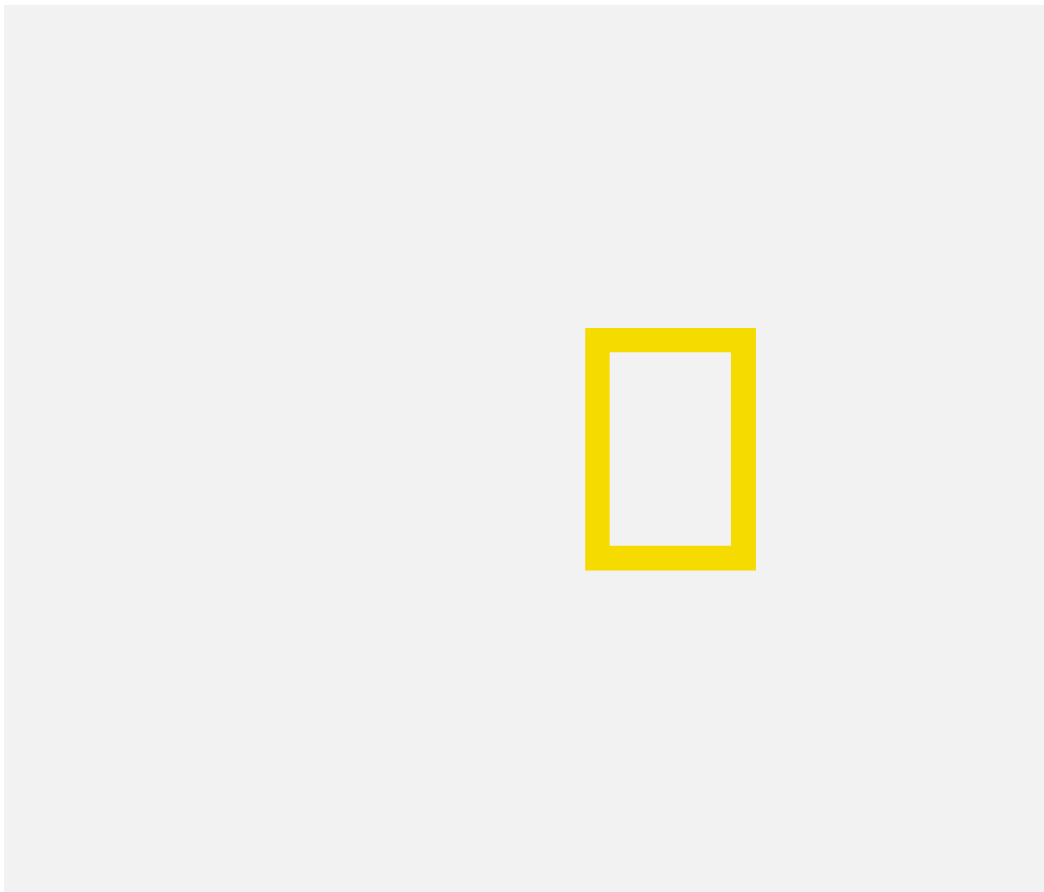




<http://news.nationalgeographic.com/2017/02/nature-fix-brain->

## We Are Wired To Be Outside

Science is demonstrating what we intuitively know: Nature makes us happy.

