

## Keynote address:

# Cities and Nature: The Global Shift towards Biophilic Cities

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Thank you. Good morning. It's great to be here. As is usual, I have way too many slides for the time that I have so at some point I'm going to get this flashing red light, I think, on the podium, which will be interesting, and we'll transition to the sort of photo-essay version of the programme. At that point just maybe keep your eyes open and absorb the images, and perhaps you'll dream about them later tonight. It won't be a nightmare, I hope.

One of my goals is to just get everyone familiar with the concept of biophilia, and comfortable using the terminology of biophilic: biophilic cities, or biophilic urbanism, as I say. There are some resources if you want more information: there is a book called *Biophilic Cities* (2011); and we're actually working on a larger, longer sequel to this, a handbook of biophilic cities that will be coming out in about a year probably. What we're doing a lot these days is making documentary films, trying to tell the stories of these fantastic cities; and this is the cover of one of them, *The Nature of Cities*, that was playing on PBS, public broadcasting stations, around the US for a while; not so much now. I'm going to tell you a couple of stories from that film.

For me, as an urban planner, I'm interested in how we can create liveable cities, compact cities, walkable, sustainable sorts of places. We know that we're not going to turn back the urban trend, and that the shift to cities, that global shift to cities, is part of what will make our world more sustainable, I believe. So the trick for me is how to imagine designing and planning denser, compact cities but cities that also have abundant nature.

It is the 'nature' part of it that I'm going to talk about mostly today. We started something called the Biophilic Cities Project at the University of Virginia about three years ago. We've just come to the end of two years of funding from the Summit Foundation, a Washington-based foundation, and we've been working with ten partner cities - one of them is Birmingham - in fact, you'll hear more about this from Nick Grayson in just a minute. We've been trying to understand what is a biophilic city, what could a biophilic city be, what are the metrics involved, how do we measure those biophilic qualities.

There is a web page, [www.biophiliccities.org](http://www.biophiliccities.org), and we have a blog and an e-newsletter, and there are individual pages about each of our partner cities. Please take a look at that website and add your name and we'll start communicating with you. There is an online pledge that you can take, your organisation can take, your city can take; I'll tell you more about that in a minute.

So what is this idea, this concept of biophilia? We'll have to give a lot of credit to Ed Wilson, E. O. Wilson, from Harvard, who wasn't actually the first person to use the term biophilia, but he really coined it in the way that we use it today, which is this idea that we have co-evolved with nature, that we are carrying with us our ancient brains and that we need that contact, that connection, with the natural world. We've only been for a tiny little bit of our evolutionary history inside buildings like this and disconnected from the outside world, so biophilia makes sense.

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Nature is something that we need every day, every hour, that's our argument, that it's not something you just get on a holiday in the summer. It is something that has to be around us all the time; it has to be integrated into our daily lives. To be truly happy and healthy and to live productive and meaningful lives we need that connection with nature. Nature is not something that is optional; it is absolutely essential.

Here is one definition of biophilia, from Ed Wilson: "the innately emotional affiliation of human beings to other living organisms. Innate means hereditary and is part of ultimate human nature." So it's something that we're hard-wired to need, and there is a lot of evidence now about that.

Here are just a couple of slides about the Biophilic Cities Network Launch event, convened in Charlottesville, Virginia, in October. At the end of our initial two years of research, we brought our partner cities together for this event, and it became a rather large conference to discuss and celebrate the idea of biophilic cities. This is one of the posters from the event, which also became a promotional postcard: that's an image of Singapore. As part of the conference and launch event we also organised an exhibition about biophilic cities in our main School of Architectural gallery space, utilising images and maps and stories from the different partner cities, with many from Birmingham.

Here is another poster and postcard. As part of that exhibition, by the way, we commissioned the design and making of a beautiful glass terrarium, which you see here. We've now affectionately called it the biophilic bubble, a hand-blown glass bubble. One of the things we know is that we spend a lot of time inside, something like 90% of our day, or more, inside. So the question becomes: what do we do about that? We must necessarily be interested in interior environments, and interior design such as this beautiful terrarium serves an important purpose. Just recently, actually in the last several days, the nature in the terrarium has been changing, with mushrooms popping up, and it's taking on a different, interesting look. There's an ecology to this interior green space.

