

THE EARTH INSTITUTE  
COLUMBIA UNIVERSITY



# THE SCIENCE OF WHY NATURE AND PARKS ARE GOOD FOR US

**Earth Day is a time to celebrate the natural world.** Not only does nature have intrinsic value, but it also does a lot of work that can make our lives easier. Plus, as beings that evolved in wild environments, we are just hard-wired to enjoy it — the sights, sounds, and smells of nature can improve our mood and benefit our mental and physical health. Read through the illustration to learn more. And as you celebrate Earth Day, consider taking a few moments to enjoy nature in one way or another — by visiting your local park, spending some time in the garden, repotting an indoor plant, or even just listening to nature sounds to relax.



**NATURE AND HEALTH**



**ECOSYSTEM SERVICES**



**NATURE AESTHETICS**

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# NATURE AND HEALTH

Parks and natural areas can be a great place to go for a walk, run, or spin. In addition to providing fitness benefits, green spaces can help your health in a variety of other ways.



## Body Build

Exposure to sunlight can help your body make Vitamin D, which is essential for building strong bones, fighting disease, and reducing depression. Plus, exposure to sunlight earlier in the day may **help you sleep better** later by helping to regulate your circadian rhythm.



## Brain Boost

Being around nature can reduce mental fatigue, **restore your attention**, and improve productivity. It might even improve academic performance.

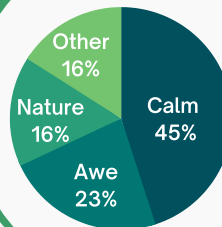


## Chill Out

Want to de-stress? Studies suggest that getting outside can **lower your blood pressure and cortisol levels**.



## OUR STUDY



Nature's soothing effects aren't limited to summer time; when Earth Institute researchers **surveyed winter park** users in Manhattan, 45% said they associated the park with calmness.

[Read the full story](#) →



## OUR STUDY



In East Harlem, community gardens **play an essential role** in participants' social lives. Many reported knowing their neighbors better because of the garden.

[Read the full story](#) →



## Cheer Up

When you're feeling low, a stroll through a park or even just being around indoor plants can **reduce anxiety and anger**, and **improve mood and self-esteem**.



## Connect

Greenery gives people more chances to interact and cultivate stronger ties to their communities. It might even reduce aggression and crime rates.





# ECOSYSTEM SERVICES

Natural areas support more diverse ecosystems than developed areas. That's not only important for the plants and animals that live in these places, but also for the humans who depend on those plants and animals — even when we may not realize that we do.

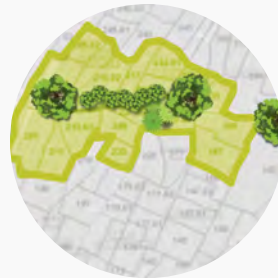


## Cleaner Air

Urban life can be quite dirty, but trees, parks, community gardens, and other green infrastructure can help to clean up smog and particulate pollution that comes from cars and furnaces. Compared to paved areas, parks and green spaces also lower temperatures, helping to reduce the urban heat island effect.



### OUR RESEARCH



A study from Columbia University's Mailman School of Public Health found that capping a 2.4-mile section of the Cross-Bronx Expressway with a park would increase local property values and life expectancy, thanks to the cleaner air and reduced traffic accidents.

[Read the full story](#) →



## Cleaner Water

During heavy rainstorms, urban runoff can clog sewers and carry pollution into local waterways. Green infrastructure such as parks and tree pits can help to absorb and clean up some of this water as it filters through roots and soil.

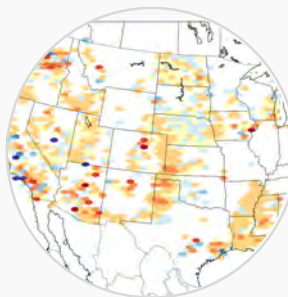
Sustainable development and environmental science student Annie Block investigating how well certain types of green infrastructure filter water. [Read more](#)





## Groundwater Refill

By absorbing rainwater, areas covered with trees and other vegetation can help water to percolate deep into the ground, instead of running off into rivers or sewers. This process helps to recharge the aquifers that many of us rely on for drinking water.



### OUR RESEARCH

The Columbia Water Center has revealed that groundwater levels are dropping across a much wider swath of the United States than commonly thought.

[Read the full story](#) →

## Food and Medicine

The natural world helps humans. Approximately **75%** of the world's food crops are pollinated by insects and other animals, and many **modern medicines**, like aspirin, caffeine and morphine, are modeled after chemical compositions found in plants.



In a new book, environmental geographer Ruth DeFries argues that we can adapt to an unpredictable world by adopting strategies from nature. [Learn more.](#)



## Potential Discoveries

Scientists estimate that **86-91 percent** of the species on Earth have not yet been identified. Imagine the benefits humans might miss out on if they go extinct.

As director of science at the Earth Institute Center for Environmental Sustainability, Shahid Naeem works with others to study the environmental consequences of declining biodiversity. [Learn more](#)





# NATURE AESTHETICS

What is it about nature that our brains and bodies find so appealing and relaxing? Scientists can't say for sure, but it probably comes down to a variety of factors.



## OUR STUDY



Ecologist **Natalie Boelman** at the Lamont-Doherty Earth Observatory uses acoustic recordings to better understand how climate change is impacting songbirds that migrate to the Arctic.



Listen to an example of one of her team's recordings [here](#).



## Sunny Disposition

Exposure to sunlight can increase serotonin levels in the brain, giving you a mood boost.



*Shello Sunshine*

## Sound Minds



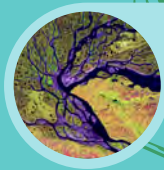
Listening to nature sounds, as compared to urban sounds, may enhance your working memory performance.

The **National Parks Service** records the soundscapes of wild areas around the country. Many of the recordings are available on SoundCloud.



## The Fractal Factors

Nature contains lots of fractals — patterns that repeat at different scales — that can be found in tree branches, river deltas, pinecones, and even vegetables, such as romanesco broccoli. Human brains tend to find these patterns aesthetically pleasing.



## OUR STUDY

Check out some of the beautiful photos our researchers have captured during their field work.

[Read the full story](#) →



Cape Range National Park, Western Australia



The Greenland Ice Sheet



Ningaloo Reef in Western Australia



Lastarria Volcano, Chile



Nairobi National Park, Kenya