The call of our times is towards integration. Clearly a big and urgent work for humanity, for both the individual and the collective, but within the more physical sphere of spatial planning and design, integration suggests inclusion and consciously allowing the inevitable acts of de and re-integration to unravel, clarify and re-qualify the environmental framework. Implicit in this, is preparing for the impacts of climate change with decisive strategies that respond to the fact that our own human health and resilience is interdependent with the survival of other species, or more specifically, the systems that sustain them, even in densely populated metropolitan areas.

Ecological and landscape urbanism perspectives are well embedded within the cultural frame and noticeably, the language of landscape has shifted towards persuasive terms selected to convey quantifiable assets, with economic and other yields, such as green and blue infrastructures, community health and well-being benefits and the delivery of ecological services. The language emphasises what we already know, and helps to demonstrate the contribution that streets, squares, parks, river corridors and other green and wild spaces can make in facing up to some of the specific challenges of reducing greenhouse gas emissions, improving air and water quality, encouraging better public health and preparing for the impacts associated with flooding.

The term green infrastructure (GI) first emerged in a report to the governor of Florida on land conservation strategies in 1994 to convey the idea that natural systems are equal to, and sometimes of greater importance than traditional forms of infrastructure. As a strategic approach to open space conservation, development and management, GI operates first at a landscape scale enabling regional and national objectives to be defined, for example the protection and restoration of landscape types for habitat benefits, water management, recreational provision, and sustainable economic activity. Working through region, city, district, neighbourhood and the localised site scales, GI thinking offers us effective planning tools, expanding on the corridor conservation concepts of the greenways movement pioneered in the US as a means of establishing critical habitat connections, but offers a more expansive concept by including larger habitat types such as forest, fen, marsh and grassland, in recognition of the services they provide as carbon sinks, storm surge protection, their role in air, soil and water quality management, and for human health. As a positive driver for change, green and blue infrastructure techniques must inevitably underpin new forms of urbanism that are relational, integrative and able to respond to the activation of tipping points.

The ingenuity of the Dutch Room for the River programme provides a striking example of how these tipping points can be addressed. Launched in 2006, the programme responds to the widespread flood risks of 1993/1995 by re-thinking the historic strategy of building ever-higher dikes. This method of holding water back was putting four million people at risk and proving prohibitively expensive. In pursuit of delta-proofing, and with more than 30 projects underway, most due for completion in 2015/16, Room for the River does not seek to claim land back from rising waters, but sacrifices it instead to natural and ecological uses to protect high risk areas, underlining the ‘valuable services that nature provides the human environment’. The project for the city of Nijmegen demonstrates the opportunity of a crisis where the relationship between urban form and the River Waal’s physiology created a high level of flood risk. By moving dikes away from the river and excavating a 4km long ancillary channel, a new urban island is being created as a park/nature reserve and new

TOWARDS A LANDSCAPE INTEGRATION

Fenella Griffin and Murray Smith advocate the inclusion of green infrastructure to combat climate change
urban focal point, while lowering the ambient river level and providing an escape route for high waters.

**DESIGNING WITH NATURE**

Creative humility underpinned by an ecological imperative, as evidenced in the problem solving for the Rhine delta, feels closely connected to the approaches advocated in Ian McHarg’s seminal *Design with Nature* which involves the reading of a whole system to formulate a set of design prescriptions. Similar layered, inclusive analysis and resulting rhizomatic frameworks guide the principles established by the GLA’s *All London Green Grid* and also Natural England’s *London’s Natural Signatures*.

The phenomenon of GI is not new. Freiburg’s success and liveability as a city is multi-factorial. Its *Charter for Sustainable Urbanism* coalesces more than four decades of integrative policy, innovation and design guided by a commitment to people, environment and economic development with consistent but evolving values and vision. The early commitment to a mass transportation system, resulting in a city of short distances and radical reduction in car use, the principle of densification and the wide reaching green space strategy and green fingers, set limits on development areas, conserving green space corridors connecting city/people/region, while providing a natural structure for ecological and recreational space and drawing cool air down from the mountains to offset the summer heat. These ideas continue to be seeded around the world. Freiburg has also highlighted the importance of social justice, education and economic parity in working towards the foundation of an ecologically balanced city.

**THE UNDERLYING LANDSCAPE**

In our own work at Untitled Practice we are exploring the current state of GI by integrating its environmental objectives along a human/systems approach to retrofit parts of the city’s traditional grey and green infrastructure in response to climate change adaptation techniques informed by the specific qualities of place. We look for the sense of underlying landscape as something pre-existing and structural – a frame of reference informing a way forward.

At Tottenham, our proposals for a Green Link for Design for London and the London Borough of Haringey in collaboration with Landolt Brown Architects, sought to recover the sense of connection between the life of the High Street and the physically close but perceptually distant Lea Valley Regional Park with its wetlands and waterways. This led us to explore the identity of the 1.5km route as a meeting of city and marshland enabling access to the wider resources of the valley. By threading a surface water collection system of linear street swales along the route to convey and re-charge rainfall, the presence of a temporal wetland and its associated species could be extended into the High Street environs while reducing the risk of flash flooding. A ‘river’ of flowers and importantly, nectar sources are integrated into a re-configured street surfaced with light reflecting materials and planted with shade trees to limit heat absorption and mitigate the urban heat island effect. We imagined that as species moved up from the marshes, they might put on headphones, go to the library and check out the local stores, and that as people inhabited the marshes more, they might grow wings, antennae and forage a little.