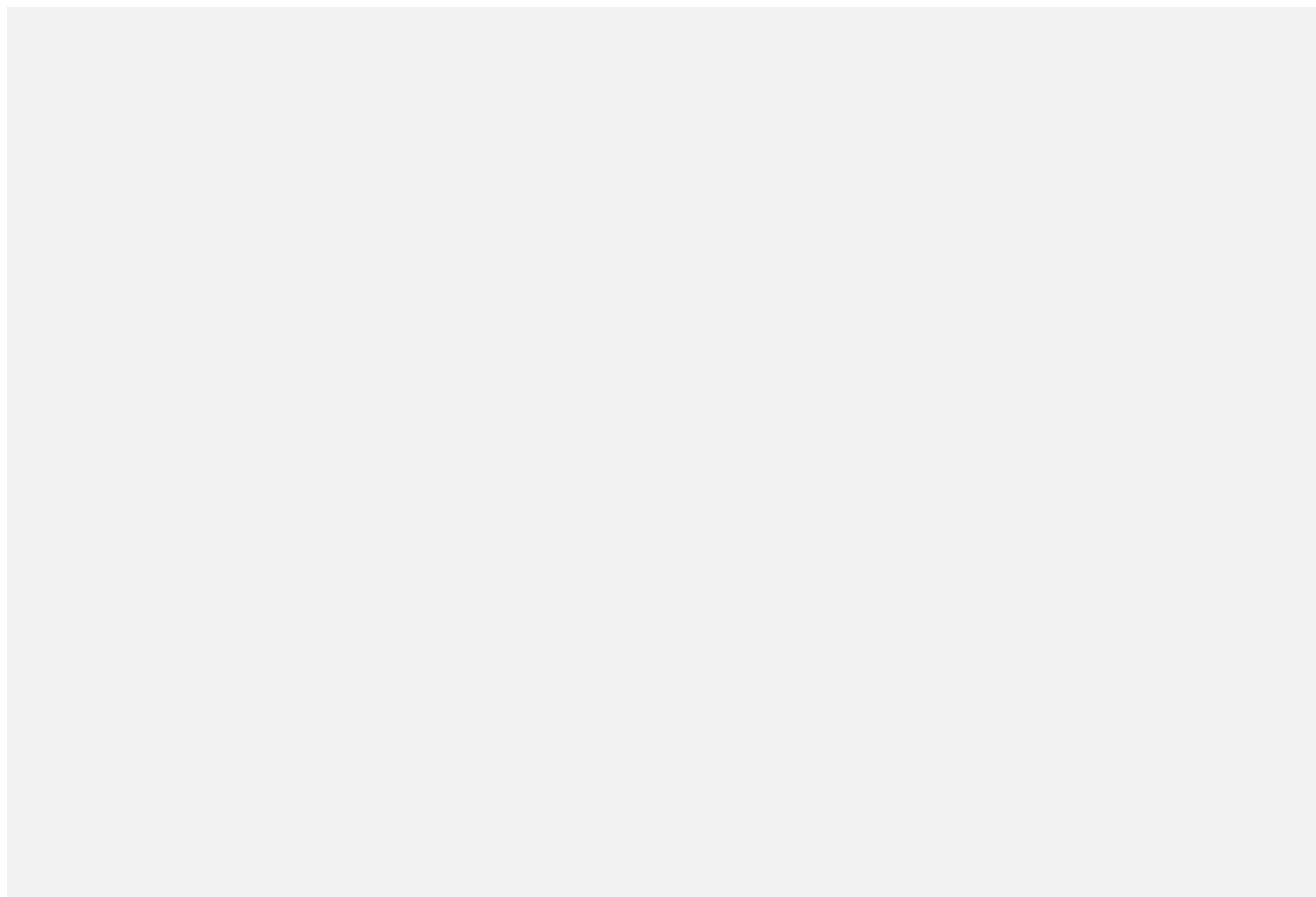


A young man dives into McDonald Creek at Glacier National Park in Montana. "The frontal lobe, the part of our brain that's hyper-engaged in modern life, is a little less active when you are outside," says author Florence Williams.

PHOTOGRAPH BY COREY ARNOLD, NATIONAL GEOGRAPHIC

When we first see Elizabeth Bennett, in the 2005 film of *Pride and Prejudice*, she is walking through a field, surrounded by birdsong and trees. Nature, for Jane Austen's heroines, is always a source of solace and inspiration. And as Florence Williams shows in her new book, *The Nature Fix: Why Nature Makes Us Happier, Healthier, and More Creative*, modern technology is now revealing what goes on in our brains when we step outdoors—and why nature is so good for us. [Read Williams's National Geographic story "This Is Your Brain on Nature."] ]

When National Geographic caught up with Williams by phone in Washington, D.C., she explained why even a house plant can make us feel good, why the practice of “forest bathing” is now supported by the Japanese government, and how trees can lower the murder rate in our cities.





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**You open your book with a simple question: “What makes people happy? Does place matter, or not so much?” Tell us about the Mappiness project—and what you call “our epidemic dislocation from the outdoors.”**

The Mappiness project was developed in the U.K. by a happiness researcher called George MacKerron. It’s a brilliant idea, which tries to capture in real time what people are doing and how it makes them feel. I downloaded this app onto my phone and used it for about a year. The way it works is, it pings you at random times a couple of times a day and gives you a

list of options. Are you driving, doing childcare, cooking, hanging out with friends? Are you outside or inside and how are you feeling? Like, “I feel happy, not so happy.”

At the end of the year I got my data, which showed how I was spending my time and which activities made me feel a certain way. I try to spend a lot of time outside, make an effort to exercise. But I was shocked at how few times the app caught me doing those things; and how often it caught me doing things that didn't give me a lot of satisfaction. Things like commuting or doing chores.

One of the things I found out was that most people are not that happy when they are at work. They're happiest when they are on vacations, with friends, making or listening to music. One of the surprising finds was that they're also very, very happy when they are outside.

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The epidemic dislocation from the outdoors, as I call it, has been occurring for the last several decades but has gone very little remarked upon. Children, adults, we are all spending vastly less amounts of time outside than we used to. For example, 70 percent of today's mothers in the U.S. recalled playing outdoors every day as children but only 26 percent of them say their kids play outside daily. That's a huge change. After school, kids used to come home, meet up with their friends, and go run around the neighborhood. I

used to do that. Now kids are totally scheduled. If they are outside, it's with adults in some organized sporting activity. There's not that free, exploratory play that a lot of experts think children need in order to gain a strong sense of themselves and learn social skills and problem solving.