We did a number of fun things at the launch event. We had a film night; as I say, one of the things that we've been doing is making films about these terrific cities. Here's an image of the CEO of a fantastic biophilic hospital in Singapore, the most biophilic

health facility I've ever seen. We have a 45-minute film about Singapore, Singapore as a biophilic city. It's on YouTube, if you Google 'Singapore: biophilic city', you'll find the entire film, and there's a chapter - we've kind of divided it up into chapters as well - about this hospital.

The woman on the left is named Jane Rau, and she's 90 years old now. We've made a film about the desert heart conservation in the Phoenix, Arizona area - Scottsdale in particular - and that's an interesting story. I may tell you a little bit more about that later. There is power in nature in one's later years, and as we're all ageing and our world is greying a bit, the power of that nature to create meaning and health. Rau now goes out to this amazing Sonoran McDowell Preserve, which is now more 30,000 acres in size, almost every day, and she leads school groups and works on the trails. Her doctor is very happy about this, as her bone density is up, her weight is back to what it was in high school, she's healthy, she has friends; these are the kinds of things that nature can do for us.

We did a number of other fun things at the event. One of my favourite parts of the four days had to do with discovering the ant life around us. We invited an entomologist to help us to find and identify species of ants found in and around the University of Virginia School of Architecture, with periodic reports of the species discovered. By the end event we had identified 13 species of ants.

We also organised a workshop on how to design and build green walls. Here's an image of two of my graduate students who have designed and built this rollable green wall for interior spaces, made from recycled wood. The exhibition and many of the things related to the conference are now gone, but the rollable green wall is present, still rolling around the School of Architecture, in a visceral demonstration of the power of biophilia (as everyone wants this green wall in front of their office!).

On the last day of the event - and Nick is there somewhere in this picture - we got together, really just the representatives of the partner cities at this point, and we rolled up our sleeves to talk about and map out what we wanted to do in the future with the global biophilic cities network. So, the ten cities, the foundation cities, the pioneers if you will, are now trying to reach out to the larger world. If you go

online, you'll see there is an online pledge, and almost every day – literally every hour it seems – I'm getting emails from people all over the world, cities all over the world, people for which this concept, biophilic cities, is strongly resonating. There is a growing recognition that we need nature in our cities, that we need to design and plan so that nature is at the core, and moreover that cities need to be helping each other to figure out how to do it.

At the end of the last day we all went outside to sign, in dramatic fashion, a banner-sized version of our draft biophilic cities pledge. Here is an image of Lena Chan from Singapore, who runs the National Biodiversity Centre there, signing this very large version of our pledge statement in our downtown mall in Charlottesville. It was quite an exciting day, and we're trying to imagine and figure out what the future will hold for this Biophilic Cities Network.

Now let me tell you a little bit more about what some of the partner cities are doing. I'm not going to say anything about Birmingham, because I know Nick is going to tell you more about that. And just a little bit before that about the evidence. Kathy did a fantastic job yesterday summarising what we know, and it is amazing the evidence, the research that's happened in just the last five years, demonstrating the power of nature to heal us, to reduce stress, to make us feel better, to help us to come together. I'll mention – it wasn't mentioned yesterday – all of this incredible research coming out of Japan around this idea of "forest bathing". Many of you know about this, the notion that when you're walking through a forest that the evidence is showing that at the end of that walk stress hormone levels go down, that the walk through the forest helps to boost our immune system; and the evidence is pretty compelling. The Japanese now are setting up forest therapy stations in cities around the country, recognising that that walk, that bathing in nature in and near cities, is quite beneficial, quite a benefit to health and wellbeing. I love the concept, the imagery actually of walking through that forest with the dappled light and the bird sounds and the colours; it is not a big surprise that it would have these sorts of physical and mental health benefits for us.

We've been trying to understand, trying to pull apart the complexity – and I'm not going to go through this diagram – but it's a major point to say that we're trying to just begin to see the pathways. We know we're interested in creating biophilic outcomes and in

creating resilient and sustainable places. Nature helps us in so many ways, and there are many benefits from nature that are direct but there are also many benefits that are more indirect. The evidence suggests that in greener neighbourhoods people are more likely to be outside, they're more likely to be walking, so if we can induce the positive health effects of physical activity more indirectly through nature, that's a positive thing as well. This goes back to my political science days when I used to develop these path models, and there are lots of circles and boxes that probably need to be added to this.

