou and Alicia Montarzino, OPENspace rapidly developed a portfolio of projects that addressed both theoretical and applied

dimensions of landscape and wellbeing.

When we founded the centre, the ambition was to create a hub that combined landscape architecture with allied disciplines, particularly environmental psychology, planning, geography, and public health. Few other centres had this interdisciplinary breadth at the time. Our early projects were exploratory, often small-scale, but always rooted in the belief that people's experiences of landscapes were just as important as any ecological or economic measure.

By the mid-2000s, OPENspace was coordinating projects such as Inclusive Design for Getting Outdoors (IDGO), which directly influenced design standards for accessible public spaces in the UK (see below). We also published the Open Space: People Space book series, edited volumes that became touchstones for academics and practitioners alike.

During the pandemic, the value of everyday, local landscapes was cast into stark relief. National parks and iconic sites were closed or inaccessible, but the modest neighbourhood park became a crucial lifeline. At OPENspace we were contacted by journalists, NGOs, and policymakers almost weekly, seeking comment or data to support investment in these spaces. We also witnessed community initiatives: neighbours planting micro-gardens, volunteers managing paths, families using urban green spaces in creative ways. These experiences suggest that resilience lies not only in infrastructure, but in the social fabric of how landscapes are used and cared for. They also reinforce arguments we have long made: that landscapes must be seen as critical health infrastructure.

The IDGO (Inclusive Design for Getting Outdoors) project, launched in 2004, stands out as one of the earliest and most influential. It focused on older adults and people with mobility challenges, groups that are often overlooked in mainstream design discourse. Through participatory design workshops and extensive fieldwork, we were able to demonstrate how relatively modest changes—such as benches at regular intervals, gentle gradients on paths, and tactile paving—could have a profound impact on people's ability to access and enjoy outdoor environments. The policy impact of IDGO was considerable: its findings fed into UK

design guidance, local authority standards, and even the work of CABE (Commission for Architecture and the Built Environment). It also provided a methodological template for later projects, blending user engagement with evidence-based design recommendations.

Another landmark was our role in the Woods In and Around Towns (WIAT) programme, a Scottish Forestry Commission initiative. Here we worked on evaluating how urban and peri-urban woodlands could be revitalised to improve community wellbeing. This programme demonstrated not only health benefits but also social outcomes: reduced antisocial behaviour, enhanced community cohesion, and increased pride of place. The evaluations, which included both quantitative measures and qualitative interviews, were among the first in the UK to make a clear link between targeted landscape interventions and measurable health improvements. It was gratifying to see the work cited in government reports and recognized internationally.

The GreenHealth project further extended this trajectory, testing the effects of landscape interventions in hospital grounds, and care settings. Working with healthcare providers was not always straightforward, but it underscored the need to think of landscapes, not as luxuries, but as integral to therapeutic environments. Patients, staff, and visitors all reported benefits, reinforcing the well-accepted idea that even views of nature can accelerate recovery and reduce stress.

Mobility, Mood and Place was a project with other partners to build on evidence that how we experience environments influences our mood, and, in turn, our willingness to be active. It incorporated three research topics, as well as a lively programme of knowledge exchange and stakeholder liaison: Co-created environments; Environment and affect; and Life course of places, health and mobility. The research involved co-design with a range of participants, including stroke survivors and people with dementia, as well as innovative mobile neuroimaging methods, to explore real-time emotional responses to place.

Alongside these projects, we were increasingly aware of the need to train a new generation of practitioners and researchers who could carry this work forward. This recognition led to the creation of the

MSc in Landscape and Wellbeing at the University of Edinburgh. The MSc was carefully designed to bridge theory and practice. Its curriculum includes courses on environmental psychology, design for health and inclusion, public health principles, and applied research methods. Students undertake dissertations that are often directly linked to live projects, creating a feedback loop between research, teaching, and practice.

Teaching on this MSc has been one of the most rewarding aspects of my career. Each cohort brings together students from diverse backgrounds, including landscape architecture, urban planning, psychology, and even medicine. Their interactions mirror the interdisciplinary nature of the field itself. Many of our graduates now hold influential positions in academia, NGOs, and government, spreading the ethos of landscape and wellbeing far beyond Edinburgh. Some have initiated projects in their home countries, from urban greening schemes in Asia to participatory park design in Latin America. This global reach gives the MSc a multiplier effect, far greater than what any one research project could achieve alone.