**You write, “Science is now bearing out what the Romantic poets knew to be true.” Tell us what the latest neuroscience is telling us about the therapeutic effects of nature.**

The Romantic poets emerged during the dawn of industrialization. They saw tremendous benefits to being in places that weren't crowded or dirty, that were more pastoral, like the Alps. The alpine tour took off in the late 18<sup>th</sup> century to early 19<sup>th</sup> century. What was unique about it was that it wasn't about finding peace in God or finding religion. It was about this more immediate connection to nature and how that spurred our spiritual imaginations, how being in more rural, natural environments made us whole as people. You see it in writers like Wordsworth, Coleridge, or Rousseau but also in novelists, like Jane Austen, whose heroines always go marching out when they're upset or need to work something out.

Today, technology is allowing neuroscientists to take some of their measurement devices into the field, like these portable EEG units that are capable of measuring brain waves, away from the lab. Neuroscientists, especially in the U.K. and U.S., are starting to look at how people's brains respond to different environments. What they're seeing is that if their volunteers are walking through a city or noisy area, their brains are doing different things than if they are walking in a park. The frontal lobe, the part of our brain that's hyper-engaged in modern life, deactivates a little when you are outside. Alpha waves, which indicate a calm but alert state, grow stronger. When psychologists talk about flow there seems to be a lot of alpha engagement there. Buddhist monks, meditators, are also great at engaging

alpha waves.



Frederick Law Olmsted designed Central Park in New York City to provide access to nature for all the city's residents.

PHOTOGRAPH BY SIMON ROBERTS, NATIONAL GEOGRAPHIC CREATIVE

**A study in Illinois even showed that proximity to nature can lower the murder rate. Do we just need to plant trees and we can dispense with cops?**

[Laughs] In Illinois, Frances Kuo looked at housing projects with a lot of trees versus those without trees, and she found a lower crime rate and lower rates of aggression. She thought that exposure to nature was an indirect but still significant effect. It wasn't necessarily because the trees

were causing people to be less violent. It was that living in a place with trees created an environment where neighbors spent more time outside, hanging out in their courtyards, talking to each other. These social connections were facilitated by green space. It's a very interesting and under-recognized aspect of green space.

**One of the pioneers of urban parks was Frederick Law Olmsted. He's one of your heroes, isn't it?**

He is! He was kind of like Zelig; he kept showing up in significant parts of American history. He was a journalist for a while and spent time in the pre-Civil War South documenting slavery. He made some very cogent arguments against it, and was one of the first people to do that for a major newspaper. As a restless child, he didn't like school but he loved trees and tramping through the countryside. Later, while spending time in California working as a mining engineer, he saw Yosemite and made some of the first, most cogent arguments about why Yosemite should be protected.

Then, of course, he designed Central Park, one of the most famous parks in the world, and went on to design city parks all over the U.S.. What he did that was different and significant was that he recognized that people needed nature in order to get along with one another, in order to be their best selves, that it was a place where people could let off steam, especially the working classes, who normally didn't have access to green spaces. Beautiful parks were the preserve of the gentry and Olmsted recognized that there was a class injustice with regard to access to beautiful spaces. He had a social mission to create parks that could be used by all people, which is a fundamentally democratic idea. He distributed flyers to doctors' offices in poor neighborhoods all over New York City telling doctors: Please tell your patients to go to Central Park because it will help them feel better! [Laughs] He was way ahead of his time!



Bukhansan National Park is within sight of Seoul, South Korea, a quick trip for hikers seeking an escape from hectic urban life.

PHOTOGRAPH BY LUCAS FOGLIA, NATIONAL GEOGRAPHIC CREATIVE

**In Japan, people do something called shinrin yoku, or “forest bathing.” Tell us about Yoshifumi Miyazaki and the health benefits of this practice.**

[Laughs] It’s not exactly a bath. Forest bathing refers to being in an environment where all your senses are engaged. Something researchers in Japan recognized about urban life is that when we are indoors we rely mostly on our eyes and ears, but our other senses are underutilized. They think this is partly related to why outdoor environments make our stress levels go down. We can hear the sound of a creek gurgling, feel the wind blowing on our cheeks or smell the aroma of the woods, especially in Japan where there



are lots of wondrous cypress trees.

Our sensory system evolved in the natural world and when we're in those spaces, our brains become relaxed because these are things that we were *designed* to look at, hear and to smell. Miyazaki is one of the researchers who are trying to quantify this kind of mystical experience by measuring people's heart rates, blood pressure, and cortisol levels. They have made some amazing discoveries. For instance, our immune cells, or "natural killer cells," which fight cancer, increase in forests. As a result, Japan now has 48 therapy trails. The forest service is taking this seriously, as a public health benefit. They're medicalizing the forest!