We do have a lot of evidence about the power of trees in cities. Kathy talked a lot about that yesterday. One study I don't think she mentioned, from Philadelphia, shows the power of planting trees in depressed neighbourhoods; this particular study looked at the impacts of tree planting in vacant lots on reducing crime and violence in these challenged neighbourhoods. In those places where they planted trees, they saw a reduction in gun assaults and in vandalism; and, not a big surprise, residents in these neighbourhoods reported less stress and more exercise.

Philadelphia is actually a terrific story in many ways, with some very innovative tree planting, community tree planting sort of programmes. It includes this one, the Philly Orchard Project, which involves helping neighbourhoods to establish small community orchards in food-insecure neighbourhoods, the one condition being that neighbours have to take on the long-term management and care of those orchards. Here is an image from a pruning fruit tree workshop offered by this group, the Philly Orchard Project. There are some fantastic initiatives in that city.

We know that nature helps to bring us together, and sometimes I talk about this as nature's social capital. Here are two women from our documentary film *The Nature of Cities* as we followed them around for one day. These are two very good friends who are both amateur wildlife trackers; they've gone to school to learn the finer distinctions between the paw print of a domestic cat and a wild bobcat. They're standing in a canyon in San Diego, one of the many leftover canyons, with really remarkable biodiversity here. We followed these two for a day with our cameras, and it was really hard to keep up with them. We were running after them going down a trail, and at one point they went off the trail; we tried to follow them and we lost them. At a certain point we heard this ecstatic, happy

yelling – they had just discovered some blood on the branch of a tree and thought that they were moments away from seeing the resident bobcat.

Well, this is an amazing friendship, and they will tell you that this canyon, surrounded by a great diversity of different neighbourhoods, has brought people together: nature has the power to do that in cities. It's not the only way to bring people together, but there's a special power that nature has. We have all of this evidence now, of course, that shows that mortality rates from cancer go down when there are deeper, more extensive networks of friends, the power of social connections; nature can help to make those social connections.

There are also a number of new studies showing the economic benefits of nature and biophilia. Bill Browning at Terrapin Bright Green, a consulting firm based in New York, has done a study of the economics of biophilia for New York City. These are back of the envelope calculations, but when you start adding it up and you look, for example, at how test scores go up in schools that have daylight and natural features; how nature helps reduce crime, such as the Philadelphia example; when you start adding up the economic values, it is impressive. The Browning study estimates that in New York City there are some \$2.7 billion in benefits from those biophilic features.

It's a pretty good economic investment, and I know this has been said a number of times already. This slide shows another example, from Houston, Texas, where we have a guest blogger recently writing on our biophilic cities blog about a new methodology for estimating the economic benefits of investing in green space around Houston, and in particular, completion of the Houston Bayou Greenways Initiative. The estimate is it will cost about \$500 million to complete this system. Well, the calculations of the annual benefits put those benefits at more than \$100 million, so the conclusion is that this is about the best economic investment you could make in the greater Houston area.

I've been impressed with the variety of different kinds of research being done in different disciplines, and there are a lot of things coming out of environmental psychology. I'm not going to go through this in great detail, but the evidence is that we are likely to be more generous human beings in the presence of nature, that we are more likely to exhibit generous behaviour. This

is not a big surprise when you think about the basic premises of biophilia, that we are happiest and most comfortable in the presence of that nature.

This is an image of a sulphur-crested cockatoo. For a while we lived in Sydney, Australia. We moved into this flat, and on the first day a flock of cockatoos came to see how generous we were going to be. I don't know that we were, but it was a major part of the biophilia of that city.

A recent study coming out of economics showed that in experimental settings when you have nature present, people take a longer timeframe, they are less likely to discount the future. If we really want to think about long-term sustainability and long-term planning, nature will help us to do that. So it can be argued that we actually need nature around us to be better human beings.

Keith Tidball is an American who has been writing about this concept of urgent biophilia, that we need nature especially following trauma and major hurricanes and major disasters and huge stressful events, and this is another argument for the power of nature. These are images from Christchurch in New Zealand, and we've just finished a film about the rebuilding process from the two devastating earthquakes that hit that city. It's an interesting story of using nature to help in the recovery, the healing from that major event. There's an organisation there called Greening the Rubble that is about bringing nature – and some of the nature is in the form of trees – into those spaces where there were buildings before; the need to heal following that event. It's a remarkable story.