The landscape architecture PhD programme in ECA, currently under my direction, has also been a focus for students from around the world who have been inspired by the work of OPENspace and wish to undertake their own projects in the field of landscape and wellbeing. A number of graduates of the programme are now working in universities worldwide in research and teaching, so the network which connects Edinburgh to the world is constantly strengthened in this way.

OPENspace has also been notable for its scholarly output. The Open Space: People Space conference series and associated edited volumes (e.g., Ward Thompson and Travlou, 2007; Bell et al., 2010) provided platforms for consolidating and disseminating new findings. These widely cited books showcased not only our own work but also that of colleagues across Europe and around the world. They exemplify the Centre's role as a convenor and catalyst, rather than merely a producer of research in isolation. There have also been numerous academic papers in high-impact journals, which have emerged from projects and PhD theses.

As the years progressed, OPENspace projects

became more ambitious and international. Partnerships with the WHO, the European Environment Agency, and various COST Actions expanded our scope. Yet the ethos remained constant: rigorous evidence, participatory methods, and a commitment to practical impact. Looking back, I see OPENspace not simply as a research centre, but as a community of scholars, practitioners, and students united by a shared belief in the power of landscapes to support human wellbeing. The MSc programme embodies that ethos, ensuring that the lessons learned are passed on and adapted to future challenges.

OPENspace also played a crucial role in coordinating international networks and hosting events that brought together the diverse community of researchers working in this domain. For example, its hosting several conferences in Edinburgh created a platform for dialogue, which shaped subsequent research agendas. The centre has consistently served as a bridge between research and practice, embodying a translational ethos that ensures findings reach practitioners, and decision-makers. Throughout my career, OPENspace has been both a home and a launchpad, allowing me to develop collaborations that have extended across Europe and beyond.

The role played by the various projects and networks

In the next section, I would like to explore how the various research networks have helped to raise the profile of the field and bring together many diverse aspects of research and its links to practice.

COST Actions

The COST website states that: "A COST Action is an interdisciplinary research network that brings researchers and innovators together to investigate a topic of their choice for four years." COST Actions are typically made up of researchers from academia, Small and Medium-sized Enterprises (SMEs), public institutions, and other relevant organisations or interested parties. They are open to all science and technology fields, including new and emerging ones. COST Actions offer an inclusive, pan-European environment for individuals of all levels of seniority to

grow their professional research networks and boost their careers. Many of the people who were senior researchers back in the 2000s and led the early COST Actions have retired, but many of the PhD students and post-docs of those days now hold senior positions themselves.

These actions are incredibly effective in bringing interested people together to work towards a common goal, such as consolidating existing research and enabling new networks to be built, which can then develop into consortia to apply for new research projects under Horizon Europe or other funding mechanisms. I have been involved in several and am now a member of two active ones. Let us look at the achievements of the key actions.

COST Action E12 Urban Forests and Trees (2001–2004) was among the earliest collaborative European networks to focus explicitly on urban forestry in relation to health and well-being. Its objectives included knowledge exchange on the planning, design, and management of urban woodland, and trees in urban areas generally, but importantly, it also created a pan-European dialogue around the social and educational benefits of urban forests. Workshops across Europe explored case studies ranging from peri-urban woodlands in Scandinavia to pocket parks in Southern Europe. The action resulted in the edited volume *Urban Forests and Trees* (Konijnendijk et al., 2005), a touchstone text. My own contributions within this network highlighted the cultural dimensions of forest perception, drawing attention to landscape aesthetics and well-being before these themes were fully recognised in the health discourse. The COST E12 network involved researchers, practitioners, and policymakers from more than 20 countries. It was significant in that it broadened the concept of urban forestry beyond mere tree planting to include governance, community engagement, and links to urban quality of life. In several meetings I attended, the debates turned on how children experienced woodland settings; how urban woodland paths could foster both play and ecological awareness; and how such spaces could be co-managed by municipalities and citizen groups. Publications included policy briefs for cities, early discussions of

ecosystem services, and the volume *Urban Forests and Trees* mentioned above. The action also began to sketch a European identity for urban forestry, moving the field away from its North American origins and establishing it within European planning traditions.

