

Want to improve your health? Head to a national park, and absorb the sounds

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Visitors climb Angel's Landing in Zion National Park. Credit: Rachel Buxton, Carleton University

Wolves howling, birds singing, rain falling—natural sounds inspire us and connect us to nature. New research by a team of scientists shows that

natural sounds are also good for our health.

Researchers from Carleton University, Michigan State University, Colorado State University and the National Park Service analyzed studies on the outcomes of listening to [natural sounds](#) and found striking [human health](#) benefits.

The team found people experienced decreased pain, lower stress, improved mood and enhanced cognitive performance. The sounds of water were most effective at improving positive emotions and [health outcomes](#), while bird sounds combat stress and annoyance.

The study, "A synthesis of health benefits of natural sounds and their distribution in national parks," is published in *Proceedings of the National Academy of Sciences*.

The team scrutinized [sound recordings](#) from 251 sites in 66 [national parks](#) across the United States as part of the study. Dozens of students at Colorado State University identified different types of sounds in recordings, the result of over a decade of collaboration between CSU and the National Park Service.

"In so many ways the COVID-19 pandemic has emphasized the importance of nature for human health" said Rachel Buxton, one of the lead authors and post-doctoral researcher in Carleton's Department of Biology. "As traffic has declined during quarantine, many people have connected with soundscapes in a whole new way—noticing the relaxing sounds of birds singing just outside their window. How remarkable that these sounds are also good for our health."

Amber Pearson, one of the lead authors and associate professor at Michigan State University, said the findings highlight that, in contrast to the harmful health effects of noise, natural sounds may actually bolster

mental health. "Most of the existing evidence we found is from lab or hospital settings," she said. "There is a clear need for more research on natural sounds in our everyday lives and how these soundscapes affect health."



Visitors gather around delicate arch in Arches National Park. Credit: Rachel Buxton, Carleton University

National parks have some of the most pristine soundscapes in the United States, and the [National Park Service](#) increasingly recognizes natural sounds in policy. Although the research team found that health-bolstering sites in parks, those with abundant natural sounds and little interference from noise, do exist, parks that are more heavily visited are

more likely to be inundated with noise. That means that many [park visitors](#) are not reaping the health benefits found in more quiet spaces.

"Park sites near urban areas with higher levels of visitation represent important targets for soundscape conservation to bolster health for visitors" said Kurt Fristrup, a coauthor on the study and bioacoustical scientist at the National Park Service. "Nature-based health interventions are increasingly common in parks and incorporating explicit consideration of the acoustic environment is an opportunity to enhance health outcomes for people."

Many innovative programs exist to increase people's appreciation of acoustic environments, from soundwalks and excursions where the main purpose is listening, to quiet zones, where soundscapes are enhanced by asking visitors to appreciate a [park](#) quietly. Paired with noise management, these methods allow visitors more exposure to natural sounds and their health benefits.

"Our results contribute to the growing conversation about the conservation and accessibility of parks and other outdoors environments" said Claudia Allou, a coauthor on the study and recent graduate of Michigan State University.

George Wittemyer, a coauthor on the study and professor at CSU said the research highlights an under-recognized benefit nature and its conservation bestow upon the public.

"The positive health impacts and stress reduction benefits of nature are more salient than ever to help offset the concerning increase in anxiety and mental health issues," he said.

Wittemyer and Fristrup are among the leaders of CSU's Sound and Light Ecology Team, which works to better understand the effects of noise and

light pollution on ecological processes and organisms.

Buxton suggests people close their eyes, and be mindful of the sounds they hear when visiting a favorite park. "These sounds are beautiful and good for our health—they deserve our protection," she added.

More information: Rachel T. Buxton et al., "A synthesis of health benefits of natural sounds and their distribution in national parks," *PNAS* (2021). www.pnas.org/cgi/doi/10.1073/pnas.2013097118

Provided by Colorado State University

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