So, what is a biophilic city? It's an open question, something that we're still talking about and working on. It's definitely the presence of nature, of course. This is an image from Helsinki, Finland, and it's a fantastic story. Helsinki has an elaborate network of green spaces; and one notion of a biophilic city is that you have that nature all around you where you're living, that you are able to walk out the door of your flat or house, with nature all around you, and are then able to walk to increasingly larger networks of nature. That's what you can do in Helsinki; go from the compact centre of the city all the way out to old-growth forest at the edge of that city.

We've become better in our plans, and as urban planners at incorporating targets like minimum

forest canopy coverage – very common in the US – or minimum percentages of residents living within a certain distance of a park or green space. The European Union's Green Capital city programme now requires all applicants to indicate what percentage of population is within 300 metres of nature, green space or a park.

So, we're becoming better at incorporating the nature part of it. But for me, it's a bit more than that actually. It's not just the presence or absence of nature; it's the distribution of that nature. Is there a fair distribution of nature? It's also about an equitable exposure to environmental assets, to natural assets.

These are images from Los Angeles. The previous Mayor there had an initiative called the 50 Parks Initiative, which was intended to take small spaces and create new parks in East LA and places that had not had the same level of access to nature, as a matter of fairness and equity.

Biophilic cities are also cities that care about nature around the world, and that's important to say, that it's not just the local nature but the need for cities to understand and care about the impact of their consumption and their lifestyles and their decisions on nature that may exist hundreds or thousands of miles away. Just one thing to mention, the middle image, wood. The city of New York has now adopted a procurement policy that will shift their consumption of tropical hardwoods, eventually eliminating purchases entirely because of the impact that this has on an, albeit distant, ecosystem. So biophilic cities care about nature around the world.

It's not just the presence or absence of local nature, it's also how engaged citizens are in that nature. A biophilic city is a city that seeks to foster contact, connections, active connections with the nature around us. How much do people care about the nature around them? Are they able to identify common species of trees or birds or plants? How actively involved, engaged in that nature are citizens? Are they involved in birding, in a native plants club, in an urban restoration project? Some level of engagement, some level of knowledge about that local nature is essential. A large part of our project is about developing metrics to gauge these types of things, and we're still working on this. Here on this slide are some of the major categories or indicators or metrics of biophilic cities: the presence or absence

of nature. To be sure, there are the different kinds of nature, different types of nature experiences in a city. But there are also many other things as well, such as biophilic behaviour, patterns, practices, biophilic attitudes and knowledge.

Institutions and governance are also important. How important is that nature to the local city council, what percentage of that local budget goes to caring for, restoring and connecting residents to that nature? These are also very important questions (and metrics).

One of the major questions in our work has been much nature do we need, and is there something like a minimum daily requirement of nature? That's an interesting idea. We think the answer is 'yes', although we don't know exactly what this is (yet). We've been conceptualising it in terms of what we call the nature pyramid, loosely based on the food pyramid that has been used for a long time, at least in the US. The food pyramid is meant to guide dietary and food choices; things at the top of that pyramid are things that are good for you in small amounts. You don't want to build your diet around those things; the bulk of your diet should be at the base of that food pyramid, things like vegetables and fruits.

Well, we're imagining that there's a sort of a nature pyramid also. The things at the top of that pyramid, more immersive nature experiences, that holiday you might take during the summer months, you can't build your nature diet around those kinds of experiences, we can't afford for you to do that as a planet, the carbon footprint associated with everyone going off to some distant place. We've got to think about what's at the base of that nature pyramid. It's things like trees and urban forests, green rooftops, backyard gardens, bird song.

It's an interesting question if you carry this analogy through, as we've been trying to do, and you think about the urban nature diet, even things like the concept of a serving. What constitutes a serving of nature in the nature diet? Is one tree a serving, is touching a tree a serving, is it walking by that tree, seeing that tree, or rather is it three trees, is it an urban forest? Is it three trees, two green rooftops and a green wall? Is it three trees, a green rooftop and three birds flying by? What combination of things represents that minimum daily requirement of nature, that minimum healthy diet of nature? We don't know the answer to that question yet but I do think we will

have some answers and it is an important question for us to try to answer.

Inevitably, when I talk about the urban nature diet, I get the question “well, is this kind of like the Mediterranean diet?” Does the diet depend on your city, on your location? Are there different urban nature diets depending on the city and region you’re in? To a certain degree the answer is ‘yes’ – obviously what would make up your urban nature diet in a desert community like Phoenix, Arizona, would be different from what that diet would consist of in a city like Birmingham, for example.