COST Action E33 Forest Recreation and Nature Tourism (2004–2008) shifted attention to forest recreation and nature-based tourism. A network of researchers joined forces under my leadership, bringing together dozens of researchers from most European countries, which culminated in *European Forest Recreation and Tourism: A Handbook* (Bell et al., 2009), synthesising case studies across Europe and providing guidance for integrating recreation into forest management. Here, wellbeing was framed not only as health, but as quality of life and cultural identity, linking forest experiences with heritage and sense of place. This action was formative for embedding health narratives in what had previously been primarily economic or conservation conversations. The COST Action E33 group produced not only academic publications but also practitioner-oriented guidelines. We spent a good deal of time debating how to define "recreation" in diverse cultural contexts—walking in one country, mushroom-picking in another, and extreme sports in a third. This comparative perspective sharpened our awareness of wellbeing as culturally embedded, not a universal constant. It was also the first COST Action in which I found myself in close dialogue with economists and tourism planners, advocating for aesthetic and psychological values alongside financial indicators. Our final handbook, *European Forest Recreation and Tourism: A Handbook* (Bell et al., 2009), circulated widely and continues to be cited as a foundational source, while a second book, *Management of Recreation and Nature-Based Tourism in European Forests* (Proebstl et al., 2010), was filled with region-specific guidance to reflect the diversity of Europe, as well as numerous good practice examples.

COST Action E39 Forests, Trees, and Human Health and Wellbeing (2005–2009) was the first pan-European initiative that explicitly framed trees and forests as health-promoting infrastructure. The work drew in psychology, medical, and public health experts alongside foresters, planners, and landscape designers, signalling

a shift towards genuine interdisciplinarity. The edited volume by Nilsson et al. (2011), *Forests, Trees, and Human Health*, became a cornerstone reference. I recall workshops where we explored design interventions in woodlands for stress reduction and evaluated how to bring such evidence into policymaking. This COST Action was arguably the turning point in bringing our field to broader recognition. Field experiments in several countries measured blood pressure and cortisol levels in forest visitors, long before such physiological monitoring became commonplace. It was thrilling to be at the forefront of what felt like a new science. We discussed how forests might be designed or adapted to enhance these benefits: different forest types, seating, and water features. I contributed insights from visual landscape assessment, arguing that aesthetics and perception were integral to the health outcomes. The action also connected with WHO Europe, paving the way for later recognition of green spaces in health strategies.

COST Action TU1201 Urban Allotments in European Cities (2012-2016) reflected a growing interest in community-based forms of green infrastructure, particularly urban allotments and community gardens. Allotments, though historically associated with food security and working-class recreation, were reframed by TU1201 as multifunctional spaces contributing to health, social cohesion, and urban sustainability. The action documented the diversity of allotment traditions across Europe, from the structured Kleingärten of Germany to more informal plots in southern Europe. It organized comparative studies and policy dialogues, and produced the book *Urban Allotment Gardens in Europe* (Bell et al., 2016), which I co-edited. This publication remains a key reference, showing how allotments provide not only fresh produce but also opportunities for physical activity, social interaction, and mental restoration. TU1201 also highlighted the threats to allotments from urban development pressures, making a strong case for their protection and integration into urban planning. For me, TU1201 was deeply rewarding—it combined scholarly inquiry with activism, giving voice to allotment associations and ordinary gardeners. It demonstrated how bottom-up initiatives could be recognized as legitimate and valuable components of urban landscapes,

directly contributing to wellbeing.

COST Action FP1204 GreenInUrbs (2013-2017) expanded the scope from specific land uses to the broader concept of green infrastructure. This action aimed to integrate ecological networks, recreational spaces, and health outcomes into a coherent planning framework. The action convened planners, ecologists, public health professionals, and designers, fostering cross-sectoral dialogue that was rare at the time. Outputs included an edited book, methodological guidelines, policy briefs, and academic papers that clarified the links between green infrastructure planning and public health. A particularly influential outcome was the recognition that green infrastructure should not be seen as an "add-on" to urban development but as core infrastructure, no less essential than transport or utilities. FP1204 also emphasized multifunctionality, stressing that a well-designed park or corridor could deliver biodiversity, climate adaptation, and health benefits simultaneously. Involvement in FP1204 reinforced my belief in the need for systems thinking: wellbeing could not be pursued in isolation but had to be embedded in wider planning and governance structures. The action's legacy is evident in the growing number of European municipalities that now explicitly reference health in their green infrastructure strategies.

