

# Study shows less snowpack will harm ecosystem

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(Phys.org) —A new study by CAS Professor of Biology Pamela Templer shows that milder winters can have a negative impact both on trees and on the water quality of nearby aquatic ecosystems, far into the warm growing season.

In a paper in the journal *Global Change Biology*, Templer and her co-authors show that soil freezing due to diminishing snowpack damages the roots of sugar maple trees and limits their ability to absorb essential nitrogen and other nutrients in the spring. This leads to greater runoff of nitrogen into ground water and nearby streams, which could deteriorate [water quality](#) and trigger widespread harmful consequences to humans and the environment.

"Most people think that climate change means hot, sweltering summer months, but it affects the winter as well," said Templer, currently on fellowship at Harvard University, noting that [winter snowpack](#) has been shrinking over the past 50 years due to climate change and is likely to continue diminishing over time.

Templer and her colleagues discovered that a thick layer of snow acts as an insulating blanket. When snowpack was shoveled off sections of New Hampshire's Hubbard Brook Experimental Forest to simulate the effects of a warm winter, the soil was much colder—as much as 10 degrees less—than when it was when covered with deep snow. This means the ground could be frozen solid longer into the spring.

Templer is following up her [winter](#) research with a new National Science Foundation funded project that uses warming cables in the ground to determine the combined effects of [warmer winters](#) and summer on the trees.

Provided by Boston University

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