Our partner city in Singapore liked this idea of our nature pyramid so much that they decided to develop their own version of it, including local flora and fauna, all the things that kind of made sense to them and local points of reference. I’m hoping that we can develop a Birmingham pyramid, that we’ll begin to talk about the Birmingham nature diet; that would be one of my aspirations; really what’s at the foundation of that pyramid.

We continue to have a number of challenges in thinking about how to reconnect to nature, especially in the US where we’ve seen this pretty discouraging disconnect with nature. For a number of years I was doing this sort of visual survey where I would show images to audiences and classes of students and I would ask them to tell me everything that they could about the images shown (birds, trees, flowers). I wasn’t looking for scientific names but some recognition of common species of things. Until recently nobody correctly got the one on the upper left, a silver spotted skipper, a very common species of butterfly in my part of the world, and it was remarkable to me how few respondents could identify or even recognise it. A number of respondents would tell me that it was a moth. It kind of looks like a moth; I can kind of understand that. A number of people over the years have told me it’s a monarch butterfly. I don’t know if you know what a monarch is but it doesn’t look anything like a monarch butterfly. Americans apparently only know one species of butterfly and the monarch butterfly is the one; and with 900 species of butterflies in North America, monarch is the one we all seem to know. I’ve had three or four people tell me it was a hummingbird, which was a bit surprising.

But we have no trouble at all recognising corporate logos. So it’s a bit bizarre, isn’t it, that we live in a

world where kids can recognise that corporate logo on a speeding car on the highway but they can’t recognise and name that very common species of tree or dragonfly or plant. We have a major human-nature disconnect that we have to try to overcome, and that’s part of the challenge of creating biophilic cities.

The next slide is meant to remind me to tell you that for me the biophilia in cities is multisensory. We’ve tended to privilege the visual, the ocular, and that’s important to us. But it’s a multisensory thing. Sound, for instance, is especially important. The image on the upper right actually is of a sound map, and we’ve been trying to start sound maps in different places. Sounds are very important for me in the summer months in my home state of Virginia – the crickets, the tree frogs, the katydids – the sounds of that natural music that lulls us, that soothes us, that is so important in fixing us to those places.

I don’t have time today but sometimes I play little snippets of sounds and ask audiences if they can try to identify them. One of sounds I often play, one of my very favourites – I’ll just give it away but I don’t have the sound to play for you anyway – is an eastern screech owl, an evening sound that I hear almost every evening; it’s this amazing sort of downward whinny, ooh-hoo-hoo-hoo, ooh-hoo-hoo-hoo. Many of the sounds around us we don’t recognise, yet they are a big part of the biophilic city as well.

I love this quote by Val Plumwood, an ecofeminist from Australia, who talks a lot about the need to reimagine sounds in cities, natural sounds, as voices. Part of this is about recognising that we’re coexisting in cities with many other forms of life and recognising those sounds as voices of actual creatures.

Okay. So I’m running out of time now and I will very quickly tell you about what some of the other partner cities are doing, some really remarkable stories. This is Vitoria-Gasteiz, the capital of the Basque country, and they’re famous for their amazing green ring that circles this very dense compact city. They are now working towards what they’re calling an interior green ring that is bringing that nature into the centre of the city. One of the first projects is daylighting a river that is in a pipe underground, bringing it back to the surface and bringing that nature into the centre of that city.

Oslo we’ve been studying as well. Two thirds of the city is in protected forest, and the forest is special to

society. The latest chapter in this story is a new green plan that aspires to restore the eight major rivers that connect the forest to the fjord, bringing those water bodies back to the surface. Oslo also has probably one of the best urban trail networks of any city. This is one piece of it on the left, and it's actually hard to see it but it is just a few hundred metres from the urban core of Oslo, so it's very easy to get out into nature very quickly.

San Francisco is another of our partner cities, and they have become great experimenters in converting small leftover spaces into parks. This is one programme, Street Parks, where the Public Utilities Department is offering to neighbourhoods the median strips between roads and allowing them to be converted to gardens. This is one of them, La Playa Park; amazing, just a couple of hundred metres long and it's become a remarkable green space and community gathering spot.

You may have heard about parklets. San Francisco has been pioneering this idea, allowing two to three on-street car parking spaces to be converted into small parks. This is an image of the first residential parklet, and this is Jane Martin who's been a big supporter of our project. She designed this first residential parklet, which even includes a vegetative dinosaur affectionately called Trixie, connecting to the deeper geologic history of this place.