COST Action IS1204 ToBeWell-Tourism, Wellbeing and Ecosystem Services (2012-2017) sought to synthesise and advance the growing body of evidence on landscape and wellbeing and link it with tourism and the emerging field of ecosystem services—where wellbeing, recreation, and tourism are seen as “cultural ecosystem services”. Unlike earlier actions that focused on specific environments or concepts, this action placed strong emphasis on interdisciplinarity and knowledge transfer, creating platforms where scientists, practitioners, and policymakers could exchange insights. It also paid particular attention to emerging challenges such as digitalisation, climate change, and demographic shifts, exploring how these intersected with wellbeing. For me, ToBeWell symbolised the maturation of the COST approach: it was less about establishing the legitimacy of the field and more about consolidating, refining, and

disseminating knowledge. Its workshops and publications helped to crystallise future research agendas, while its networks continue to foster collaboration. The personal connections built through ToBeWell remain invaluable, and the action stands as a testament to the power of collective inquiry to shape both scholarship and practice.

BlueHealth

The BlueHealth project represented one of the most ambitious and far-reaching projects in the landscape and wellbeing field to date, and it deserves extended treatment here. Funded under Horizon 2020 (2016-2020), it was transformative in positioning blue spaces as central to health debates. It brought together a consortium of more than 18 partners across Europe, including universities, public health agencies, and design practices. BlueHealth's multidisciplinary team included epidemiologists, landscape designers, public health experts, and ecologists.

The central focus was to investigate how blue spaces affect health and wellbeing. At the time, research on green spaces was already well advanced, but there was comparatively little systematic evidence on blue spaces, despite their obvious cultural and recreational importance. With case studies from Plymouth to Barcelona and from Baltic city coastlines to Dutch urban canals, BlueHealth produced both robust epidemiological analyses and practical design tools such as the BlueHealth Environmental Assessment Tool (BEAT), the BlueHealth Behaviour Assessment Tool (BBAT), the BlueHealth Community Level Survey (BCLS), and the Decision Support Tool (DST). Findings showed significant associations between blue space exposure and positive mental health outcomes, and highlighted opportunities for intervention in deprived urban areas using the concept of "Urban acupuncture". Importantly, BlueHealth mainstreamed blue space into European policy discourses, influencing WHO Europe and city planning strategies.

I recall vividly our site visits to different settings in all seasons, where the question was how modest interventions, like floating pontoons or improved access paths, could yield measurable wellbeing impacts. Importantly, BlueHealth also experimented with virtual

reality: exposing participants to immersive coastal environments to test psychological responses. This paved the way for "dose-response" studies of blue space exposure. Its policy briefs influenced the European Commission's strategies on environment and health, and many of its young researchers have since gone on to lead projects in their own right.

The methodological innovation of BlueHealth was also striking. It combined large-scale epidemiological surveys with on-the-ground case studies and experimental work. The BlueHealth International Survey (BIS) was one of the largest surveys ever conducted on this topic, encompassing over 18,000 participants from 14 countries. The BIS provided unprecedented comparative data, showing not only how people used blue spaces but also how such use correlated with self-reported health, physical activity, and mental wellbeing. The survey findings suggested robust associations between frequent exposure to blue spaces and lower psychological distress, improved mood, and higher levels of physical activity. These results were critical in making the case that blue spaces should be considered alongside green spaces in public health and urban planning strategies.

BlueHealth also implemented a suite of case studies in diverse urban contexts. For example, in Plymouth in the UK, interventions along the waterfront demonstrated how relatively modest design changes, such as the construction of a small open-air theatre, better seating, improved beach access, and clearer signage, could enhance accessibility and increase use across different population groups. In Barcelona, work focused on an urban river and how urban residents interacted with this urban river and expended energy through running and walking. Tallinn and Thessaloniki provided contrasting case studies of northern and southern European cities, each with distinct cultural relationships to their blue spaces. In all cases, rigorous evaluation frameworks were applied, often combining GIS-based analysis, direct observation, interviews, and health outcome measures.

A particularly innovative strand of the project involved the use of virtual reality (VR) to simulate blue spaces in controlled laboratory conditions. The VR studies, conducted with participants in several countries,

demonstrated measurable reductions in stress and improvements in mood when viewing or interacting with simulated blue landscapes. This was significant not only for methodological reasons but also for its potential application in healthcare settings where direct access to outdoor environments might be limited.

Another important dimension of BlueHealth was its attention to equity and environmental justice. The project highlighted that not all communities had equal access to high-quality blue spaces, and that interventions could either reduce or exacerbate inequalities depending on the way they were implemented. For example, waterfront regeneration projects often carry risks of gentrification, displacing lower-income residents even as they improve environmental quality. BlueHealth researchers were careful to document these dynamics, ensuring that recommendations to policymakers were nuanced and context-sensitive.