**Soldiers who served in Iraq and Afghanistan sometimes suffer from severe PTSD. Tell us about the river-rafting trip you did with a program called Higher Ground.**

It's one of the neatest things I've ever done. I was invited on an all-women's rafting trip for six days down the Salmon River, in the middle of the largest wilderness area in the lower 48, continental U.S. The participants were all veterans from various U.S. wars; some were older, some younger women, some had been in combat inadvertently because they had been driving convoys on roads that were filled with bombs. Some had experienced what we call "military sexual trauma," or MST, which unfortunately is very common.

They suffered from a range of physical and also severe psychological wounds. Some hadn't left their homes in months or suffered from tremendous anxiety and depression, yet they were brave, tough women who had been in the armed services. Here was an opportunity for them to be together and experience nature. At the beginning, they were very withdrawn and angry. So I could watch them come out of their shells as the days went by. They told me they were sleeping better than they had slept in months,

laughing with each other and gaining renewed confidence in their physical abilities because they were paddling these inflatable kayaks, doing things independently, which they hadn't done in a long time. They were also in an environment that was calm and visually interesting. So they were able to bond with each other, socially, which is something the wilderness provides. It was potentially life-altering experience for them. And it was great for me, too.



In Singapore, new skyscrapers must incorporate greenery and Gardens by the Bay (above) is a major attraction.

PHOTOGRAPH BY LUCAS FOGLIA, NATIONAL GEOGRAPHIC CREATIVE

**Tell us about “the nature pyramid” and other practical**

## **strategies you can pass on to our readers to use to get a bit more nature into our lives?**

The nature pyramid is the idea that nature is something we have every day. One of the things we're recognizing is that, like other medicines, nature follows a dose curve. A little bit of nature is helpful; a little more nature is even more helpful. If we think about how to access a little bit of nature in our daily lives, that's a great start: house plants, going for walks on streets with trees and, as you move further up the pyramid, making an effort maybe once a month to go to a nature preserve or park outside the city. We are so fortunate in America. We have these incredible wilderness spaces and national parks, and science is showing that when we spend time in those spaces, it can be tremendously helpful for our sense of self, for problem solving, social bonding, and rites of passage.

In Finland, public health officials now recommend that citizens get 5 hours a month, minimum, in the woods, in order to stave off depression. This is evidence-based. They found that people need this time in order to preserve their mental health. A lot of Asian countries have also figured out that nature should be a fundamental part of democracy; that it's a human right and a necessity. They try to incorporate nature into the fabric of everyday urban life. Nature isn't something apart from city life. Nature is a part of it. In Singapore, they have the City In A Garden concept. You can't build a skyscraper now without incorporating greenery on to the building itself! People have gardens on the roofs or on walls. Public housing projects have beautiful courtyards. I found that very impressive!

*This interview was edited for length and clarity.*

*Simon Worrall curates Book Talk. Follow him on Twitter or at simonworrallauthor.com.*

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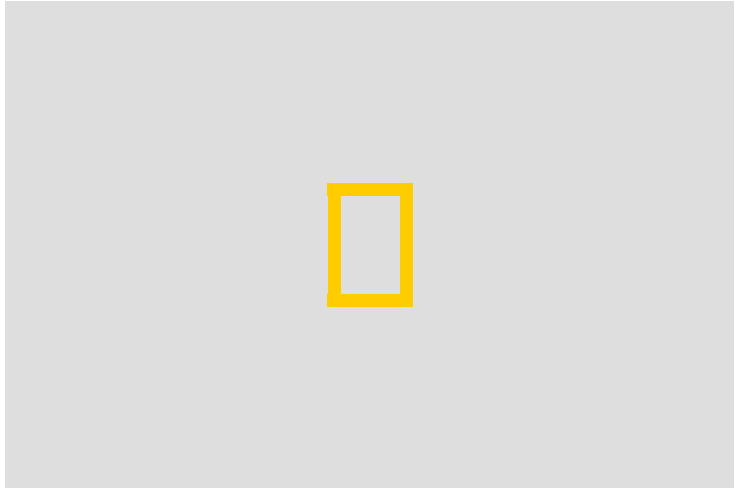
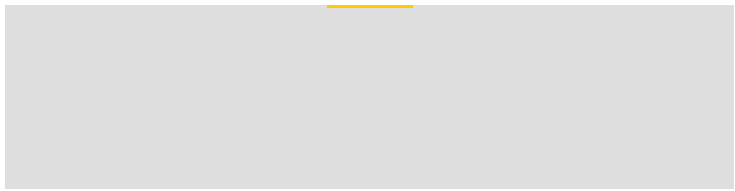
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