At Thamesmead, for Peabody and GLA/London Borough of Bexley, we are exploring similar issues of inter-connectivity and the communication of a landscape’s significance in forming urban development over generations, where many qualities have been lost to the reading. Our proposals link the heritage assets of Lesnes Abbey Woods and Crossness Pumping Station along 2.5km of public space, related to housing and infrastructure. We are working to improve the ecological function of the land by promoting species diversity within a more joined-up public realm to create a place that meets social, recreational and biodiversity needs. The conversion of approximately nine hectares of amenity grassland to species rich meadow at Abbey Way and Southmere Park will unify proposals to extend and renew the tree canopy and register the identity of the former marshes with swales and wetland planting while amplifying the natural frame for a series of new social spaces to cultivate stronger sense of place, time and continuity for local people.

**PULLING THREADS**

The expression of what is, what has been lost, and what could be, drives the strategy at Valley Gardens, Brighton, where we are working with Urban Movement for Brighton & Hove City Council. Despite the project’s name, both valley and the gardens were hard to recognise due to incremental urban expansion, which has led to severance of the city, with the gardens serving as a chain of traffic islands along the A23 London Road, past the Royal Pavilion to Brighton Pier.

In searching for the valley, we found the entire watershed, and the significant potential for flooding from both surface and ground water sources. We traced chalk streams barefoot to their source along the spring line at the foot of the South Downs, and speculated about daylighting the Wellesbourne, a winterbourne stream, now subsumed within the enormous Victorian sewer network. Whilst in reality there is no longer a watercourse through the valley, we are re-imagining...
the valley floor with a created chalk stream as part of the re-structuring of streets and green spaces, to receive surface water run-off via vegetated street swales and rain gardens. By including later flowering plants, Biodiversity Action Plan (BAP) species like the white letter hairstreak moth can be provided with late season food sources to promote its survival. Brighton and Lewes Downs is the UK’s first UNESCO Urban Biosphere Reserve and Valley Gardens lies strategically between the marine and downland environments which it recognises.

Like pulling threads, we hope that the work will expand beyond the fabric of Valley Gardens itself, to eventually stitch together the seafront with the Downs. The parallel work of civilising the terrain involves reducing the area given to roads, claiming land back for the public realm, de-cluttering and removing barriers to movement, creating a legible cycle route and more direct walking routes to connect across and along the valley floor and make space for Brighton’s strong cultural life, by providing flexible and robust spaces capable of multiple uses for human play, from slack-lining to food and other festivals. Based on VURT (Valuing Urban Realm Toolkit), the business case estimates an economic impact of over £85 million and more than £3.5 million in terms of the social benefits from an improved quality of life and environment over a 15 year evaluation period.

The role of trees at Valley Gardens is important: from the conservation of the National Elm Collection to thinking about the site as part of an expanding urban forest and resilient arboretum. Alongside psychological and behavioural benefits, and improving land values, trees produce oxygen, intercept airborne particulates, reduce smog and enhance respiratory health. Trees remove greenhouse gases, store carbon and lower the ambient temperature through evapo-transpiration, all significant in terms of air quality and meeting regulatory clean air requirements, therefore reducing deaths from respiratory disease and heat stress. Trees improve water quality and reduce storm water management costs by capturing and slowing rainfall and providing erosion control.

MANAGEMENT AS A DESIGN TOOL
Paying for ‘green goods’ is an issue of growing concern. Management is a design tool in itself and we have explored dialogues regarding future management and maintenance. At Tottenham Hale we were inspired by a thriving local community project, Living Under One Sun, where multiple strategies including a time bank and NHS referrals have improved access to health services and healthy living initiatives, building social capital in a community with a high deprivation index. In Brighton we are exploring a similar partnership approach with local groups including the probation service, schools and a Green Gym type initiative. These blended models may suggest a way forward. Despite their multiple benefits green spaces are not a statutory service and frequently miss out on funding to other revenue generating spaces and services. NESTA’s 2013 report, Rethinking Parks – Exploring New Business Models for Parks in the 21st century was published in tandem with a funding programme to support interested groups to develop innovation beyond the eight existing management models. Reflecting on the business case figures for Valley Gardens, part of the solution may lie in the substantial economic gains and potential for savings against energy and health care, the re-routing of funds towards establishing inclusive management frameworks in acknowledgement of the long term economic and other benefits of GI.

A LIVING SYSTEM
Land is a living system and inclusive by its nature. Like our bodies, it provides a form of physical containment for our lived experiences, and like our bodies bears the marks of its lived-ness, the cycles of occupation, and change. As a body, land too has some ability to signal dysfunction or disease, a certain resilience and mechanism for recovery given the right tolerances and a deep process of geophysical and ecological becoming. Given these processes, interactions and underlying principles, it seems natural to join in or synchronise with them in addressing the collective work of urban renewal towards better ecological, physical and emotional health as well as the functional, economic and social success of our communities.

It is two generations since the publication of Rachel Carson’s Silent Spring, for which she was accused of being a ‘fanatic defender of the cult of the balance of nature’. A paradigm shift has occurred in the intervening years. Renewed interest in psycho-geographic wanderings, re-wilding, and a plethora of nature writing, by authors like Robert Macfarlane, are just some examples of how these concerns are becoming more embedded in the collective consciousness.

The way towards GI as an essential basis for urban design in the context of climate change adaptation and mitigation, is clearly set out in excellent position statements by the Landscape Institute, the Australian Institute of Landscape Architects, and especially the American Society of Landscape Architects, offering techniques for consideration and deployment by us all. It seems to us a critical pathway along which to effect change within the urban environment to develop genuine systemic functionality and generous, authentic place-making which also values the aesthetic function as being an integral limb of sustainability and as a key point of connection for human interaction.