The policy impact of BlueHealth has been considerable. Findings were cited in reports by the European Environment Agency and contributed to World Health Organization guidelines on urban green and blue spaces. At the local level, city councils in several participating countries used BlueHealth evidence to inform planning and design decisions. For instance, in Plymouth, the City Council explicitly referenced BlueHealth evaluations when justifying further investment in waterfront amenities. Similarly, in Barcelona, the integration of BlueHealth findings into coastal planning underscored the importance of balancing high levels of tourist use with local residents' needs. In Estonia, the BlueHealth tools have been widely used in urban planning. In addition, the BEAT tool has been recreated as a Chinese version and the Urban Blue Spaces book is to be published in Chinese late in 2025.

From my perspective, involvement in BlueHealth was both stimulating and challenging. The scale of the consortium meant that coordination required patience and diplomacy, but it also fostered rich interdisciplinarity. Working alongside epidemiologists, environmental psychologists, marine scientists, and urban designers expanded my own horizons and deepened my conviction that landscape and wellbeing research must always be collaborative. The project also

demonstrated the power of mixed methods: only by triangulating large-scale surveys, detailed case studies, experimental work, and policy engagement could we hope to capture the complexity of human relationships with blue spaces.

Perhaps most importantly, BlueHealth signalled a maturation of the field. It moved us beyond proving that spaces matter to health—a battle largely won by that stage—towards more refined questions: which spaces matter most, for whom, under what circumstances, and with what long-term consequences? In this sense, BlueHealth was not merely an endpoint but a stepping stone, preparing the ground for subsequent projects that would take these questions further, including research into climate resilience, biodiversity, and intergenerational equity. It is fair to say that the project has left a legacy that will shape the landscape and wellbeing field for many years to come.

Key Publications and Consolidation of the Field

In parallel with institutional developments, the literature in this field has grown rapidly, and certain publications have played outsized roles in consolidating the evidence base and shaping discourse. The 2007 paper "Mapping research priorities for green and public urban spaces in the UK" (Ward Thompson et al., 2007) published in *Urban Forestry and Urban Greening*, was particularly significant. It systematically identified gaps in knowledge and articulated a research agenda that guided funding bodies and scholars alike. I recall how this paper was repeatedly cited in funding calls and policy documents, demonstrating the power of strategic academic work to set directions beyond the academy.

The publication of *The Oxford Textbook of Nature and Health* (van den Bosch and Bird, 2018) represented another milestone. This volume brought together an unprecedented range of evidence, spanning epidemiology, psychology, urban planning, and environmental design. By situating nature-health research within the prestigious Oxford Textbook series, it symbolised the full academic recognition of the field. As contributors to the volume, many of us felt that a corner had been turned: what had once been seen as a niche or even fringe interest was now firmly in the mainstream

of scholarly inquiry. The textbook also provided an invaluable teaching resource, and it continues to shape curricula, including that of our MSc.

Alongside collective publications, my own authored and edited books have sought to articulate the design dimensions of this field. Works such as *Design for Outdoor Recreation* (Bell, 2008), *Place, Pedagogy and Play* (Kahn et al., 2020), and the co-edited *Urban Allotments in Europe* (Bell et al., 2016), as well as the books already mentioned, such as *Forest Recreation and Nature Tourism: A Handbook*, each addressed aspects of how landscapes can be shaped to promote wellbeing. These books combined empirical evidence with design guidance, aiming to speak both to fellow researchers and to practitioners on the ground. Reflecting on them now, I see them as part of a larger movement: a collective effort by many authors across Europe and beyond to make the case for landscapes as health assets. They also represent the gradual maturation of the field from isolated case studies to integrated frameworks for action. Together with the work of centres like OPENspace, the COST Actions, national and EU projects, academic papers, and PhD theses, these publications helped transform landscape and wellbeing from an emerging concept into a recognised domain of interdisciplinary research and practice.

Where next?

Looking to the future, our field must address multiple interconnected challenges. First, equity must be prioritised: ensuring that the benefits of landscapes are not confined to affluent areas. Second, climate adaptation must be embedded in landscapes as cooling, shading, and buffering systems. Third, research must embrace life-course perspectives, linking childhood exposure to lifelong health. Fourth, digital tools, from VR-based nature exposure to smart sensors, open up new methodological frontiers. Fifth, intergenerational and inclusive design approaches will ensure that spaces support diverse populations. Sixth, biodiversity-health linkages need more study, integrating ecological and medical science. Seventh, implementation science is essential-how to scale, fund, and maintain interventions. And finally, participatory approaches must remain

central, co-creating landscapes with the communities they serve.