Greening alleys is a strategy in many cities, an example of re-using leftover spaces, interstitial spaces in the city where trees can be planted and greenery inserted. They've incorporated this idea of a living alley into area plans in San Francisco. The image on the left is the first of these alleys that they've created, including tree planting. A number of cities are doing similar things. Montreal has for many years had a fantastic green alleys programme, taking alleys behind homes that used to be needed for the delivery of coal and actually blocking them from car access, making them car free, converting them into community spaces and fostering, facilitating the planting of green things in those spaces.

Portland, Oregon is another of our partner cities, and this is our partner, Linda Dobson, who runs the sustainable storm water programme there. She's standing in the interior courtyard of an apartment building where all the water that falls on that building is collected and treated on site and is moved around

through a series of runnels and water art features. We're told that when it rains, in this building the residents come out to listen to the rain; isn't that lovely? Portland has been pioneering the idea of green streets, actually taking portions of roadways and sidewalks and converting them to bio-swales and rain gardens.

Milwaukee is another of our American partner cities; fantastic stories there, especially around river conservation. They've just opened their third neighbourhood-based urban ecology centre, which is quite a remarkable story of finding ways to connect urban neighbourhoods to the ecology around them, and rivers in particular.

Singapore I've mentioned has been a partner city for us from the very beginning – and I'm seeing the red light so I need to stop soon. I'll give the two- or three-minute close, and Singapore is a good place to stop in many ways. They have pioneered the idea of incorporating nature in the vertical realm. If we're going to talk about people living in high-rise buildings – and most of the residents in Singapore are living in a very vertical environment – how do we do that? Singapore has even created a sky-rise greenery division within NParks, the national parks board, and is doing remarkable things to connect people living in those vertical towers with the nature around them. They have something called park connectors and are aspiring to have 300 kilometres of these pathways, much of it in the form of elevated walkways, at tree-canopy level, which provides spectacular views of the city and unusual perspectives on nature.

Singapore has added a million-and-something to their population in the last 15 years yet at the same time green cover has actually gone up. A lot of it has to do with trees, and here is a fantastic story. They started back in the 1970s an annual tree planting day, and of course had a Prime Minister who was committed to planting trees and nature. They have a comprehensive landscape plan that aspires to have multiple tree layers and levels that connect and that shade and that provide immense habitat. They're also re-planting a lot of their original native trees, big trees, and trying to bring that back.

But probably most impressive here is this idea of vertical greening. They have adopted a landscape replacement policy, such that whenever a new building is constructed the building has to incorporate

at least the square footage of the site of the building in the form of vertical greening – green walls, green rooftops, sky gardens. The building on the left, the Park Royal Hotel, has actually provided 215% of the site area in the form of new vertical green elements. Increasingly, we're seeing trees incorporated into those vertical designs.

Okay. I need to stop. I'm going to go to my last slide. Here is where the photo essay begins, so just absorb the imagery. I haven't had a chance to tell you about some of these projects, but we do have this film, the biophilic cities film about Singapore, which talks about this hospital that has 140 fruit trees on the roof. And I didn't get to tell you about Wellington, New Zealand, which is another partner city. Wellington is incorporating and re-growing nature in many ways; they have a two million tree planting goal. They've done a lot to get about halfway to that goal; they're incorporating all kinds of biophilic designs, shapes and forms into virtually everything they design and build, from bollards on streets that are in the shape of fern fronds to trash cans that have the images of trees designed into them.

The latest story is thinking about nature beyond the shoreline's edge. In Wellington there is the important idea of moving from green belts, which Wellington has actually pioneered, to blue belts and thinking about the amazing remarkable nature that exists in the marine realm, and figuring out how to connect residents to the nature there.

This is one of the last slides, and shows the cover of my newest book. It describes this concept that we're calling blue urbanism, which is a kind of special flavour of biophilic cities; those cities perched on the edge of marine environments.

This is actually my very last slide, just to encourage you to take a look at the Biophilic Cities Project. Please go to the web page, add your email address, and we will start to communicate with you. We would love to hear from you, especially if you have an interest in your city becoming a part of the Biophilic Cities Network. We're just very excited about the promise, the potential, the ways in which this idea seems to resonate so strongly as a positive future vision for cities. I'll stop there. Thank you very much.