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The power of fungi

(Flagstaff, Ariz.) Suggesting that mushrooms and other fungi don't get the respect they deserve, a Northern Arizona University liberal studies major hopes to change that this summer with experiments involving the restoration of forest roads.

As Joe Trudeau, 24, explains, fungus plays an important role in the forest ecosystem. Mycorrhizal fungi consists of microscopic organisms that grow on the roots of plants and help them absorb more nutrients; saprophytic fungi, like the mushrooms you find in the woods, are critical decomposers of wood, which put nutrients such as stored carbon dioxide back into the soil.

"Almost every plant on earth forms a symbiotic relationship with fungi," he said. "Spores are found in healthy soil, but soil that's been compacted, such as soil in forest roads, can lose its structure including its mycorrhizal and saprophytic fungi."

Often land management agencies will work to restore degraded forest areas with seeds from native grasses and wildflowers. Sometimes plants will grow from these seeds and sometimes they won't. "The difference can be that fungi spores are not present in the soil," said Trudeau.

As a research assistant for the Ecological Restoration Institute at NAU, Trudeau plans to conduct experiments on about 350 feet of a forest road in the NAU Centennial Forest, a few miles west of The Arboretum at Flagstaff. He plans to first spread wood chips over the road – wood chips created from the removal of small trees in overcrowded sections of the forest – then spray a mixture of seeds from native grasses and wildflowers and spores from both kinds of fungi.

"This hasn't been done around here before, and I believe what we'll see is greater success in restoring the road," he said.

Trudeau will be revisiting the road to monitor his project for the next five years.

The forest road was built in June 2003 as part of a tree thinning project designed to improve forest health. As Trudeau explains, roads are a necessary evil of sorts when it comes to forest health.

"You have to build roads to get the equipment in there to thin the overcrowded forest but even the impact from a temporary road can hurt the soil, and we don't want to hurt the ecosystem while we're trying to help it."

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