Our agenda is therefore expanding. Education is critical: programmes such as our MSc will continue to shape practitioners who can bridge disciplines. Policy engagement must be deepened, with landscape and wellbeing integrated into health economics and planning frameworks. We must also engage with political realities: shrinking public budgets, competing land uses, and the urgent imperatives of climate change. Yet the evidence base is stronger than ever. I remain optimistic that the arguments we have painstakingly built will continue to influence the design of healthier, more equitable cities and landscapes.

Conclusion and Reflections

As I look back over the two decades of work described in this review, certain patterns emerge with striking clarity. The first is the sheer growth of the field of landscape and wellbeing, from what in the early 2000s felt like a fragile and somewhat contested niche, to a now established and respected domain within environmental design, public health, and urban policy. This growth was not accidental: it was driven by sustained collaborative efforts through COST Actions, EU Framework projects, the work of research centres like OPENspace, and similar ones in other countries in Europe and beyond, and the growing body of literature that together built an irrefutable evidence base. The journey has been both collective and personal, and my reflections necessarily intertwine these two dimensions.

One of the most significant achievements of this period has been the recognition of nature and landscape as critical determinants of health. Where once health was narrowly conceived as a medical matter, the research and projects I have been part of have contributed to a broader understanding-one in which environments are central. The notion of "green prescriptions," the embedding of green infrastructure in planning policy, and the use of landscape interventions in mental health and social care are all testament to this shift. I take pride in having played a part in this reorientation, both through my own research and through the collective platforms of OPENspace, COST, and BlueHealth.

Another clear theme is the role of networks and collaboration. COST Actions, in particular, offered fertile ground for building connections across disciplines and countries. These networks are invaluable not only for advancing the science but also for building a community of practice and support. The friendships and professional alliances formed during those years have endured, feeding into subsequent projects and publications. In hindsight, what was perhaps most important about COST for me was not just the reports or guidelines produced-but the sense of momentum and belonging it fostered among those of us working in this field.

The BlueHealth project epitomised the maturity of the field, both in terms of scale and impact. It brought together rigorous epidemiology, sophisticated modelling, and creative design experimentation. Its outputs are still being cited by policymakers and practitioners, and its datasets continue to fuel new analyses. But beyond the outputs, BlueHealth signalled a confidence-that we could address grand societal challenges such as climate change, urbanisation, and health inequalities through the lens of landscape and wellbeing. The project also reminded me personally of the joys of interdisciplinary collaboration-working with colleagues from environmental psychology, medicine, marine biology, landscape architecture, and beyond was stimulating and humbling.

OPENspace, meanwhile, has been a professional home and a crucible of ideas. Through its projects, the steady stream of PhD students and the MSc in Landscape and Wellbeing, it has enabled the translation of research into teaching and practice. I have been privileged to see students take the ideas we have nurtured and apply them in their own countries and contexts, often in creative and unexpected ways. In this sense, the legacy of OPENspace extends well beyond its publications or even its direct policy impacts-it is embodied in the people it has trained and inspired. This may be the most enduring impact of all.

Looking ahead, there remain challenges. The climate emergency adds urgency to our work, as landscapes are simultaneously threatened, and needed more than ever for resilience and wellbeing. Inequalities in access to healthy landscapes persist, and in some cases are widening. There is also the perennial challenge of translating robust evidence into policy and practice

by decision-makers. Yet I remain optimistic. The foundations laid over the past two decades are strong, and the community of scholars and practitioners is vibrant and committed.

On a personal note, writing this review has been an opportunity to reflect on my own trajectory. From the first tentative discussions in COST meetings-when I first entered academia after 20 years in the world of forest and landscape design working for the UK Forestry Commission and as a consultant-to confidently publishing major handbooks and training new generations of students, I have been fortunate to witness and contribute to a remarkable transformation. The field of landscape and wellbeing has come of age. It is my hope that this review will serve not only as a record of past achievements but also as an encouragement for future endeavours. The journey is far from over, and there is much still to do. But if the past two decades are any guide, the prospects for landscapes as catalysts of human health and flourishing are bright indeed.

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